

THE GETTY CENTER LIBRARY



1870  
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 KEY TO THE CONVENTION GROUP. Issue of July 26th.

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## Contents.

## EX CATHEDRA.

**"Colour Photography."** We have pleasure in announcing that, commencing with the present issue, we shall issue a monthly supplement to the **BRITISH JOURNAL** devoted exclusively to colour photography. This step has not been taken without careful consideration on our part. The growing importance of the subject will inevitably call before very long for a larger allocation of space than we can grant in the pages of the **JOURNAL**, and even in the present state of colour photography literature it is very desirable to have a publication to which reference can be made. In the first "supplement," which will be appended as a regular feature to the first issue of the **JOURNAL** for each month, several branches of colour photography are represented, and we commence also to pull up arrears by initiating a synopsis of the British patents dealing with photographic reproduction in colours. In other respects it is our intention to devote the Supplement to the aspects of colour photography for which the pages of the **JOURNAL** are not at all times at disposal.

\* \* \*

**The Assistants.** The letter from Mr. V. Doust on another page does credit to the energy and disinterestedness of that gentleman, while it also shows him to be endowed with a degree of optimism which is, perhaps, not shared by others who have worked on behalf of the employed classes in photography. The response to Mr. Doust's letters in the **JOURNAL** and to whatever private communications he has addressed has been ninety-three "members" of the unborn society and seventy-two enquiries. Considering that membership at present means nothing at all, we may put "members" and enquirers together at a total of a round one hundred and seventy—by no means a large representation of the thousands of assistants in the country; but nevertheless a distinct expression, which possibly will merit consideration by the Professional Photographers' Association. Since we hold very strongly that in any business the interests of employers and employed are identical, and that both increase in the same ratio, we hope that it may be feasible to draft a scheme under which assistants may become more nearly related to the Professional Photographers' Association. We would advise all our friends not to be over-sanguine, for such propagandist work in the past has proved of the most discouraging description. Certain of the suggestions of Mr. Doust's correspondents—we will not particularise—may be dismissed at once. Yet we believe we discern beneath these inept propositions the signs of a desire towards raising the photographic profession as a whole. We hope the desire may be sufficiently widespread.

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## SUMMARY.

We much regret to announce the deaths of:—  
Mr. Thomas R. Dallmeyer. (P. 10.)  
Mr. J. T. Sandell. (P. 11.)  
Mr. George Bishop. (P. 11.)

Instructions for working the chromium intensifier are given by Mr. Welborne Piper, who, with Mr. D. J. Carnegie, originated the process. (P. 3.)

M. Demachy, in a criticism of English pictorial photography, thinks it is too "photographic." "Photographic characteristics," says M. Demachy, "are anti-artistic." (P. 2.)

Dr. John Bartlett has published in the "Camera" a uranium sensitiser sufficiently rapid for gaslight printing. (P. 7.)

Herr E. Valenta has given the formula for an extra-rapid emulsion for P.O.P. (P. 4.)

A fine example of photography applied to advertisement literature has been supplied by the proprietors of "McClure's Magazine." (P. 45.)

A distinctly humorous patent (P. 12) is the only patent news of the week.

The Royal Photographic Society announces an exhibition by members of the societies affiliated to it. (P. 15.)

## "COLOUR PHOTOGRAPHY" SUPPLEMENT.

M. Ducos du Hauron, the veteran inventor of colour processes, announces a new departure in direct colour photography. (P. 1.)

Points of importance in preparing colour filters are the subject of an article by Mr. E. J. Wall. (P. 4.)

Mr. E. Grills contributes a series of hints on the practical working of pinatype. (P. 2.)

A chronology of colour patents commences on Page 6.

An emulsion for the Lippmann process. (P. 3.)



### The Temperature of Developing Solutions.

During the present spell of cold weather trouble is likely to arise with the developing and other solutions employed in dark-rooms and the other work-rooms about the photographic business. A day or two ago we were in the developing-room of a photographer, who was handling some large batches of plates, employing a two-solution metol-hydroquinone developer. No sooner was the developer applied to the plates than they were seen to be covered with a whitish-grey sludge. Development continued slowly, but about fifteen minutes was required to gain sufficient density. Not only did the cold solution allow some of the constituents of the developer to crystallise out, but the hydroquinone was practically inert. For the second batch of plates the dish was thoroughly warmed with hot water. The measure was also warmed, and instead of taking equal parts of the metol and hydroquinone solutions, equal parts of metol, hydroquinone and warm water were taken, the developer thus being actually weaker. Ample density was now obtained, however, in about seven minutes. By far the safest way of dealing with the cold-weather difficulties is to raise the temperature of the dark-room itself, for then not only the plates and developer, but the photographer also, benefits by the more normal degree of warmth. Good results cannot be obtained if the fingers, and more particularly the feet, are cold.

\* \* \*

### The Question of Returned Proofs.

We published last week an extract from an American contemporary on the ever-recurring question of proofs. It is, we believe, the custom in many British studios to send out untuned P.O.P. prints from the retouched negatives, and this method seems a fairly satisfactory one, being both inexpensive and expeditious, while the result is not displeasing. We have, however, quite recently met with cases where such untuned prints have been sent to some other photographer or photographic chemist to be "made permanent," and quite evidently the proofs in question have not been charged for by the photographer. We know that in many cases the rule that "all proofs must be paid for" is a bone of contention, and as the less chances of friction exist the more smoothly will the business side of the establishment run, it seems advantageous to take steps to ensure untuned prints being of no use to the client who retains them. It has been suggested—jocularly, no doubt—that such proofs might be stamped with a rubber stamp, "not paid for." We think the best course, however, is to use a perforating stamp similar to that used for perforating the amount of a cheque across it, and the lettering might read, "unfinished proof." If this were punched, not across the face, but quite near to it, it would effectually prevent the proof being used even if it were toned. Why should not one of the trade houses supply such a perforating stamp?

\* \* \*

### Postcard Possibilities in Landscapes.

Despite the well-filled shop windows, in the domain of topographical postcards, there would seem to be still very large scope for professional photographers. We have always encouraged this work amongst photographers, and we shall continue to do so, only adding that they should have more regard to pictorial attractiveness of subject and better technical nicety in production. Without these desiderata it is hopeless to attempt to cope with the seductive lithographs and three-colour work of the large publishing firms. Our own bitter experience is that in the search for mementos of holiday trips or the records of a journey, to send home to some fair young collector, we have been faced with the most atrocious examples of pictorial landscape art it has ever been our misfortune

to meet. Any tyro in a club who could produce work as bad would be shamed into despair by his fellows. "The new church" at close quarters, or an interminable street of houses with nothing but topography to recommend them, do not make saleable cards, except to the poor purchaser who has to take them against his will for want of anything better. Artists are so plentiful nowadays that we should have thought any local photographer could easily obtain advice as to selection of subject, if that were a doubtful matter in his mind. One constant blemish is the row of grinning children in soiled garments, once their Sunday best, bought from the cheap clothier's. There is no picturesque costume left now in the country. Where is the necessity for suffering this crowd of little guys to spoil a view? Really good pictures, well printed, of quaint villages and towns, to say nothing of open country scenes of popular interest, such as Hindhead and the "Devil's Dyke," for example, would find a sale far beyond the locality of their situation.

\* \* \*

### Sepia Platinotypes.

The damp winter days being trying for platinotype paper, sepia especially, and causing parts of a print (the damper) to develop much darker than the remainder, it is important to consider a remedy for this trouble. This kind of "staining" may become very troublesome in printing Cosways, or prints having a white masked border. With these the paper is usually much larger than the negative, and, as a result, the border is not pressed tightly between the rubber backing and the negative. With prolonged exposure the damp attacks this unprotected border, causing a faint darkening on development. The only remedy is to dry the pad, rubber, and backing thoroughly before printing, and to make the exposure to light as short as possible. Another kind of marking, when printing Cosways from masked negatives, is caused by the light creeping through the negative. With this work the mask is usually placed on the back of the negative, to soften the outline, the result being that the light penetrates some distance in a horizontal direction. Should the edge of the mask be near the edge of the negative, the paper will be tinted beyond the edge of the latter. To avoid this, the negative should be given a safe edge of black paper, not as in the carbon process, but bound as with lantern slides. This will effectually stop the edge of the glass from acting the part of a prism in concentrating the faint light it receives.

### M. DEMACHY ON PERSONAL EXPRESSION VERSUS PHOTOGRAPHY.

It is truly mortifying to have the object of our admiration turn round and hit out. Only on that account are we vexed that M. Demachy, whom all in this country have looked up to as the pink of a kindly artist, should occupy four pages of "La Revue de Photographie" in derision of the "new school in England." He takes as his text a few passages from journals which reviewed the recent salon (not the BRITISH JOURNAL OF PHOTOGRAPHY, let us hasten to explain), and with his eye upon the general tenor of complaint that ran through the Press about that show, he reads us a homily, healthy, although severe. English standards he finds all too strongly directed in favour of "pure photography," and critics generally too ready to make a work stand or fall by its allegiance to methods of non-control. This tendency constitutes what is called the "new school," though, as everybody knows, it is old enough. M. Demachy represents us saying, "avec une certaine pompe," that "henceforth a print after nature cannot be beautiful except on the condition that it offer photographic characteristics and the qualities of the



medium." He instances three pictures by Hollyer, Craig Annan, and Cadby in the last salon. Some unfortunate critic, it appears, likened Mr. Hollyer's portrait to an oil painting, adding that it was of little merit to prove that photography could do as well as other processes (which, we submit, it certainly did not in this case), but that progress consisted, on the other hand, in showing the power of photography in directions unapproachable by other means. Remarks of a similar nature are quoted in reference to Mr. Craig Annan's "Hampton Court," and, finally, Mr. Cadby is championed. The blame hurled at the author of snow sketches—that he had aped a dry-point etching—is taken up by M. Demachy and handed to him again as praise. By some short cut in logic, wherein we confess to losing ourselves, our courtly neighbour arrives at this: "That if dry-point did not exist, Mr. Cadby would be the father of a little masterpiece." The truth is, perhaps, that if dry-point did not exist, Mr. Cadby would be emulating something else—merely that.

"Do not the writers of the English school understand that the graphic art is all a matter of sensation, and ought to be judged by the eyes? . . . Would they want a certificate of origin in order to know that an image, in black and white is qualified to be a work of art? Photographic characteristics are, and always have been," says M. Demachy, "anti-artistic characteristics."

All this, at any rate, should give us pause. No doubt there are many who draw near to "controlled" prints in a frame of mind hopelessly biassed. We want the widest possible outlook if all the cant about art is to be anything more than mere snobbery. The position of M. Demachy is quite unassailable, and nobody could rightly say that personal expression for which he fights is not the chiefest

thing of all in the making of a work of art. But M. Demachy's width of vision in front has closed his eyes altogether to beauties behind. His point of view is fine enough, but there is another—namely, that of the man who sees in camera pictures certain desirable peculiarities he wishes to develop. With M. Demachy, photography, as he has admitted, "steps out." His triumphs are not due to it at all. He uses it as a hack, a menial, a mere scaffolding, to be ultimately eliminated. It shares no honours of his; and who shall say him nay? Our only point is that, to be consistent, he should let his works step out of photographic exhibitions, out of the photographic Press (we hope he will do nothing of the kind), and out of a photographic court of adjudication. They are for the art journals. They are, indeed, like paintings, to be treated as unique specimens.

It is difficult to see that he can have any quarrel with those who, taking up his own cue, deny to these things the name of photography. And it is as hard to understand that he should think the aims and ideals of certain clever workers, who, like Mr. Fredk. Evans, for example, are content to strive for artistic results without letting photography give them the slip, by "stepping out." M. Demachy is hard on the critics, but whenever anything comes along that is really fine by any methods, we believe the critics point it out with admiring voices; yet they should not be expected to act like indulgent mothers to inventive brats. Rather ought they to object to the posing of cliques who, in the name of art, bolster up each other's tentative and experimental groupings displayed in exhibition galleries ostensibly devoted to photographs, at the same time that they deny all artistic claims to photography *per se*.

## CHROMIUM INTENSIFICATION.

I SEE that several correspondents have asked for further information on the subject of intensification by redevelopment after bleaching with potassium bichromate and hydrochloric acid. It is asked if the process is meeting with favour. This must surely be the case, since the intensifier has long been upon the market in liquid form, and has quite recently appeared in an improved, solid, "scaloid" form. My own experience is that the intensifier is all that can be desired, if only very reasonable care is exercised. From the time when first suggested by Dr. Eder, right up to a couple of years ago, it was considered to be a process dependent on redevelopment only. The investigation carried out by Mr. D. J. Carnegie and myself proved, however, that it was really an additive process similar to many others. The mechanism is fairly simple to understand. The addition of hydrochloric acid to potassium bichromate produces potassium chlorochromate, which is a powerful oxidiser. This chlorochromate oxidises the silver into one of the mysterious photochlorides of silver, which is readily developable without any exposure to light, and at the same time the silver decomposes the chlorochromate, reducing from it a chromium oxide compound that reinforces the image and adds to its density. The standard bleaching solution employed contains ten grains of potassium bichromate and five minims of hydrochloric acid in every ounce, and experience shows that amidol is the most satisfactory developer to use. With the fluid ready-prepared intensifier metol-hydroquinone is commonly supplied, but with the solid form amidol is included.

### Sources of Failure.

The commonest source of trouble is over-exposure to light. Exposing the bleached image to strong light brings on a

condition akin to solarisation, and renders it almost undevelopable. Exposure to strong light during development also at times produces bad development stains. Many workers seem to have failed to recognise the fact that so-called non-staining developers, though non-staining in the dark, will produce most violent and immovable stains if used in strong sunlight. Other troubles are due to attempts to bleach the image with an exhausted solution, and to insufficient washing between bleaching and development. The effect is fairly constant if the negative is not allowed to remain too long in the bleaching bath, and if the proportions of the latter are strictly adhered to. Too long an immersion, or an excess of acid, gives less intensification. Compared with other intensifiers, the results are far more reliable and more constant than those obtained with mercury and ammonia or mercury and soda sulphite, while the density given is intermediate between the best densities attainable with these two intensifiers. Scientifically the results are not so exact as with mercury and ferrous oxalate, but the average printing density attained is about the same, while most people find the process much easier to apply. Many fail completely with the mercury process, though it is not clear why they do so.

### Three Simple Operations.

In applying the chromium process, the plate should be immersed in the bleaching solution until all greyness has disappeared from the back of the image. The plate is next washed in running water until all yellow stain has disappeared and a brownish-buff image is left. The image is then developed in an amidol developer without bromide; a strong developer containing about five grains amidol to the ounce being advisable. Bleaching takes about two minutes; washing about

twenty (in a grooved syphon washing tank), and development about five minutes. The whole process should be conducted in diffused daylight or by gaslight. Sunlight should be avoided, and too much diffused light when washing is undesirable. Development should be carried out as soon as washing is complete. Drying between washing and development should not be attempted.

#### The Results of Intensification.

Photometric tests show that the process tends to increase contrast, as the increase of density is greater in the high tones than in the low ones. As a natural consequence, a very thin negative sometimes requires more than one application of the process, but three applications is the most that is likely to be required. Ordinarily one is sufficient. The increase is very fairly regular from the low tones up to the high ones, excepting when the high tones show halation. The following figures represent the ratios of the densities of intensified H. and D. slips to the densities of the unintensified originals:—

C.M.S.	.166	.312	.625	1.25	2.5	5	10	20
Slip 1 .....	1.16	1.33	1.42	1.4	1.48	1.66	1.54	1.5
Slip 2 .....	1.14	1.26	1.35	1.41	1.54	1.55	1.48	1.46
Slip 3 .....	1.16	1.38	1.46	1.4	1.4	1.33	1.36	1.34
Slip 4 (= Slip 1 re-intensified) .....	1.03	1.17	1.2	1.17	1.09	1.14	1.17	1.19

The 5, 10, and 20 c.m.s. densities are all halated, and it will be noticed that the ratio of increase of density falls off in the last two tones, for some not very clear reason. It would be of interest to know if similar effects have been observed with other intensifiers when halation is present. Slips 1 and 2 show a very regular increase of contrast up to the 5 c.m.s. density. Slip 3 is not so regular, but an abnormal bleaching

solution, calculated to give less density was used in this slip, and the effect is more noticeable in the high-lights than elsewhere. The low tones are practically affected to the same degree as in slip 1, which is from the same plate. Slip 4 shows the result of a second intensification of slip 1. Here the tendency to increase contrast has disappeared. The readings are irregular, but suggestive of a more or less uniform effect in all tones. The ratio is much lower than the average ratio of the first intensification, and this is always the case. Only one test of the effect of repetition has yet been made, and further tests are necessary. In fact, all these tests must be repeated. Slips 1 and 2 are from separate plates that received the same exposure, but different times of development with metol-hydroquinone. The intensifying solutions were the same, and the results are fairly uniform. The denser plate (slip 1) shows higher ratios, with one exception.

Practical experience shows that this chromium process is admirably suited to the production of line negatives. A properly exposed negative on a process plate is developed with hydroquinone, and after fixing it is cleared with Farmer's reducer. The chromium intensifier then turns it into a perfect "black and white" negative. The exposure must be a nearly "correct" one in the first instance.

The bleaching solution can be applied to a plate that has only been rinsed after fixing, for the result is a perfect hypo eliminator, and produces no sulphur bloom. This procedure is sometimes useful, but it is generally necessary to apply a second fresh bleaching bath, as the first one is quickly exhausted by the hypo. I do not recommend this method of work, and prefer to wash for ten or twenty minutes before bleaching. The fact that perfect washing is unnecessary is, however, a great advantage, shared apparently by only one other intensification process, that is, the one known as the iodine process.

C. WILBORNE PIPER.

## RAPID BROMIDE P.O.P. EMULSION.

PROF. E. VALENTA, who read a paper before the Congress of Applied Chemistry, in Rome (B.J., 1906, p. 466), in which he suggested the use of silver bromide with excess of nitrate of silver emulsified in collodion for printing-out, has since then been continuing his experiments, particularly as regards the best proportions of silver to bromide the quantity of citric acid, etc. In the current number of "Das Atelier des Photographen," he gives the following method of making such an emulsion.

The best proportion between the bromide and silver is 1 of the former to 5 or 6 of the latter. Whilst with chloro-citrate emulsions, the addition of part of the silver salts in the form of ammonio-nitrate is especially satisfactory, particularly when the paper is to be used for gold and platinum toning, it is of no use for a bromo-citrate emulsion. Further, the proportion of citric acid does not exert the same action as in a chloro-citrate emulsion. The best results were obtained with a small proportion of citric acid.

As regards the influence of the metal, with which the bromine is combined, on the character of the emulsion, this is somewhat important. Calcium, strontium, and lithium bromides gave the most satisfactory results. With other bromides which are also soluble in alcohol, such as those of magnesium and cadmium, flat results were obtained, whilst other bromides, for instance, mercury bromide gave very insensitive and useless emulsions.

Emulsions made with calcium bromide printed more or less of an intense red colour, whilst strontium bromide emulsions gave dirty-violet prints. Both assume fairly quickly, in the

ordinary gold and combined fixing baths, purple brown to violet black tones.

#### An Emulsion for Triple-Speed P.O.P.

The following formula will give a bromo-citrate emulsion with very satisfactory results:—

A.—Collodion (2½-3 per cent.).....	500 ccs.
B.—Citric acid .....	10 gms.
Alcohol .....	40 ccs.

Dissolve and add

Strontium bromide (40 per cent. sol.).....	4 ccs.
Glycerine-alcohol (1:1) .....	4 ccs.

C.—Silver nitrate .....	10 gms.
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Dissolve in as little hot water as possible and add

Alcohol .....	40 ccs.
D.—Ether .....	80 ccs.

A and B should be mixed by daylight, and then C added gradually with constant shaking, by yellow light, and then finally D. The yellow creamy emulsion should then be allowed to stand for some minutes, filtered through cotton wool and coated.

The emulsion gives a good printing paper that will keep, and the sensitiveness is about three times as great as that of commercial collodio-chloride paper. The prints on this paper can be easily toned in the usual separate and combined baths. The prints lose but a little during toning and fixing, about 3 to 4 deg. on Vogel's scale photometer, show no tendency to bronzing, and possess a gradation greater than that of albumenized paper, so that this paper requires plucky negatives full of contrast.



**Extra-rapid P.O.P. for Flat Negatives.**

An emulsion which gives brilliant printing paper suitable for softer negatives can be obtained by replacing some of the strontium bromide in the above formula by a corresponding quantity of uranium bromide. Papers prepared with this emulsion have the same gradation as albumenised paper, and suitable negatives give brilliant prints, full of gradation. The sensitiveness of this paper is the same as that of good collodio-chloride paper.

The addition of alcoholic chromates to the bromo-citrate emulsion produce, just as in the case of chloro-citrate emulsions, a great curtailment of the scale of gradation, but the sensitiveness of such papers is considerably greater than that of a paper containing the same proportion of chromic acid. It is easy to obtain in this way a paper for flat negatives, which will give brilliant prints, and yet have a greater sensitiveness than the chromo chloro-citrate paper. Such an emulsion can be prepared by the addition of a solution of 0.8 gms. of calcium bichromate to the above bromo-citrate emulsion. The paper prepared with this emulsion is about half as sensitive as collodio-chloride paper and prints very hard. The scale of the bromo-citrate paper without chromic salts was 20 on the photometer; after addition of the calcium bichromate only eight to nine steps were obtained. The prints lose less than a collodio-chloride paper with chromate, so that so much over-printing is not necessary.

Papers prepared with bromo-citrate emulsions plus chromate

give beautiful platinum tones, and are specially suitable for matt papers for platinum, or combined gold and platinum toning. In this case, however, the prints must be very much over-printed, as they lose considerably when treated to the salt bath, and subsequent platinum toning.

**Chloro Bromide Extra-rapid P.O.P.**

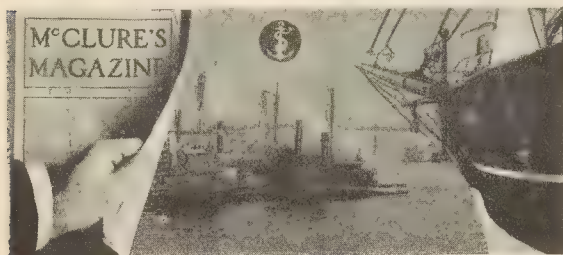
Very satisfactory results were obtained with bromo-citrate emulsions containing a certain percentage of chloride. An emulsion prepared as above, to which was added 0.4 to 0.5 gms. of calcium chloride, printed brilliantly and vigorously, gave pure whites and well-covered shadows; there was very little tendency to bronzing, and the gradation was about the same as that of the chromo-chloro-citrate paper. Such an emulsion can print three times quicker than a good collodio-chloride paper. They tone well in the separate and combined baths, and do not lose much. Shortening of the scale of gradation, and therefore harder printing without reduction of the sensitiveness, is obtained by using an equivalent quantity of uranium chloride for the calcium chloride in the above emulsion. The emulsion thus prepared has greater sensitiveness and greater brilliancy than ordinary collodio-chloride paper. Naturally such emulsions may also be prepared with the addition of calcium bichromate, and are then suitable for even the flattest negatives, but the sensitiveness is lower than that of bromo-citrate plus chromate emulsions, and therefore the latter are preferable.

E. VALENTA.

## PHOTOGRAPHS FOR ADVERTISING PURPOSES.

THE S. S. McClure Co., proprietors of "McClure's Magazine," have issued a book to draw attention to the magazine as an advertising medium. "McClure's Magazine," we should explain, is a monthly of popular literature, to which there is no exact match in this country. It occupies the leading position among its fellows in the United States, the country of its origin. The interest of its newly-issued booklet to ourselves and our readers lies in the illustrations, by means of which McClure's have put into pictorial form a business phrase they

Magazine." The illustrations sufficiently explain themselves—they would be useless if they did not—with the exception, perhaps, of the last two, which occur on a page of a booklet where the manager dwells on the practice of the "Magazine" of exercising a strict censorship over the advertisements which appear in it, in other words, certain shops, those selling patent medicines and hair restorers, are not to be found in the McClure



use to describe their magazine—"The market-place of the World." The variety of ways in which this idea is carried out, chiefly by photographic means, induces us to reproduce half a dozen of the illustrations, which we do with the desire of setting before our readers some examples of the skilful use of photography in forcible advertising. A periodical publication of whatever character lends itself less to pictorial advertisement than the majority of articles which are offered to the public, but in the present instance the designer has had his task lightened by the presentation to him of the idea of a market place. The approbation which he has deserved is extended on account of the technically clever association of this idea with "McClure's



market place. This practice of educating the marketer is a strong point in the McClure appeal to advertisers, and is thus pictorially enforced.

Those photographers who have done little or much in preparing prints for advertisement purposes will admit the excellence of these photographs. Such work, one of the most profitable branches of photography at the present time, is one in which exact instruction is almost impossible. It is a business for men with ideas, and in the absence of the inventive faculty, no amount of study will produce the advertisement photographer.

Yet we draw attention to it here in the belief that some of our readers will find it a source of profit either as a special business, or as an adjunct to their professional portraiture. They have only to look through the illustrated journals of the present day to see how greatly the employment of pictorial and photographic advertisements has grown of late. So great has been the departure of large advertisers in this direction that a special photographic department has been set aside by firms or their advertisement agents to the production of striking and fitting originals. Obviously that is not the best method of obtaining variety in the output, and firms having such arrangements will accept suitable photographs and designs from outsiders as readily as those who are not so provided.

It would be easy to write at length on the essentials to success



in advertisement photography, yet the writer is instantly debarred by the thought that the man who does not know these things instinctively can never be taught them. Advertisement photography is akin to the "popular journalism" which has created it. Both are a produce of the same modern habit of crowding too much into the day. The busy man who must now have news served up in quickly-digestible paragraphs, requires also to be considered in the same way by the merchant who desires to convey information of his wares. Advertisement photography is, in short, the journalist's gift of being "readable" in photographs. The ordinary and commonplace are no good for advertisement photography. There must be selection of subject and originality of treatment—creation of an idea. Hitherto, advertisement photographs have run on the lines of charming girls or well-groomed men holding up somebody's soap, or chocolates, or boots, and represented with a fixed huge smile of satisfaction. The comparatively few variations of this primitive and unconvincing idea to be seen suggest that the number of photographers, with any humour or imagination engaged in such work, must be very small. They should take a

hint from the artists. Harry Furniss' immortal drawing, "I used your soap two years ago," used by Pears' soap, might have been made with almost as good effect by photography.

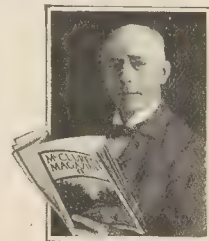
We are often told that so long as an advertisement draws the reader's attention, it does not matter what it is, the means justify the end, but we do not believe this to be the principle



of the most successful advertisers, for the sufficient reason that the effect made on the reader's mind is of the greatest importance. The reader should be left with the impression that the advertisers are clever not as advertisers only, but in their



business proper. How many advertisements simply call forth the comment, "Smart ad., that," without fixing the reputation of the firm or the quality of the article in the reader's mind. Hence we say that there should be a quality of fitness in



addition to that of attractiveness; the advertisements, pictorial or literary, which embodies both is of the greater sale making value to the advertiser. Established firms with world-wide reputations can afford to dispense with these descriptive qualities in an advertisement, but the innumerable lesser known firms, who constitute the market of the advertisement photographer, need them, and require to have their special wants considered.



## A HIGHLY SENSITIVE GASLIGHT URANIUM PRINTING PROCESS.

THE following contribution to our Philadelphia contemporary, the "Camera," is interesting in reviving once again the employment of uranium salts as the sensitive base of a printing process. We can quite believe the claims made by Dr. Bartlett for the rapidity of printing inasmuch as the same phenomenon is observed when uranium is used with ferric ammonium citrate as the sensitive preparation of a "blue" paper, the invisible or scarcely visible image being developed with solution of potassium ferricyanide. In some experiments which we made some years ago, we were surprised at the rapidity attainable by a formula of this kind. The "potash ammonia" in the sizing formula of Dr. Bartlett is presumably potash alum.—Eds., B.J.

The use of the salts of uranium as a medium for photographic printing is by no means a novelty, nitrate of uranium having been employed as far back as 1854 by Niepce St. Victor with satisfactory results. Some years later, Mr. Burnett, of Edinburgh, Scotland, published results which stimulated inquiry, and in 1870 Mr. Wortly made a sort of collodion emulsion with nitrate of silver and uranium which yielded pleasing tones, but his method did not attain practical application on account of the difficulty attending the manipulation or on account of some secrecy in the process which the inventor did not care to reveal, the process being a patented one.

Some recent experiments in the line of previous investigations which the author has made gave such satisfaction and reduced the time of exposure to such a degree that he believes his method will be of interest to photographers who desire an uranium printing process which may be manipulated like ordinary gaslight papers.

To get the best results with uranium, it is necessary to keep the image on the surface of the paper. A suitable sizing is therefore a necessity. After numerous trials the following method of preparing the paper gave the best results and prevented the image from sinking into the paper.

Take	
(A) Soft gelatine .....	120 grs.
Water .....	32 ozs.

Soak the gelatine for a little while in the water, then heat up to about 120 degrees Fahrenheit.

(B) Potash ammonia .....	60 grs.
Oxalic acid .....	8 grs.
Water .....	10 ozs.

Mix A and B and add four ounces of pure alcohol.

Immerse the sheets of paper in this solution for three minutes and hang up to dry by one corner. When dry re-immerses and hang up to dry in the opposite direction to the first hanging. By this means a very uniform coating may be secured and a brilliant printing image obtained.

Uranium prints are usually made by the printing-out process and the image brought to intensity by a bath of potassium ferricyanide, but usually this plan does not give straight and good tones, and the print is only presentable after toning. The colour is an unpleasant bistre. We prefer the method of development both on account of the rich colour obtained and also on account of the great rapidity by which the impression from the negative is secured.

Uranium combined with silver is not a novelty in printing processes, and the writer does not claim originality in its application. All that is claimed is an adjustment of the proportions and method of development by which an exceedingly sensitive medium is secured which gives pleasing artistic tones and in which an ordinary Welsbach light may be employed for exposures. Make the following solutions:—

Distilled water .....	8 ozs.
Nitrate of silver.....	275 grs.
Nitrate of uranium.....	4½ ozs.

FALLOWFIELD's "Courier," for January, 1907, reaches our table, with particulars of new mounts and announcements of the firm's revision of prices.

A copy of the "Scientist's Pocket Book and Diary" for 1907 has been sent to us by Messrs. James Woolley and Co., Victoria Bridge, Manchester, by whom it is issued for 6d., or in a binding of "Rexine" (artificial leather) for 1s. The diary contains a variety of tabular matter relating to chemical and physical sciences, tables of logarithms, tests for chemical reagents, and a brief formulary of photography. An unexpected item of its contents consists in some pages devoted to the first aid to the injured.

Float the paper on this bath for three minutes and hang it up to dry in a dark chamber. The sensitizing must be done in a dark room.

The paper so prepared keeps (\*) indefinitely, or a long time at least, as platinum paper if kept from light and moisture; but it is absolutely necessary that the paper should be prepared in very subdued light and dried in absolute darkness from the peculiarity which uranium salts possess of absorbing radiations. In fact, should you place the prepared paper upon a white sheet which has been exposed to light and then remove both to a dark place the absorbed light in the white sheet will be sufficient to affect the uranium paper. If an engraving on the white paper be exposed to strong sunshine for some minutes and then be placed in contact with one of the prepared uranium sheets in a book and be kept overnight, an image or negative of the engraving will be produced of considerable intensity. But to return to our process. After exposure, which varies from a flash in bright sunlight to five seconds, according to the density of the negative, a strong image may be evolved by development; thirty seconds in diffused light also yields normally good results; from ten to thirty seconds or a minute at six or eight inches from a Welsbach light is sufficient. Dense negatives, of course, necessitate longer exposures. The paper is also sufficiently sensitive to be used for enlargements with electric light. A longer exposure, however, is demanded—perhaps longer than with bromide paper. But as the results are more like platinum printing and the surface perfectly free from gloss, the method recommends itself to artistic workers. To develop the prints make the developer as follows:—

Water .....	10 ozs.
Proto-sulphate iron .....	1 oz.
Tartaric acid .....	½ oz.
Sulphuric acid .....	1 dr.
Glycerine .....	1 dr.

The image comes up very rapidly and varies from rich brown to deep black, according to character of negative and times of exposure.

Should there be any tendency of the whites of the picture to overcast by reason of excess of exposure, the addition of tartaric acid to the developer will prevent such clouding.

The tendency from overexposure to veil is prevented altogether by the addition of a small percentage of nickel nitrate to the original coating solution, but while effective in this direction the nickel decreases the sensitiveness of the paper. However, where vigour and brilliancy is desired at the sacrifice of rapidity, the nickel will be found of great advantage, but care must be taken to keep the amount down to a minimum.

JOHN BARTLETT.

\* On this point the following editorial note appears in the "Camera":—"We beg to differ. Our tests with the paper this summer—and probably our difficulty was owing to the extreme humidity—the paper did not keep for any length of time, although in the winter months we had great success and fine prints and the paper kept fairly well.—Eds., B.J."

THE first issue, as a separate publication, of "The Process Engraver's Monthly," late "The Process Photogram," has been published, and contains, we are glad to see, an abundance of matter and a number of supplements, which should be of the greatest interest to the process crafts. There is an example of the Spray printing of the Aerograph Company, particulars of the new etching machine of Dr. Albert, the address of Mr. A. J. Newton at Bolt Court on "The Commercial Side of Photo-Engraving," and lastly an article by Mr. Charles E. Dawson, illustrating a modified method of block making for poster work. We wish our contemporary every success on its new departure.

## COLOUR - FILTERS FOR ASTRONOMICAL PHOTOGRAPHY WITH REFLECTING TELESCOPES.

From the *Astrophysical Journal*.

THE great advantage now taken of photography in recording astronomical data, and the ease with which a visual refractor may be converted to a photographic by means of a colour-filter, have gradually changed and enlarged the methods in telescopic work until there is now practically no branch which can not or could not be better performed by its aid.

The lens of the refractor is corrected for a certain limited spectral region—generally, the yellow green near  $\lambda$  5550, because in this region the eye is most sensitive to slight differences, the remaining hues coming to an approximate focus at varying distances from this point of correction. The function of the colour-filter consists simply

made use of, as in the later methods of photographic photometry. The use of "isochromatic" plates tends but slightly to a betterment for, when we consider that such a plate still remains its maximum sensitiveness to the violet end of the spectrum, then it can be seen that conditions are not greatly improved.

In consideration of the needs of this branch of the work, the writer undertook the preparation of a colour-filter for use with the 24-inch reflector, to be used initially in obtaining negatives for photographic stellar photometry. Briefly stated, the method employed in adjusting such a filter consisted in (1) isolating a few dyes and making of them a special spectroscopic examination, singly

KH G F bE D

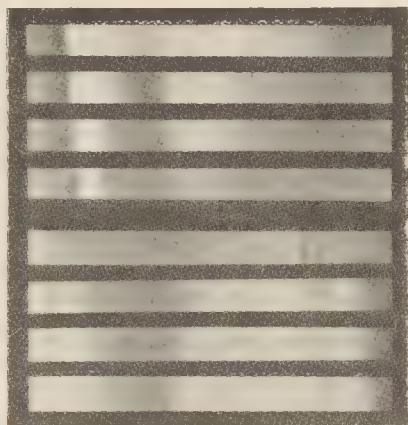


Fig. 1.—Comparison of prismatic and diffraction spectrum of diffused daylight.

in absorbing from the incident light all other hues but those for which the lens is corrected.

Strictly speaking, it is not possible to construct a filter which will accomplish this end by itself without very greatly lowering the luminosity of the light transmitted, nor is it necessary to do so. Because of the selective sensitiveness of the photographic plate we are able to divide the work between the filter and plate. If, for example, we select such a plate as Cramer's instantaneous isochromatic, we find a secondary maximum of photographic action which corresponds to the yellow-green of the spectrum; the insensitiveness of the plate (on normal exposure) to red or orange renders it unnecessary to absorb either of these hues by the filter, but only to absorb the ultra-violet, violet, blue, and to dim down the blue-green, the plate itself being but slightly sensitive to this hue.

In the case of the reflecting telescope the necessity for employing a colour filter has not been recognised to the same extent, because of the fact that all the component rays in white light are brought to a focus at the same plane, and it requires but a limited experience to obtain with this instrument a photographic record of telescopic objects which show structural detail far beyond the ability of the eye to perceive.

There is, however, one very serious defect in the photographs thus obtained; that is, an almost exact reversal of colour-luminosity. If we compare the luminosity-curve of the spectrum with the intensity-curve of the ordinary photographic plate, we see in a moment how utterly false and unreliable is the result in so far as colour is concerned. Considered even as a representation of form, it does not conform to the requirements of a "record of fact," because it is quite within the bounds of possibility to conceive of structural detail visible with a hue to which the plate is altogether insensitive.

This discrepancy between the visual luminosity and photographic intensity is very evident in the case of direct stellar photography, which becomes considerably worse when "extra-focal" images are

KH G F bE D C B



Fig. 3.

Figs. 2 and 3.—Daylight diffraction spectrum, with varying exposures, approximating the visual luminosity-curve: 2. Pinacyano-plate and filter; 30s to 30m. 3. Trichromatic plate and filter; 15s to 8m.

and in combination; (2) coating trial filters with carefully measured amounts of gelatine containing known amounts of dye and estimating the approximate density of the spectrum as photographed through this filter against the normal luminosity-curve; (3) coating the optical glass with the amount of dyed gelatine as thus determined and measuring the density of the spectrum negatives taken through this screen; (4) photographic determination of the absorption at various exposures, and of the exposure increase.

From knowledge gained by a somewhat extended experience in making a large number of filters for various purposes, the following dye-stuffs were selected, estimated as being fairly near to the absorption required, viz.:—

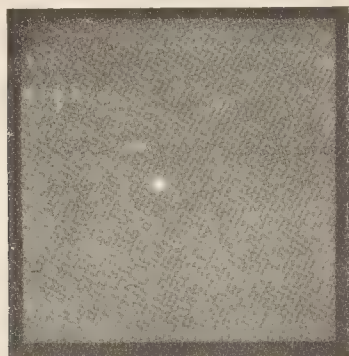
Tartrazine,  
Auramine O.,  
Metanil yellow S.,  
Nitrosodimethylanilin.



From these dyes colour-wedges were now prepared. A solution was made of

Gelatine (Fischer and Schmidt—extra hard)	2.5 grams.
Distilled water	100.0 cc.
Dye	0.25 gram.

Seven cc. of this solution at a temperature of 55 degrees C. was flowed upon a plane glass strip 50 by 250 mm., and then laid aside to set in a drying-chamber, with one end raised to a height of 5 mm. from the horizontal plane of the support, thus causing the gelatine to flow slowly toward the lower end. When dry a plane cover-glass was cemented on with Canada balsam and the edges bound. A cm. scale was then ruled upon the glass with a writing diamond, and a series of spectrograms made showing the absorption at every cm. for constant exposure.



U CYGNI.

Fig. 3A.—On Seed "27" plate, without filter.

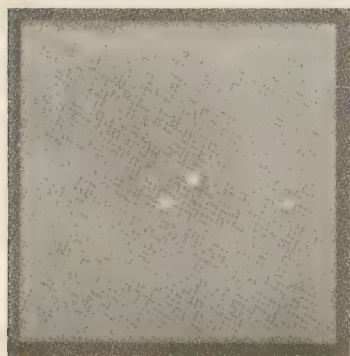


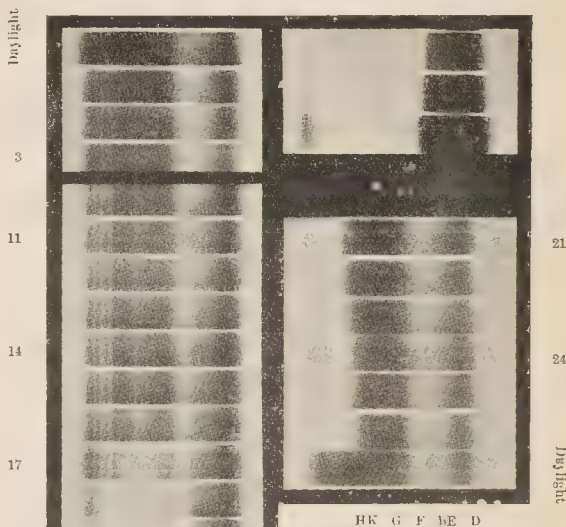
Fig. 3B.—On Cramer "Trichromatic," with filter.

At this point it may be well to note the entire unsuitability of the prismatic spectrum for work of this nature. What we are concerned with principally is the rendition of the relative spectral luminosity—the dispersion is of no moment, provided it be sufficient to allow of the spectrum being easily read. The difficulty comes in the interpretation of prismatic results. We have, of course, the various dispersion formulæ by Helmholtz, Ketteler, Cauchy, Hartmann, and others, but for work of this nature they are of no value whatever, because they do not take into account the absorptive effect due to density and composition of the glass composing the prism itself as it influences the luminosity. For example, supposing that a particular prism is of such a density and absorption that with normal exposure it gives a negative in which the ultra-violet is only impressed to  $\lambda$  3900, then there is no formula which can supply the photographic intensities of the shorter wave-lengths to which the plate is normally sensitive, while the absorption even throughout the visible portion is still an unknown quantity and

varies with every change in the refractive index. As an illustration of this want of reliability, Fig. 1 shows the influence of this absorption in the comparison between the prismatic and diffraction spectrum, in which the lack of concordance may be readily seen.<sup>1</sup>

In all of the spectrographic work, therefore, use has been made of a replica grating of 15,150 lines to the inch, with the collimator directed at a constant angle to the northern sky, and illuminated by diffused light.

Fig. 5.



HK G F BE D

Fig. 6.

Fig. 4.—Spectral Record of Tartrazine Dye Wedge. (Constant Exposure.)

Fig. 5.—Increased exposure through No. 26 of Tartrazine wedge, showing transmission of ultra-violet.

Fig. 6.—Portion of spectral record of Aesculin wedge.

HK G F BE D  
Fig. 1.

The function of the colour-filter is to reduce the preponderance of action in the blue and violet region of the spectrum and absorb entirely the ultra-violet. The transmission throughout the remainder of the spectrum should be undimmed by any absorptive action due to the dye.

Examination of the negatives from the wedges, as above outlined, shows that in the dye tartrazine (Badische Aniline and Soda Fabrik) we may obtain the first component of the filter sought for. Fig. 4 shows the record of this colour-wedge, in which the ultra-violet transmission will be noted as extending down even into the dense end of the wedge. This transmission, which is masked by the absorption in prismatic spectra, becomes painfully apparent when the exposure is increased or the light rendered more intense, as is shown in Fig. 5. Such a record serves the very useful purpose of showing the danger in the use of this much-vaunted dye for trichromatic and orthochromatic colour-filters, even when used in extremely concentrated form. It will be observed that in scale

<sup>1</sup>For the prism used  $\mu_D = 1.6094$ .

No. 17 of this record the excessive density in the blue of the spectrum from F to G is well corrected for; but the violet is still too strong, and the ultra-violet is of course transmitted. Another colour-wedge made of

Gelatine .....	2.5 grams.
Water .....	100.0 cc.
Aesculin .....	0.2 gram.

shows that at scale-number 23 or 24 we have an absorption corresponding to the requirements necessary for the second component of the filter — viz., absorption of the ultra-violet with a gradual absorption in the visible violet. (Fig. 6.)

The two colour-wedges are now superposed upon one another with the selected scale-numbers in agreement and an exposure then made through the combination, which gave a result closely approximating the effect sought for. All preliminary exposures and records are made on Cramer "Instantaneous isochromatic" plates, which have a comparatively low sensitiveness to the blue-green about  $\lambda$  5050, for which due allowance must be made in the interpretation of the spectroscopic records. It will be evident that any absorption of the dye in the blue-green region would be instantly detected in the photographed spectrum.

Arrived now at a satisfactory point in the trial exposures, the next consideration is the production of a filter which will possess the same absorptive action as do the combined colour-wedges at the points selected. Monpillard<sup>2</sup> has suggested a method for obtaining this result, which consists in measuring the thickness of the colour-wedge at the selected point ( $e$ ) and using this as one term of a simple proportion. Two other terms consisting of thickness ( $a$ ) and weight of dye-stuff ( $d$ ) are obtained by coating a separate plane glass of known area with a measured amount of dyed gelatine; the amount of dye necessary for the finished filter ( $x$ ) is then to be found from the simple calculation,

$$\frac{e}{e_1} = \frac{d}{x} \quad \text{or} \quad x = \frac{e_1 d}{e}$$

This method commends itself by its simplicity, but in the hands of the writer it has not proven suitable. Presumably, if the thickness of the film on the colour-wedge at the selected point were measured more delicately than in the method adopted, say, in the interferometer, then a much closer approximation might be arrived at than has been possible when using a Brown and Sharp micrometer caliper. As it was, the critical adjustment of a filter is so delicate that a minute quantity of dye, either in deficiency or excess, is fatal to correct performance. The making-up of a large quantity would also tend to reduce error, but for the manufacture of a single filter of special absorption such a course is not practical.

By a method of trial and error we may, however, very speedily arrive at an extremely satisfactory duplication. A plate of ordinary glass of exactly the same size as the desired filter is taken, and upon this is flowed a measured amount of the same solution as was used in making the counter-wedge. This amount is approximately determined by visual observation, while in contact with a white surface on which also rests the wedge.<sup>3</sup>

R. J. WALLACE.

(To be continued.)

STUDIO FIRE in Belfast.—A fire broke out one day last week at the studio of Mr. William Abernethy, Donegall Place, Belfast. Most of the damage was in the rear portion of the building, which has a corrugated roof. The frontage in Donegall Place was not seriously affected. The studio, it may be mentioned, is, or was, up till the fire, a beautiful one. It was opened four years ago by the Countess of Shaftesbury, and is a model of comfort and perfection in equipment. On Thursday evening some of Mr. Abernethy's employees were engaged in the studio noting pictures with a view to arranging which of them should be sent to the International Exhibition in Dublin in 1907. When they left all was secure, and there was no sign of fire. Most of the damage was in the reception, dressing, store, and work rooms, but the entire loss is covered by insurance.

<sup>2</sup>Comptes Rendus, 141, 31—33, 1905.

<sup>3</sup>This method has been adopted after various trials with instrumental methods (colourimeter, tintometer, etc.) for taking into account the shade change in drying, no greater reliability could be obtained.

## DEATH OF MR. THOS. R. DALLMEYER.

ON Christmas Day one of the best known members of the photographic world passed away, after an illness of only five days. Thomas Rudolphus Dallmeyer was the second son of the late John Henry Dallmeyer, and was born in May, 1859, his mother being the daughter of that celebrated optician, Andrew Ross. After several years at private schools he went to Mill Hill School, under Dr. Murray, the now famous lexicographer. After leaving Mill Hill he became a student at King's College, London, where he took his B.Sc., London, devoting the greater part of his time to those mathematical studies which he turned to such practical account in later years. At the same time he was doing a considerable amount of actual mechanical work in his father's factory grinding lenses and making



The late Thos. R. Dallmeyer

optical brasswork, under the guidance of the late Mr. Judd. On the breakdown of Mr. J. H. Dallmeyer's health in 1882, he was ordered to take long sea voyages, and Mr. T. R. Dallmeyer then assumed the control of the business, in which he was actively interested, until his death. During his career Mr. Dallmeyer designed many new and valuable instruments, but his name is more intimately connected with telephotography than with any other branch. He made the first practical telephoto lens in 1891, and hardly a year passed in which he did not make some modification or improvement, his latest work being in connection with the Junior "Adon." Among his other inventions may be mentioned a rapid triple cemented landscape lens, a rectilinear landscape lens, the original naturalist's camera, and many special lenses for cinematography and other purposes. For many years, too, Mr. Dallmeyer had occupied himself with cameras for colour photography, though he never reached a result which satisfied him. This aim was at a one-exposure three-colour camera. He became a member of the Photographic Society of Great Britain in 1886, and was in succession member of Council, vice-president, and president (1900), taking a prominent part in a perturbed period of the society's history.

Physically, Mr. Dallmeyer was a well-built man, above the average height, and far from suggesting the delicate state in which his health



had been for several years. In his youth he was an accomplished athlete and a fine boxer, and in later days an enthusiastic gardener and a Fellow of the Royal Horticultural Society. He had a singularly winning manner, and was generous to a fault. Many a struggling genius has received substantial and too often unappreciated assistance from him. His loss will be deeply felt, not only by his photographic friends, but also in the wide literary and artistic circles in which he had for years been a familiar figure.

Our portrait of the late Mr. Dallmeyer is a reproduction of the painting by Sandys

#### DEATH OF MR. J. T. SANDELL.

WE are sorry to have to announce the death of Mr. J. T. Sandell, which took place at Catford, where Mr. Sandell had been residing for some time, on Saturday last, December 29. As readers of our columns know, the deceased gentleman had been in a very serious state since the early part of last year. The doctors had given up hope of his recovery, yet recognised that years might elapse before the disease proved fatal. Their anticipations, however, were not fulfilled, and the patient's life reached a termination, which, under the circumstances, was a merciful one, on Saturday last. Mr. Sandell, from his long association with the dry plate trade, was one of the most familiar figures in photographic circles. He commenced his career in the establishment of Messrs. R. W. Thomas and Co., in Pall Mall, and when the Thomas works were removed to Thornton Heath became manager and chemist. There he brought on to the market the "Thomas" plates, the lantern plate particularly having a large share of public favour. He also introduced, through the same commercial channels, the "Sandell" double-film and triple-film plates, the principle of which he afterwards embodied in the "Cristoid" film, brought out by the Sandell Dry Plates and Films Company, Ltd. Mr. Sandell was more at home in the laboratory and behind the demonstration table than in the direction of business enterprises. His exhibitions to photographic societies of the properties of his patented films were models of technical demonstrations. His generous and somewhat impulsive disposition made him many friends and few enemies; and he will be missed from the ranks of his intimate associates, as well as of the public who knew him as a lecturer and demonstrator, with sincere regret.

#### DEATH OF MR. GEORGE BISHOP.

MR. GEORGE BISHOP, senior, partner in Messrs. Marion and Co., Ltd., died at his residence, Ashley Gardens, London, S.W., on December 28. Mr. Bishop, who was seventy-two years of age, had relinquished active interests in the business, of late years, to his brother, Mr. Frank Bishop. His decease will, however, be felt by a large circle of friends.

#### MICRO-PHOTOGRAPHS AS MAPS.

A DESCRIPTION of the use which is being made of micro-photographs for minute and portable reproductions of maps is given in the "Scientific American" by Dr. Alfred Gradenwitz, who describes the invention of Dr. Vollbehr, of Berlin, by whom micro-photographs have been applied to military purposes.

Microscopic transparencies 4 to 5 centimetres (1.574 x 1.968 inches) in size are used in place of large maps. These represent a map of the Etat Major drawn to the scale of 1-100,000. They are inserted between two glass binding plates, so as to form a lantern slide. In front of the transparency there is a lens capable of being adjusted for any eye by turning it either to the left or right. No other eye-glass should be used in connection with the lens. The latter is fitted in a small frame susceptible of a vertical and horizontal displacement, so as to enable any point of the transparent map to be brought immediately in front of the eye, 175 square kilometres (67.56 square miles) being inspected with each position of the lens. The minute map is divided into squares at distances of 2.5 kilometres (1.55 miles) each, the squares being numbered horizontally at the top of the map and marked with letters in a vertical direction, thus enabling any given point to be traced readily. The slides are loosely

in the holder, and they can be exchanged at a moment's notice when ever another map is to be examined.

If the lens is used in the daytime, it should be held with the handle in front of the eye, when an intensely illuminated image of the map will be obtained, so that even the smallest lines and most minute marks will be readily distinguished. For use at night an especially designed illumination box is added, including small electric light similar to the familiar "ever-ready" lamps. This box can be attached to the back of the apparatus, where it is held in place by small clips. By pressing a button a small glow lamp is lighted. This lamp illuminates the transparent map about as intensely as does daylight, and thus the lamp can be used in dim weather if more light is needed.

#### AN INTERVIEW WITH SANTA CLAUS, LTD.

As we speed upwards through the chill air and the damp clouds we look down upon slushy snowy London. Through the translucent roofs of the studios we can see fair heads becoiled with silken tresses bending over busy fingers retouching for dear life, so as to get the Christmas orders out before they are countermanded for being overdue. When we alight at the portals of Santa Claus, Ltd., now an immense concern with distributing facilities unmatched in Europe or America, our editorial card at once admits us to the presence of well-known, highly-complexioned, jovial-faced benefactor, who, until recently, made his nocturnal and personal visits to babes exclusively, but who now acts as managing-director only, and extends his supplies to deserving people of all ages.

"Busy this season?" we ask.

"Not the word for it, my boy."

"And what of camera folk particularly?"

"Well, they've all had fat stockings. I was most particular in seeing that they all had suitable and useful presents."

"What superb generosity! The editors of the photographic press, for example, How did they fare?"

"Why, if I remember rightly, we sent Mr. Br\*\*n a—"

"Never mind him. What did you give to Mr. H\*rs'l'y H\*nt\*n?"

"Let's see, The A.P. Why, we gave him a nice box of dress ties, with a glass lid, a hand mirror, and a tin trumpet."

"And Mr. Sh\*wd\*n W\*rd?"

"My literary staff indited one or two congratulatory paragrams on his new Process Monthly."

"Excellent! And what to Mr\*t\*m\*r?"

"Mr. M\*t\*m\*r had a fountain PN. It hadn't a nib; but as he only carries those things for show, he won't notice that fact. We thought of scissors. He wears those out at such a rate, however, so we sent him a derrick."

"I see, for lifting. Now about Mr. Ch\*ld B\*y'l'y?"

"He had a copy of the new work called 'The Complete Editor; or Pseudonym Secrets.'"

"How nice of you! Then there's the Rev. F. C. L\*mb\*rt."

"Yes, he had 'How to Succeed though Good,' and 'The Lives of the Saints,' illustrated by Mrs. Barton."

"You think of everything! Any journalistic celebrities come in for anything?"

"Oh, rather! To Mr. Newton we gave a beautiful little tract upon the effect of illegitimacy on three-colour work. Mr. Douglas English had some rat poison, some fly-papers, and a ginn trap. Mr. Rawlins had a 7lb. tin of printer's ink and a pair of boxing gloves; M. Demachy, a box of oil colours and a rapier. Mr. Tilney had a box of paints too, and a Sandow developer."

"Good! and how about Russell Square?"

"Well, Mr. Secretary Mac. we thought would like a box of crackers. He uses the coloured gelatine off them, you know; and then we remembered that he was a Scotsman, so we dropped him down a bottle of Johnny—"

"Any amateurs?" I interrupted.

"Only Mr. Coburn, and to him we gave a new lens, an exposure meter, and a watch."

"You couldn't have suited him better; but they'll quite spoil his reputation, I'm afraid. And that's all, eh?"

"Enough 'too!'"

"Well, where do I come in."

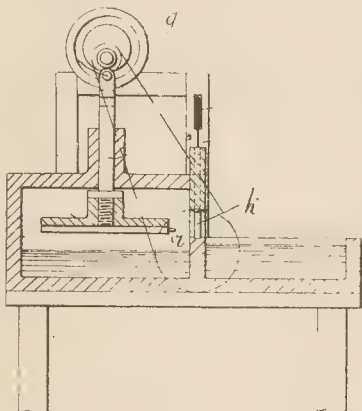
"You don't!"

So I went out.

## Photo-Mechanical Notes.

### Etching Machine for Half-tone and Line Plates.

AN addition to the means of affording mechanical aid to the etching of metal plates in the making of line and half-tone blocks is advanced in a recent patent specification (No. 20,321) by H. G. Bartholemew, 16, Westminster Palace Gardens, S.W., and H. M. Bussey, 28, Bonnerville Road, Clapham, in the form of an apparatus designed to plunge the plate to be etched rapidly into the etching fluid, and to remove it at once, this sequence of actions being repeated as long as



power is supplied to the mixture. As seen in the figure, the plates, fastened face downwards in the frames *r*, are covered on the extremity of a plunger, to which an up and down motion is communicated by the eccentric gearing *g*. The acid is contained in a chamber which is closed when the machine is working, but into which the plates are introduced by the doorway *k*.

### Machine Printing of Intaglio Etched Plates.

A patent has been granted to an American engraver, S. L. Morgan, of 112, Home Avenue, Rutherford, Bergen County, New Jersey, for a machine for the printing from plates engraved in intaglio, and therefore requiring to be wiped, so as to remove the excess of ink, between the taking of each impression. The constructional details of the machine are too minute to be explained without the reproduction of the fifteen figures in the specification, and therefore this latter (No. 14,565, 1906), should be consulted. It may be said, however, that:—

The wiper for the printing surface is in the form of a flexible strip which is first moved in one direction over the printing surface, and is then returned, so that the succeeding wiping operation is by a soiled portion of the strip.

The wiping operation commences with a much soiled portion of the strip, and finishes with a less soiled portion of the strip.

There is a strong flexible belt moving with and supporting the wiping strip.

### The Penrose Process Pocket Book, 1907.

This little pocket book and diary contains not only the usual blank spaces for daily notes; but also a collection of useful formulæ and tables for process work. It is compiled on the same lines as in previous years, but the formulæ and tables have been thoroughly revised and brought up to date. The price, from Messrs. A. W. Penrose and Co., 109, Farringdon Road, London, E.C., is 1s. 6d., in leatherette, or 2s. in full leather.

The following patents were applied for recently:—

**LINE-BLOCKS.**—No. 28,200. Improvements in the production of letterpress line-blocks, without the aid of photography, direct from sketch. James Will, 11, Liverpool Street, London.

**ETCHING.**—No. 28,679. Improvements relating to etching. Johan Atel Holmstrom, 111, Hatton Garden, London.

The following Complete Specification is open to public inspection before acceptance under the Patents Act, 1901:—

**ETCHING.**—No. 28,679, 1905. Holmström.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between December 17 to 22:—

**CHANGING BOXES.**—No. 28,868. Improvements in changing boxes. Edouard Streiff, France. (A. J. Boulton, 111, Hatton Garden, London, E.C.).

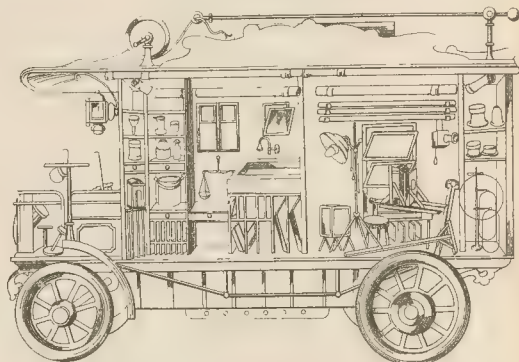
**PRINTING FRAMES.**—No. 28,936. Improvements in printing frames. Henry Major, 24, Carholme Road, Forest Hill, London, S.E.

**DEVELOPING TANKS.**—No. 29,064. Improvements in photographic developing tanks. Ernest Elder, 88, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**PHOTOGRAPHIC MOTOR CARAVAN.**—No. 18,345, 1906. The claim is for a vehicle for the conveyance of photographic apparatus and a dark-room, and provided with an electric battery adapted to



drive an electro-motor for propelling the vehicle and to feed electric lamps for illuminating the objects to be photographed. Jean Schmidt, 10, Kaiserstrasse, Frankfurt-on-Main, Germany.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Where to Go

In the heart of the Franconian part of Bavaria (writes Mr. Jas Shaw in "Photography") lies Rothenburg o/d Tauber, one of the finest mediæval towns to be found in the Fatherland. For a quiet, restful holiday I know no better place. Fortunately for the artist and the photographer, Rothenburg has largely escaped the hand of the restoring vandal, and still presents a variety of quaint buildings and fascinating streets, which form a perfect mine of pictorial wealth.

Set high on a hill above the lovely valley of the River Tauber, the old red city is still encircled with massive walls, from which at short interval spring towers of all shapes and sizes, and with here and there huge embattled gateways commanding the entrances to the town. Through the gates, especially in the morning and evening, a constant flow of picturesque life is passing.

### Light-hearted Russell Square.

"The Amateur Photographer," in its notes by the "Magpie," asks: "Should a learned discourse be more serious than a police court case? If the sciences of phrenology and of palmistry may be allowed their funny moments, why not also photography? Anyhow, whether it be right or wrong, this is the kind of thing that we have arrived at:—Scene: A lecture-room. Technical bouncer (to demonstrator who is developing a print in a quarter-plate dish): 'Can your process



be worked up to 36x24." Demonstrator: "Not in this dish." (Roars of laughter.) Chairman (summing up discussion): "I always sensitize the paper overnight at my bed time." Voice from audience: "You mean same morning." (Laughter.) Chairman (continuing): "And leave it to dry in the kitchen; but the 'missis' won't let me use that room in the daytime, so I fall back on the scullery." Voice: "Why not take the pledge?" (Laughter.) Chairman continues: "To reduce over-intensity I use soap—any kind which comes handy." Voice: "Is that why your prints are sometimes mottled?" (Prolonged titter.) Chairman: "When I said any kind, I should have added—excepting trust soap." Audience falls into risible convulsions. Thus do the destinies of a new process kick the balance with Plowdens'isms."

### Bordered Postcard at One Printing.

If we place a film negative in the printing frame with a piece of clear glass as usual, then put a postcard on top and print, we will get writes Mr. J. Peat Miller in the January "Photographic Monthly," our picture with a black border larger or smaller according to the size of the film; but if we take a piece of white paper and cut an opening about the size of the film (either larger or smaller), then put that into the frame and centre the film over the opening, then put in a card and print as usual, we get our picture with a light or dark grey border, according to the thickness of the paper and the printing density of the negative. If the opening in the white paper is smaller than the negative, we will get a narrow white border next the picture, and if the opening is larger than the negative we get a narrow black border next the picture, and the broad grey border outside of that.

The effect got in this manner resembles a print mounted on a natural tint mount. If we want a darker tint we use a thinner paper, or two sheets of the same paper will give a lighter tint.

### Stains on Gaslight Prints.

In many cases out of ten brown stains on gaslight papers (writes Mr. G. Lewis in "Focus") are due to the prints not being kept on the move in the fixing bath. If they stick together, or float on the top with the surface exposed to the air—if, in fact, they are not surrounded with hypo solution—stains are inevitable, and they cannot be removed. Hypo brought back by the fingers into the developer will also produce them. Stains may also occur with some papers if the hypo bath is not made acid when directed. The simplest plan is to keep a special bottle for the acid solution (acetone sulphate, tartaric acid, or sulphate of soda and sulphuric acid), adding a little to the ordinary fixing bath when required. It may also be used on plates and lantern slides, but it will be fatal to P.O.P.

## New Apparatus, &c.

The "Euryplan" f/4.5 Anastigmat. Sold by A. E. Staley and Co., 29, Tavistock Inn, London, E.C.

Messrs. A. Staley and Co. have submitted one of these new lenses to us for examination. It is a symmetrical objective, each combination consisting of three lenses with an air space. Three series are listed, with respective full apertures of f/4.5, f/5.6, and f/6.8. The one we have tried is of 5 in. focal length, and aperture f/4.5, and at full aperture it seems to cover a quarter-plate most perfectly. The astigmatism and the coma are both small and practically negligible, while the field is very nearly quite flat for a moderately distant object. The lens is of somewhat narrow angle, the extreme angle being about 63 deg. It will therefore just cover a 5 x 4 plate, and though it covers this size with excellent definition the requirements of rising front, etc., suggest that it is best adapted to a quarter-plate camera. The single combinations will, of course, cover a larger plate, and they do so with good definition if stopped down. The price of the lens (£5) is moderate, considering its extreme rapidity, and it should be a very valuable lens for focal plane work. This is the second f/4.5 lens we have had to report upon lately, and it is evident that focal plane workers are being especially well catered for just now. Not very long ago lenses such as these were quite unattainable, and even up to quite recently they could only be procured at very long prices. Their narrow angle we consider to be an advantage, for the matter of covering power has been

considerably overdone of late. A big angle has advantages when the rising front is used, but the rising front is very seldom used to extremes, and the wide angle tends to fog the plate. It is not worth



while fogging every plate exposed for the sake of providing a movement that may never be required.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, JANUARY 4.

Hampstead Scientific Society. "Some Missing Links in the Plant World." Miss Marie Stopes, D.Sc. (Lond.) Ph.D.  
West London Photographic Society. "Cruise in the Western Mediterranean." G. Lamley, F.R.P.S.

#### MONDAY, JANUARY 7.

Leek Photographic Society. "A Visit to a Pottery." Thos. Hantley.  
Southampton Camera Club. Annual General Meeting.  
Blackburn Camera Club. "Up the Moselle with a Camera." W. Phillips.  
Bowes Park Photographic Society. Lantern Slide Competition.  
Lancaster Photographic Society. "Carbon." Demonstrated, Messrs. H. Engleworth and Co.  
South London Photographic Society. "A Dive into Belgium." W. L. F. Wastell

#### TUESDAY, JANUARY 8.

Royal Photographic Society. "The Action of Substances upon the Latent Image." C. E. K. Mees, D.Sc., and S. E. Sheppard, D.Sc.  
Darlington Camera Club. "Flowers and Fruit Studies." E. Seymour.  
Leeds Photographic Society. General Meeting. New Lantern Slides. Godfrey Bingley.  
Worthing Camera Club. Prize Slides, kindly lent by Photography, with Criticism.  
Sheffield Photographic Society. "A Contribution to the Discussion of the Relation of Photography to Art." Henry W. Dick.  
Burton-on-Trent Natural History and Archaeological Society. "A Comparison of Developers." H. Lloyd Hind, B.Sc., A.I.C.  
Blyth and District Camera Club. "Bromide Enlarging." A. D. Miller.  
Hackney Photographic Society. "Enlarged Negatives." Rotary Photo. Co.

#### WEDNESDAY, JANUARY 9.

Edinburgh Photographic Society. "Motives in Art as Illustrated in the Works of the late George Frederick Watts, R.A." Alexander Eddington.  
Borough Polytechnic Photographic Society. "The Making of Enlarged Negatives with Rotograph Negative Paper." Rotary Photographic Co., Ltd.  
Croydon Camera Club. "Theory and Practice of Self-Toning Papers." J. J. Griffin and Sons.  
Covese Camera Club. "Hford Lantern Plates." A. Brooker.  
Evertton Camera Club. "Self-Toning Papers." J. J. Griffin and Sons.  
Bristol Photographic Club. "Bayeux Tapestry." W. T. Crank.  
Woodford Photographic Society. "Manipulation of Apparatus." W. L. F. Wastell, F.R.P.S.  
Leicester Photographic Society. "Sports and Pastimes with the Goerz-Anschutz Folding Camera."  
South Essex Camera Club. "What Can be Done with a Hand Camera." C. P. Goerz.

#### THURSDAY, JANUARY 10.

Blenheim Club. "The Abbeys of the Cistercians." C. H. Bothamley, F.I.C.  
Rugby Photographic Society. "The Photographic Lens." C. P. Goerz.  
L.C.C. School of Photo-Engraving. "The Artist and the Advertiser." J. Murray Allison.  
Hull Photographic Society. "Architectural Photography." J. R. Wigful, A.R.I.B.A.  
Liverpool Amateur Photographic Association. "The Amateur Photographer and the Professional Astronomer." Rev. Father Sidgreaves.  
Richmond Camera Club. "Pinatype Process." Fuerst Bros.  
South Norwood Photographic Society. "Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning Bromide Paper."

BOMBAY BRANCH OF THE P.S.I. On December 3 in Mr. Vaughan's quarters attached to the Bombay Paper Currency Office a meeting of the general committee of the proposed Bombay Branch of the Society of India was held, when Mr. C. Lynde, the secretary, explained the position. There were not sufficient members enrolled to enable them to constitute a branch of the parent society at Calcutta, therefore it was deemed desirable to constitute a local body. Hitherto only thirty-two gentlemen had been forthcoming; nearly double that number was required to commence practical operations, and to meet the expenses. A fund was proposed to be started; a constitution required to be framed. It was decided that after these preliminaries had been carried into effect a meeting should be called at a convenient date to ratify the rules.

## Commercial & Legal Intelligence.

CHARLES TYLER AND ENGLAND BROTHERS, LTD.—£10,000 5 per cent. debentures, created and dated December 6, 1906, have been registered. Property charged: The company's undertaking and property, present and future, including uncalled capital. No trustees.

### NEW COMPANIES.

H. BOWN.—Capital £20,000 (£1) (5,000 6 per cent. cumulative preference). To adopt an agreement with H. Bown for the acquisition of the business of an artist and photographer, carried on by him at 29, Stockwell Park Road, S.W.; 43, New Kent Road, S.E.; 31-33, Jamaica Road, S.E.; and 298, Clapham Road, S.W. Minimum cash subscription, 10,000 shares. First directors: R. Corfield, T. Grimes (managing director), and J. S. Reid, 250 shares. Remuneration (except managing director), £100 per annum. 23, Great St. Helens, E.C.

W. GRIGGS AND SONS (1906), LTD.—Capital £8,000, in £1 shares. Objects: To acquire the business carried on by W. Griggs and Sons, Ltd., and to carry on the business of photo and chromo lithographers, chromo collotypers, colour process, and half-tone engravers, photo-etchers, stationers, printers, electrotypers, photographic printers, etc. No initial public issue. The first directors (to number not less than two nor more than seven) are: Carl Hentschel, A. T. Clarke, and W. Griggs. Qualification, £100. Remuneration as fixed by the company.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE MEASUREMENT OF BUILDINGS FROM PHOTOGRAPHS.

To the Editors.

Gentlemen,—Just a warning note to those of your subscribers who may be tempted by Mr. Lockett's interesting paper on "Elementary Photographic Surveying," to try their hands at a first attempt. In London and the South country, bricks and buildings are generally four courses to a foot, but in the Midlands and the North, and in many engineering structures in London and neighbourhood four courses measure 13 inches. Further, more than one building of prominence in London is built with 2-inch bricks. Consequently a certain degree of caution should be exercised in using a photograph of bricks in a building as a scale.

From a point of view of accuracy two photographs from the ends of a measured base and with known bearings are much to be preferred.—Yours faithfully,

HARVEY COLLINGRIDGE, B.Sc., A.M.I.C.E.

55, Hornsey Rise Gardens, Crouch End, N.

December 29, 1906.

### THE CONVENTION SOCIAL.

To the Editors.

Gentlemen,—Judging by several letters recently received, it would appear that some of the invitations to the above function, which were posted December 15, have not been delivered.

Should any of your readers, who are members of Conventions, not have received my circular, I shall be glad if they will kindly communicate with me at once.—Thanking you in anticipation, I remain, Gentlemen, yours truly,

F. A. BRIDGE,

East Lodge, Dalston Lane, London, N.E.

December 29, 1906.

### A PHOTOGRAPHIC ASSISTANTS' PROTECTIVE SOCIETY.

To the Editors.

Gentlemen,—I am very pleased to announce that 22 more have sent in their names. This makes the total of 93 members. I have also replied to 72 others who have written to me.

To my surprise I find a great number of applicants who never read the Journal; they rely upon some passing friend to tell them what is going on in their own profession. To place oneself out of touch of all the best that can be procured in the profession shows very poor policy on the part of a great many assistants. No one can say that a week passes without being able to derive some good from the Journal, and I fail to see that it is twopenny ill spent. Two members have sent me small sums towards any expenses incurred by me. These I have returned with thanks. I must strongly point out that, on no consideration, must money be sent to me for this purpose. The only thing that I require are members and suggestions. I have borne the brunt of it so far, and am quite prepared to go on with the cause and bear the remainder. Those who require a reply need only send a stamped addressed envelope, and, sooner or later, I will reply. My correspondence has been rather lengthy and heavy of late, but I am more than repaid by the steady increase of members and suggestions. Two only have sent suggestions. One is from a manager, who has no doubt given a good deal of thought to the matter. The suggestions are:

(1) "That the P.P.A. start a separate society for assistants of all grades. Yearly subscription to be 5s. The assistants could then become associates of the P.P.A., thus giving them a chance to show they are connected with the P.P.A. The subscription would then defray any expenses connected with publishing quarterlies, or what the P.P.A. thinks appropriate. The bona-fide managers of firms could then act on the committee of the associates, to bring forward all grievances, and any points which would better the assistant's career. Assistants could then be put on a sound basis in all grades of the profession. I maintain that the assistants could do as much then towards bettering their employers as well as themselves. The system of examinations could still be carried out, and, with the aid of the assistants' subscriptions, could be managed better and more expeditiously. This system would eventually make a stronger bond between employer and employee. As a manager, I shall be willing to act on any committee that is formed."

(2) "To form a society of photographic assistants to work in conjunction with the P.P.A., to have a separate page set apart in the Journal for assistants' correspondence, and any articles they would like to write on the subjects of assistants and photography."

As regards having a page set apart in the Journal, that rests with the assistants. If they would only show some enthusiasm in their profession I have not the least doubt that our highly respected editors would offer every opportunity. If the assistants follow in the same tracks as they have been doing, then it would not pay to set a page apart for that.

I am still open to receive names and suggestions, but before I place any suggestions before the P.P.A. I hope to be able to place a list of 350 names before them, then one would have some heart in asking the P.P.A. to offer some helpful suggestions to the society we are trying to form.

Our thanks are due to the editors for so kindly placing so much space at our disposal with much apparent willingness.—Yours faithfully,

19, Richmond Terrace, Romsey, Hants.

V. DOUST.

### PYRO-AMMONIA DEVELOPER.

To the Editors.

Gentlemen,—I must differ with the paragraph in "Ex Cathedra" in the B.J. of December 21. Almost every sentence in it is contrary to facts and truth. I would not like to enter into discussion on this subject, but I will only say the following facts in answer to the rash assertions.

I do not understand what you mean exactly by rapid oxidation of pyro-ammonia developer, but I have been using it now for dry plates—gelatine, of course—for about 26 years or more, having developed some of the very first plates made with it, and use it yet, with good results, however not so good as originally, and that means



since A.D. 1900, when extra rapid plates came into use and the rage. I make up solutions of pyro and ammonia bromide, and use it as long as six months. The ammonia solution (put out of court, as you say) I keep easily for months in a glass stoppered bottle. I never used a hydrometer; in fact, never needed one, having no use for it. In development, when exposure was correct, of course, developing four negatives was an easy matter, and I reached as much as six negatives in the same developer, and even found that the first negative came up slower than the following ones, up to the fifth, when the development was rather slow. The same was happening with fixing, when the first negatives fixed slower than subsequent ones. As to developing two or more negatives exactly alike, I never tried it, therefore cannot say; but I do not know in how far this can be done to-day with other developers, this not being always the case with stereotypes. I have developed hundreds, and even thousands, of negatives before the year 1900, and always had with the very same pyro-ammonia developer clear, bright, and perfect printing negatives, but for some unexplained reasons the clearness and freedom of stain in film I can no more obtain since that date, specially with rapid plates, but can do so yet with comparative slow plates, H. and D., 120 or less. This same developer I can also use for slow development, taking from two to ten hours. The smell is really not so offensive as a London fog, and at one foot from the dish cannot be detected, as I sometimes even think I forgot to put it in the dish, and I must come much nearer to smell it.—Yours very truly,

A. LEVY.

4, Avenue Pinel, Asnières (Seine).

[If, according to M. Lévy, almost every sentence in our note is contrary to facts, it appears to us that our correspondent's 26 years' experience has given him a poorer opinion of pyro-ammonia than we hold, for not a few of the sentences referred to drew attention to the good, and, for some purposes, unique qualities of the developer. As regards its defects, we still hold the opinions expressed in our note. M. Lévy evidently uses an ammonia solution of very uncertain strength. There can be no possible advantage in this, and if he will adopt our recommendation with regard to the use of an hydrometer he will have a great deal of time and trouble and secure evenly uniform results far more readily. Our remarks with regard to oxidation, of course, applied to the mixed developer, not to the stock solutions. A mixed pyro ammonia developer, in our experience, rapidly acquires a thick oily scum of oxidised pyro, whereas a properly compounded pyro-soda developer is comparatively free from this defect, even when in use. In the case of the former developer, we should certainly always advocate fresh developer for each plate. We also have used this developer for prolonged development, but consider it to be about the most inconvenient one for the purpose, unless the citrate method is adopted, in which case it is probable that the solution soon ceases to be a developer and becomes an intensifier. M. Lévy's experience that the first plate developed of a series comes up more slowly than later ones appears to us simply to illustrate the uncertainty of the developer. The first dose of ammonia was probably weaker than the subsequent ones. Even with accurately adjusted solutions it is difficult to regulate the amount of ammonia used if the stock solution is strong, while weak solutions dilute the developer at every addition.—Eds. B.J.]

THE Royal Photographic Society announces that an exhibition of photographs by members of affiliated societies will be held at 66, Russell Square, London, W.C., from Thursday, January 3, to Saturday, February 23. The exhibition will be open to the public daily from 10 a.m. till 5 p.m., on presentation of visiting card.

THE Bolt Court School.—The annual supper of the students at the Bolt Court School of Photo-engraving and Lithography was held on December 28. Mr. Nelson-Dawson was in the chair, and the Principal (Mr. A. J. Newton) and the Head Art Master (Mr. Cecil Rea) in the vice-chairs. Among the guests were Messrs. W. Gamble (Messrs. Penrose and Co.), Mr. Sparling (Messrs. Hunter's, Ltd.), Mr. George E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY), and Dr. C. E. K. Mees. An excellent programme of music was offered, including a play, which is a feature of the Bolt Court suppers. Mr. R. C. Armour this year presented an Assyrian rhapsody, "in two rhaps." the performance of which was highly appreciated by an audience which cheered to the echo.

## Answers to Correspondents.

- \*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \*\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \*\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \*\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- F. Heyworth, 100, St. Andrew's Road, St. Anne's-on-the-Sea, Lancs. Three Photographs of the St. Anne's-on-the-Sea Lifeboat with Crews.
- The Carbonora Company, 4, Wild Street, London Road, Liverpool. Photograph entitled, "Daddy's Pipe."
- R. Thirlwell, 21, Bridge Road, Stockton-on-Tees. Photograph (Flashlight) of Hartlepool Amateur Theatricals. Two Photographs (Flashlight) of Stockton Amateur Theatricals.

J. R.—The specimens are all good average work. We should say you are worth more than you are getting, but we cannot, of course, speak with certainty, as we do not know you.

BROMIDE.—Will you be kind enough to let me know, in your next issue, the best method by which I can turn a black and white bromide print into a sepia colour print?—S. JACKSON.

Bleach in:—

A. Ammonium bromide .....	300 grs.
Potass ferricyanide .....	300 grs.
Water .....	20 ozs.
Wash and immerse in:—	
B. Sodium sulphide .....	100 grs.
Water .....	20 ozs.

LANTERN.—As we have not used the apparatus we cannot answer your questions with any authority, but we believe the bricks are not peroxide only. We should advise you to consult a lantern expert, such as R. R. Beard, 10, Trafalgar Road, Peckham, S.E., who could probably adapt the apparatus to your wants.

STAINS ON NEGATIVES.—In fixing a plate a part was not covered with hypo during a portion of the time, and is stained dark brown. Can it be removed? Another plate is stained in patches, caused, I believe, through damp or liquid being in contact with it before exposure. Is it possible to remove this?—CARELESS.

In both cases try the method of removing silver stains on page 965 of the "Almanac"—viz., soaking the negative in: Potass iodide, 200 grs.; water, 10 ozs.; and after washing transferring to: Potass cyanide, 300 grs.; water, 10 ozs.; in which rub the negative with a pledget of cotton wool. If the stain does not yield to this treatment try a solution of iodine (in potass iodide), instead of potass iodide alone.

DEPTH OF FOCUS.—I have a 5 inch lens, working at  $f/6.3$ , and I want to know the depth of focus when an object 50ft. away is sharply focussed. The depth constant of the lens is  $3 \times 3 = 9$ ;  $9 \times 100 = 900$  inches = 75 feet. The hyperfocal distance of a 5in. lens working at  $f/6.3 = 75 \div 6.3 = 11.904$ ft. = 142.848 inches, 30 feet = 360 inches. The nearest point is therefore  $(142.848 \times 360) \div (142.848 + 360) = 51425.280 \div 522.848 = 97.557$  inches = 8 feet 2.357 inches. The farthest point is therefore  $(142.848 \times 360) \div (142.848 - 360) = 51425.280 \div (-?) = ?$ —Toxo.

From about 8ft. 6in. up to infinity. You are focussing on a point beyond the hyperfocal distance, hence the far limit of depth must be infinite. You need not work out such problems

to these places of decimals, because the results are only approximate. Nothing is gained by considering the decimals of an inch, especially when they are wrong, as yours are. If your lens is an anastigmat the depth is probably less than that given by the formulæ.

**ARTISTIC LENSES.**—Can you give me the name of a firm of English agents who supply the artistic lenses, including the adjustable landscape lens described in some recent issues of the Journal?—**DIFFUSE.**

The Hermagis "artistic" lenses are stocked by Mr. F. C. Clarkson, Colchester. We are not aware of an agent here of the "adjustable landscape lens," but we think Messrs. A. E. Staley and Co., 19, Thavies Inn, E.C., supply something of the kind.

**BOOKS.**—I shall be obliged if you can advise me on the following points:—(1) A book on photographic chemistry, suitable for a student. (2) A good book on colour photography, not the two, three, or four-colour printing processes.—**E. N.**

(1) "Chemistry for Photographers," by C. F. Townsend (Dawbarn and Ward. 1s.). (2) No such book. You had better get "Natural Colour Photography," by E. J. Wall (Dawbarn and Ward. 2s.).

**A. Z.**—In our next.

**WEAK BROMIDES.**—In doing an enlargement (bromide) one is apt to get a weak print. Would intensification with mercury and ammonia have any detrimental effect on its colour or permanency, or can you suggest another intensifier?—**SUSSEX.**

We cannot recommend the process on the ground of permanency. It is the least permanent of intensification processes, with the exception perhaps of uranium. A better intensifier would be mercury, followed by sulphite; or if that does not give sufficient intensity, mercury, followed by a non-staining developer, such as hydroquinone, made up with plenty of sulphite. Both will alter the colour.

**LANTERN MICROSCOPE.**—I have a Leach Chadwick lantern microscope, with a lin. objective, and two magnifiers, A and B. I have my ordinary lantern, worked with a 3-burner acetylene jet. Information as to the best way to use the microscope and the best light gratefully received. I wish to take it about in villages, etc., etc., so require a very practical way of showing microscopic slides. I presume it will be better to have another lantern adapted for the microscope, instead of altering my present one. Please name the best book on lantern microscopic work.—**CHARLES E. S. BELOC.**

If your lantern is of solid and substantial build we think it would be possible to have a separate stage fitted to it to carry the lantern microscope, but if it is of the cheap variety it will be useless for this purpose through lack of rigidity. If you are contemplating projection to a fair size, say 12 feet, you will require limelight, and we should advise you to use the mixed jet, or one of the ether saturators. There is no book we know of especially on lantern microscopic work, but we believe it is touched upon in "Optical Projection," by Lewis Wright.

**STAINED FINGERS.**—One of our people is very much troubled with stained finger-nails, and never so much as since we have used metol. Can you give any advice other than finger-stalls (which are a nuisance), to avoid the trouble, or at least minimise it? Sometimes the nails are literally mahogany colour for weeks. In course of work he handles gold sulphocyanide toning, pyro ammonia developer, metol, carbonate, bromide developer, platinotype developer, and, of course, hypo. It seems to me it is using the various chemicals in succession, and the consequent deposit of one on the other, which causes the trouble. After gold toning he fixes his hands in hypo. Could you tell us which chemical is the principal cause of staining, and whether, if chemicals were used in a different order, it would be lessened? The quicks of the finger-nails are very much broken, sometimes raw, from using metol. That, I suppose, is unavoidable, except by using finger-stalls. Would using the stalls for one process lessen the difficulty? It appears to me to be a chemical question.—**A. CONSTANT READER.**

The use of metol for a long time will render the user liable

to worse than stains—namely, swelling and inflammation of the fingers. The only remedy is usually to stop the use of this substance; but a palliative measure is to rub lanoline freely into the hands after work is finished. Of course, metol and other developers will stain to a much greater extent if the hands are afterwards immersed in iron solution, such as platinum developer. We think if your operator made a point of keeping his fingers covered with stalls when doing platinum work the staining would largely disappear. The question is a personal one, depending upon the peculiar character of the worker's hands.

**SEPIA UMBRELLA HANDLES.**—Some time ago I asked for a process to colour mother-of-pearl. A customer of mine has some mother-of-pearl handles for umbrellas, which he wished to colour sepia. I have coloured some for him in steel colour, which I did as follows:—I dissolved one ounce of nitrate of silver in 80 per cent. ammonia, about one pint, put the handles in an airtight jug for about twenty-four hours; then I exposed this to light, which becomes a nice steel colour. Is it possible that I can turn this steel colour into a sepia, after or before it is exposed?—**H. P.**

We would submit to you that this is scarcely a photographic question. We can only advise you to try soaking the articles in a solution of sulphide of soda, which possibly may have the desired effect.

**ARTIFICIAL LIGHT FOR PORTRAITURE.**—(1) Can portrait work be done in a studio, three-quarter length and bust, cabinet size, by incandescent gaslight? If so, how many lights (ordinary mantles, about) would be required? Portrait lens  $f/4$  to  $f/6$ ; S.R. plates; exposure, three seconds, about. (2) Can retouching be done as well by gaslight reflected as by daylight? (3) Could I do enlarging without a condenser, with three or four burners, incandescent, in a row with a reflector behind and opal or ground glass in front, to diffuse the light, sizes from 1-1 plate down? (4) Where can I obtain a piece of glass surface, silvered, for a reflector camera? (5) What will prevent mildew on camera bellows?—**H. M.**

(1) Yes, certainly it can. The greater the number of lights the shorter, of course, will be the exposure. You had better have special mantles, as you would require a goodly number of the ordinary ones, unless you are prepared to give long exposures. We should recommend you to get a prospectus of Adamson's gaslight arrangement for portraiture, Messrs. Still and Co., 22, Charles Street, Hatton Garden, E.C., or of The Tress Company's light, 42, Oxford Street, W.C. (2) Yes; but it is more trying to the eyes. (3) Yes; but the exposure will have to be much longer than with a condenser. We should advise you to use a condenser. Except for the larger sizes, they are not expensive. (4) Messrs. Penrose and Co., Farringdon Road. (5) Nothing but keeping the apparatus in a dry place.

THE death took place at Barrow last week of Mr. W. Stewart, photographer, of Dalton Road.

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## The British Journal of Photography.

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## SUMMARY.

An exhibition of American professional photographs opens at THE BRITISH JOURNAL OF PHOTOGRAPHY on Monday next, at 10.30. (P. 27.)

Tests of flaming arc lamps for portraiture on orthochromatic plates have shown that there is little advantage over the use of enclosed arcs and ordinary plates. (P. 19.)

A formula for the thiocarbamide toning bath has been given by M. Crenier, and should be used with the proportions mentioned in the article on Page 22.

A series of notes on the correct mounting of stereoscopic prints deals with this question as regards separation, trimming, and the colour of the mounts. (P. 18.)

Edinburgh has been named as the Convention meeting-place for 1908. (P. 34.)

The death is announced of Mr. S. D. McKellen, originator of the modern type of camera. (P. 28.)

An actress in Berlin has been unable to recover damages for a highly reprehensible use of her photograph. (P. 17.)

A clever skit by an American cartoonist on modern art portraiture in photography is reproduced on page 22.

At the Royal Photographic Society, on Tuesday, an exhaustive paper was read by Dr. Mees on the destruction of the latent image and the action of desensitisers on plates. (P. 33.)

Mr. F. Benedict Herzog, according to "Camera Work," builds up the figure studies admired at the last Salon from bromide prints of single figures cut out with a pair of scissors. (P. 28.)

A developing machine for roll film and a viewing instrument for panoramic pictures are among the patents of the week. (P. 30.)

## EX CATHEDRA.

### American Professional Photography.

On Monday next at our offices an exhibition of portraits by leading professional photographers in the United States will be opened, and may be inspected daily, at the times which will be found advertised in another page, until February 23. We have to thank our good friend, Herr R. Duhrkoop, of Hamburg, for the opportunity of showing these photographs to our readers. The collection of prints, with others for which we have not space, was sent to Herr Duhrkoop, and has been shown by him during the last month or two at his studios in Berlin and Hamburg. The photographs include examples of the work of men who are almost as well known by name on these shores as in the land of their residence. To name a few, Pirie Macdonald, E. B. Core, and W. N. Hollinger, all in the front rank of New York photographers, are represented by a number of examples each. Garo, of Baltimore, one of the best men in feminine portraiture, has a style which is always unmistakable. F. W. Porter is another whose refined work is quite foreign to British ideas of American taste, and, lastly, the largest number of portraits are by J. S. Strauss, of St. Louis, probably as successful a photographer on original lines as any living. One of Mr. Strauss's photographs is a study of Herr Duhrkoop as the Pope, and is reproduced in the catalogue of the exhibition, which will be presented to each visitor. We publish on another page a few notes of the men whose work British photographers may now see on the wall of the "little gallery" at the BRITISH JOURNAL OF PHOTOGRAPHY'S offices.

### A German Actress and her Photographs.

A worse state of things as regards the rights of an individual to his or her face appears to prevail in the realms of the autocratic Kaiser than in America even. The case is reported of an actress—Miss Westergaard, of the Metropol Theatre, Berlin, whose portrait in costume was taken not long ago by a firm of photographers. The latter retained the copyright in the photograph and circulated the actress's portrait as a postcard, which, presumably, bore her name. The negative, however, came into the hands of a firm in Vienna, and soon afterwards transpired the incident which has given rise to an action in the law courts. A journal of a certain character published an illustration representing a young girl stretched upon a divan in extremely scanty attire and represented as saying: "I don't care much for oil paintings, but an engraving in the form of a bank-note is very much to my taste." The subject of the photograph was Miss Westergaard, and the face in the reproduction had been extracted from the portrait taken of her in Berlin. Yet the paper which published this libellous photograph obtained an acquittal on the ground that it had no knowledge of the

identity of the subject of the photograph. It is a good thing for it that the incident did not occur in England. It will be remembered that not long ago Miss Marie Studholme obtained damages from a dentist who to advertise his business showed a photograph of the lady before and after the supposed addition of a set of artificial teeth.

\* \* \*

#### Winter Water Supply.

The alternations of frost and thaw which have been a characteristic of recent weather have not hitherto resulted in any serious inconvenience, for the reason that the frost—we speak of the South of England—has not been severe. Yet it is well to be prepared for contingencies as regards the damage which may result to water-pipes in a protracted frost under conditions of severity. All exposed pipes should receive protection. At most large ironmongers a special felt for the purpose is sold. Two or three thicknesses of this non-conducting material wound round the pipes will effectually prevent their freezing. Failing the felt, "hay-bands," which may be had at most cornchandlers, will answer the purpose. If the pipes are secured to a wall, so that the felt cannot be wound round them, it may be closely nailed over them. Another good way of preventing the water freezing in the pipes is to leave it constantly dribbling at all the taps. Should the service pipe from the street main be laid close to the surface of the ground, as it sometimes is, it should receive further protection by having more earth placed upon it, or, better still, by the ground being covered with six or eight inches of good stable manure. Thus protected, the supply pipe is scarcely likely to become frozen, even should the weather prove to be severe.

\* \* \*

#### Horizontorium Pictures.

We have several times drawn attention to the solid relief perceptible in a photograph when it is seen from its one proper view point or perspective centre, and in a recent leader we pointed out the importance of good "monocular relief" in the case of stereoscopic slides. A writer in the January number of "The Photographic Monthly" gives some striking illustrations of the monocular relief obtained under somewhat unusual conditions. His results were produced in a camera so arranged as to place the plate in a horizontal position. They therefore are similar to bird's-eye views taken from a near view-point, and if observed from a usual standpoint, show what many people would style violently distorted perspective. When viewed from the one proper point the perspective appears correct (as, of course, it is), and the subject stands out in strong relief. Being similar to the old hand-drawn puzzle pictures known as "Horizontoriums," the author of the article has adopted that name for his photographic results. The effect of relief in these pictures is aided by the unusual conditions, for when looking down on a subject that stands on a horizontal plane the varying distances of the different vertical planes is very obvious, much more so than when the same subjects are viewed from a lower standpoint. There is nothing in any way stereoscopic in the effect. It is simply the result of perspective conditions that are rather more strongly marked than is usual, and it affords an excellent object-lesson in the importance of good perspective. It should be pointed out that the horizontal position of the plate has really nothing to do with the effect. The result entirely depends on the position of the lens relative to the subject, and the plate may occupy any convenient position. In the original "horizontorium" a horizontal position was selected for the picture plane to add to the apparent distortion, and so give to the result more of the character of a curious puzzle. So far as the relief effect is concerned this complication is altogether unnecessary, but still the apparent distortion has advan-

tages. The absurdity of the effect compels one to search for the correct view-point, while in the absence of any very obvious distortion the spectator is too apt to be content with a quite wrong point of view.

#### MOUNTING STEREOSCOPIC PRINTS.

In mounting stereoscopic prints there are three important matters for consideration; first, the amount of separation required; second, the trimming of the prints; third, the tone of the mount. All three of these matters are commonly dealt with in a haphazard fashion, but the effect obtained depends very greatly upon them, and many slides are marred by the obvious neglect of the very simple rules that should be observed.

The question of separation we have already dealt with partially in an "Ex Cathedra" note, in which we gave the rule that the print separation should be equal to the separation of the eyes *plus* the separation of the lenses and *minus* the separation measured on the negatives. The separation on the prints is, of course, measured between two corresponding points, and that of the negatives between the same two points; and the rule assumes that the negatives are taken on one plate in the usual type of camera, fitted either with two lenses or with a single lens that can be traversed from side to side so as to expose each half of the plate in turn. It is also assumed that the stereoscope is non-prismatic; if, however, prisms are used, the print separation should be increased by, theoretically, the width of one prism. In practice the prisms are seldom properly centred, and it is advisable to allow rather less than the full width.

Stereoscopic negatives are, however, often produced in less conventional ways, and the rule then requires modification. The first and most important of these varying methods is the use of a single camera that is bodily moved sideways between the exposures, this being equivalent to the use of two separate cameras placed a certain distance apart. The lens separation may then be very great, and, as we have before pointed out, a correct mounting separation is of the greatest importance when the views have been secured from widely different points of view. The rule is a very simple one to apply, and the distance between the two view points need not be measured, as everything is recorded on the negatives. Place the two negatives side by side with edges touching, and in the same relative positions that they occupied during exposure. Next measure the separation of two corresponding points on the negatives and also the width of one of the plates, which should both be of the same size. The proper mounting separation is then equal to the separation of the eyes *minus* the separation measured on the negatives and *plus* the width of one plate.

The only other case worth consideration is that in which the camera is moved as before, but the two negatives are secured on one plate, their relative positions being changed by the use of a repeating back. It is very often assumed that in such a case you can print direct from the negative on to one piece of printing paper, and so secure two positives that need no cutting. As a matter of fact, cutting is necessary, for the positives thus obtained are at the wrong separation, hence the various expedients for producing negatives in correct relative positions are of little or no advantage. The correct mounting separation is arrived at as follows:—Measure the separation of two corresponding points on the negatives, and also the amount of movement of the repeating back relative to any fixed point on the camera. This latter measurement can always be taken from the camera itself if the back is moved to its extreme limits, but if the possible movement is unlimited the measurement must be noted at the time of exposure. The



print separation is then equal to the eye separation *plus* the negative separation *minus* the movement of the back. In this case, again, the lens separation need not be noted. If the particular object points that we measure between are at an infinite distance the print separation is, under all these rules, equal to the eye separation. But if no infinitely distant objects are included this simple modified rule cannot be applied, and the nearer the objects and the wider the separation of the lenses the more important does it become to observe the correct rule, for non-observance may give most obvious distortion.

The next point for consideration is the trimming of the prints, and it is best to conduct this process by rule also, otherwise most unpleasant results may be produced. According as the prints are trimmed so the objects in the picture appear in the stereoscope to be behind the mount, on the same plane with it, or in front of it. As a general rule the first effect is the one to aim at, and it is very simply attained by the following method of trimming. First, trim the two prints as nearly alike as possible. It is impossible to cut the vertical margins so as to show precisely the same amount of detail at the corresponding edges, but one can get very near to correspondence. Then lay the prints side by side with margins just touching, and measure the distance between the images of the nearest point represented. This dimension fixes the extreme limit of width of each print, and they must be trimmed down at the outside margins only, until the width is just a small fraction of an inch less than the measured distance. If the nearest object is at the margins the strip taken off need not exceed one-fifteenth of an inch, and in many cases it is unnecessary to take off this small amount. On the other hand, if the nearest object is in the centre of the view it may be necessary to take a quarter of an inch, or even more, off the edges. It has often been stated that from one-sixteenth to one-eighth of an inch is the right amount to remove from the outer margins, but any such hard and fast rule is incorrect. The trimming must vary with the subject.

The correct trimming rule depends on the law of convergency that governs all stereoscopic effect. The nearer an object is the less is the separation of its two images. Hence if the subject is to appear as though viewed through an opening in the mount the corresponding margins of the prints must be nearer together than the images of the nearest object. If the rule is not observed, some parts of the subject will appear to be in front of the mount, and

great confusion may exist at the horizontal margins. If only distant objects are at the margins the prints will differ greatly in the amount of subject they include, and as objects shown in one print alone are not seen stereoscopically and often cause confusion, it is desirable to avoid such dissimilarity. This can only be done by selecting the subject and point of view in such a way as to ensure fairly near objects being at the margins.

If it is desired to bring the objects in front of the mount the procedure is very similar, but the width of the prints must be slightly *greater* than the separation between *distant* points, and the extra trimming must be carried out at the *inside* edges of the prints. Such a mode of trimming is seldom justifiable and a far better method is to cut the negative, re-arrange the two halves with proper print separation, vignette both halves, and print together on one piece of paper. No margins then appear, and with some subjects the absence of margins is most advantageous.

The third matter for consideration is the tone of the mount, and though this should be governed by a very simple and obvious rule, no rule whatever seems to be generally observed. The mount must always either fulfil the purpose of a perforated screen through which the object is observed, or of a background against which it is seen; and in either case the tone of the mount should be in conformity with the lighting of the subject. If the object is front lighted, that is, if the direction of the light is from the observer to the object, then obviously the screen or background should appear to be illuminated from the same direction, and should be light in tone. If the screen effect is produced and the subject is obviously lighted from some direction behind the screen, then, as the latter if it actually existed would be in shade or comparative darkness, the mount ought to be dark. A perfectly black mount is very suitable for a brilliantly lighted street scene, because the effect produced is very much that of a view through the window of a room which is dark by comparison with the outside. With an interior view a black mount is frequently objectionable because the idea of looking into a building through an aperture in the wall of a quite dark room outside is more or less offensive to the reason. A light mount gives a more reasonable effect, but a neutral tint that gives less defined margins is generally best. There is much to be said for the vignette effect in cases where the effect of viewing the subject through a screen is not quite in conformity with a natural state of things.

## THE USE OF FLAMING SUNLIGHT ARCS IN PORTRAITURE.

In our issue of March 31 of last year, in an article entitled "A New Artificial Light Studio," attention was drawn to the use of flaming sunlight arcs for photographic purposes, and in the succeeding issue a letter from Mr. Arthur Payne was printed, suggesting that for portrait work such lamps might be found less expensive in consumption of current, and valuable as helping to obtain better colour rendering. We have had a number of experiments made, not with the "Excello" arc lamp mentioned by our correspondent, but with cored carbons of a similar kind to those used in the "Excello" lamp, but employed in an ordinary enclosed arc lamp.

Three points were considered—viz., the question of cost of running the lamp; the relative rapidity of exposure obtained with the sunlight arc and a highly colour-sensitive plate as against an ordinary violet arc and a rapid non-iso plate; and the improvement in colour rendering of draperies and flesh.

From the photographer's point of view, the question of cost of running an electric light installation is an important one. Mr. Payne, in his letter referred to, says, giving the actual cost at Newcastle-on-Tyne, "as each lamp is said to be of 1,600 candle-power, the total cost for a light of 6,400 candle-power is 4d. per hour. The illuminating power of ordinary arc lamps consuming the same quantity of current is said to be 475 candle-power." These figures are evidently given from a maker's list or circular, and are quoted by our correspondent guardedly. The matter is a rather deep one, and as yet no very satisfactory relationship has been established between actinic power and consumption of electric energy. What is meant by 6,400 candle-power and 475 candle-power? Are these figures given in relation to photographic illumination, or are they intended to indicate the efficiency of the particular type of lamp for street illumination? It is known to everyone who has observed the various street

illuminants that the penetrating power of the ordinary arc in foggy weather is much less than that of a yellower but more feeble light. Under what conditions were the measurements taken which formed the basis of the above figures? In the "Excello" lamps the carbons are placed inclined towards each



other like the two sides of a letter V, and by means of an electro magnet the arc is repelled downwards so that the maximum illumination is downwards, which is exactly what is required for street illumination. If the comparison as quoted above were made against an open arc lamp with short arc, and the measurement taken from beneath the lamp, such figures might be



obtained, but they would be utterly misleading if unqualified and made the basis of a comparison between, let us say, ordinary enclosed arc lamps and flaming sunlight arcs for portrait work. In fact, the statement that a lamp gives a certain "candle-power" is always extremely vague.

In the experiments we have had made a large lamp of the enclosed type was employed, exposures being made with solid carbons first, and then further exposures with the cored carbons

giving the sunlight arc. The amount of resistance put in was not varied, and the measurements of electric energy were as follows:—Ordinary enclosed arc: 102 volts, 25 ampères, approximately  $2\frac{1}{2}$  units per hour. At power rate of 2d. = 5d. per hour. Sunlight arc: 101 volts, 24.5 ampères—i.e., practically equal to ordinary arc. These are the units per hour actually consumed in the lamp, the volts given being volts across the lamp. The object of so taking the measurements was to determine whether the cored carbons took more or less electric energy. The sunlight arc was undoubtedly longer than the ordinary arc, but as equivalent exposures on the different plates were ascertained by trials the relative photographic value was thus arrived at. The units per hour registered by the meter would, of course, be different. As the lamp was running on a 240 volt circuit, the units the meter would register would be 6, the lamp taking  $2\frac{1}{2}$ , and the remaining  $3\frac{1}{2}$  being lost in the resistance. When lamps are run in series the resistance loss is a smaller one, one lamp serving as a resistance for the next. This, however, applies to lamps of practically any type, and whether using cored or solid carbons.



At this point it may be well to mention a matter of great importance, the comfort of the sitter, which is often quite overlooked by the theorist. A yellow light is always far more glaring to the eyes than one of a bluer character but rich in violet rays, and the heat rays which are present to a greater extent make the light trying.

We may now turn to the results obtained during the experiments, and consider them from the colour rendering and relative exposure point of view. Our blocks are the same size as the bromide prints from which they were made, these being enlarged about four diameters from the original, absolutely untouched cabinet negatives. The half-tone screen will no doubt tend to subdue the freckles, but it is anticipated that by reproduction on such a large scale the flesh rendering may be apparent.

Z is from an exposure on an Ilford "Zenith" plate, using stop f/11 and an exposure of half a second with the ordinary solid carbons. The plate was developed in the ordinary way, by time, with a no-bromide pyro soda developer.

P is on a Wratten and Wainwright Pinachrome bathed plate, the carbons being changed to cored carbons and the exposure being one second at the same lens aperture. The distances from sitter to light and sitter to lens were identical, none of the appliances being moved. It may be well to state that the

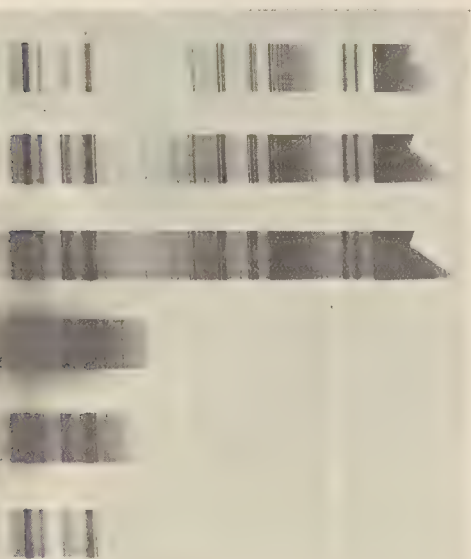


requisite exposures were ascertained by experiment, strip exposures being first given in the case of both Z and P. P was developed with the same strength developer to a proper degree of density. The two negatives, as such, are quite indistinguishable, and it is necessary to look for identifying marks in order to ascertain which is which.

So far, then, as flesh rendering is concerned from the point of view of retouching the portrait negative, the idea that the use of a sunlight arc will diminish to any appreciable extent the retoucher's work is shown to be untenable.

Where coloured draperies and light yellow hair occur, however, the colour rendering of these is greatly improved, and if they form important elements in the composition the gain is very considerable.

D



Spectrum of Sunlight Arc with and without light filter, on Wratten Pinachrome Backed Plate.

A further experiment was next made, carrying the correction still further, indeed, actually over-correcting to a slight extent. In order to give a filter of definite strength a liquid filter was employed, a 5 per cent. solution of potassium chromate in a Zeiss cell of a quarter of an inch inside measurement. Again a series of trials was necessary to determine the multiplying factor of this filter with the pinachrome bathed plate in the yellow light employed. Such multiplying factor proved to be from 6 to 8, the filter cutting out practically the whole of the blue and violet rays. PF is from the photograph taken on the pinachrome plate exposed through this filter, the exposure being 6 seconds at  $f/11$ —that is, giving the same exposure as for P, but multiplied by 6 for the light filter. The improvement in flesh rendering is now very marked, and from this point of view it may be safely said that no retouching of freckles is needed. A

great improvement is also noticeable in the expression of the eyes, which lose the objectionable glittering effect.

Halation, however, became troublesome, especially if the exposures were at all full, and a backed plate should certainly be used, backed, of course, by the makers, for these bathed plates are so sensitive that they should be handled, if possible, in complete darkness. At the most the merest trace of deepest ruby light is all that can be employed, just sufficient to see the whereabouts of the graduate and the edge of the developing dish. The pinachrome plates worked beautifully clean with the no-bromide pyro soda developer, and, as some were developed after they had been kept for seven weeks, there need be no fear of deterioration after careful storing for a reasonable length of time.

To summarise, it appears that an improvement in colour rendering of draperies, etc., may be obtained with the sunlight arc, using a colour-sensitive plate of the type employed in the



Spectrum of Ordinary Arc on "Zenith" Plate.

experiments, the exposure being about double that necessary when working with a rapid ordinary plate and the ordinary arc. By the use of a light filter of the character indicated a marked improvement of draperies and flesh rendering, with an almost entire absence of freckles, is obtained. This exposure of 6 seconds at  $f/11$  becomes only  $1\frac{1}{2}$  seconds at the quite usual aperture of  $f/6$ , and this certainly must be regarded as a very rapid exposure for approximately colour-corrected results. The results, as far as colour rendering goes, confirm those obtained by Mr. Howard Farmer some years ago, and communicated by him to the Royal Photographic Society (vide "Phot. Journal," 1902), though his experiments, we believe, were made with the Adamson super-incandescent lamp.

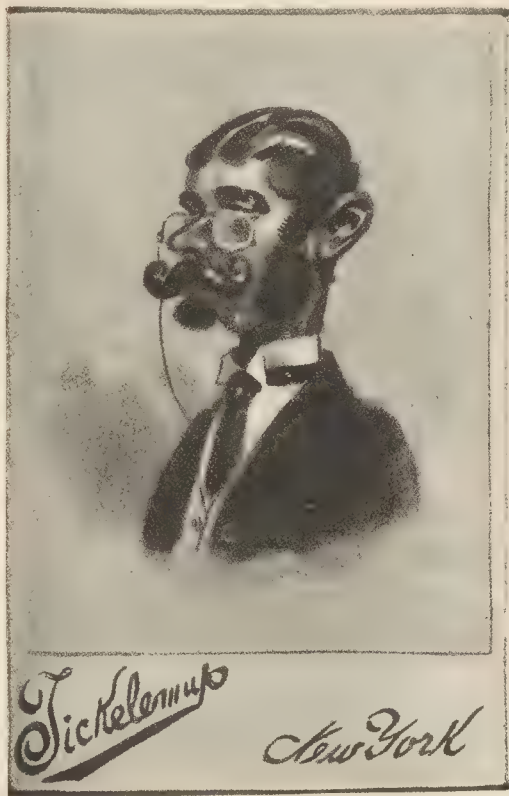
The remaining blocks illustrate the spectrum of the sunlight arc photographed on the pinachrome plate with and without the filter, with varying times of exposure, and also the spectrum of the ordinary arc on the "Zenith" plate.

THE exhibition of the Leicester and Leicestershire Photographic Society will be held from March 7 to 16 inclusive; entries close February 16. Arrangements have been made whereby exhibitors at the Sheffield and Nottingham exhibitions can, if desired, have their exhibits forwarded to Leicester free of charge. Entry forms and full particulars may be obtained from the exhibition secretary, Mr. Lewis Ough, "Fernleigh," St. James's Road, Leicester.

It will doubtless be of interest to many secretaries to learn that Messrs. A. E. Staley and Co. have a small collection of lantern slides illustrating their 8-lens system Planastigmat lenses, which they will be pleased to lend to any photographic society who would like to exhibit them. Applications for loan, or further particulars, should be addressed to the above firm, at 19, Thavies Inn, Holborn Circus, London, E.C.

## "PROGRESS" IN PHOTOGRAPHIC PORTRAITURE.

WE are glad to see Mr. Steiglitz in the current issue of *Camera Work*, making fun of the craze for "wuzziness," which has been a common feature of elementary attempts at pictorial photo-



graphy. The two cartoons reproduced herewith on a smaller scale than the originals, give the impressions of the clever American caricaturist, Mr. J. Montgomery Flagg, of the newest photo-

graphy compared with the old. It is no exaggeration to say that the later photograph of the gentlemen with the side whiskers is no worse than some of the things which are shown under the blessed banner of "pictorial photography." Mr. Steiglitz, whose own work has always been very photographic, has made a stand by example and precept, for the preservation in works of photographic art of the qualities which are most admirably photographic.



In this respect Mr. Steiglitz stands in the opposite camp to M. Demachy, whose pictorial tenets are quite latitudinarian in the licence they grant him of making photography subservient in the final product of his art. Yet both Mr. Steiglitz and the leader of photography in France have discouraged the extremes of diffused definition, which in the past more than recently have made photographers a laughing-stock in the eyes both of artists and the public. A little good-humoured caricature such as Mr. Flagg's should help to turn the efforts of the immature pictorial workers in other directions.

## THE THIOCARBAMIDE TONING BATH FOR P.O.P.

QUERIES which occasionally appear in the "Answers" column show that the toning bath for P.O.P. in which the substance thiocarbamide replaces the usual sulphocyanide is sometimes employed, but we imagine that its use is very limited and occasional. The reason is no doubt the chemical peculiarity of thiocarbamide through which prints which have been satisfactorily toned may be easily spoiled in the after operations. This peculiarity is the ability of very weak alkali, such as many ordinary tap waters, to decompose the silver compounds of thiocarbamide which exist in a print which has been toned with the aid of thiocarbamide but not fixed. These compounds are removed by a strong hypo bath, say the usual ten per cent. employed for P.O.P.; but they will be decomposed with very objectionable results if they are allowed access to ordinary tap water. In practice this means the very simple rule that prints must be transferred direct to the fixing bath from the thio-

carbamide toning solution, but as thiocarbamide has to be acid, and as the fixing solution must not be allowed to accumulate doses of acid, or it will give rise to stains and fading equally fatal to the print, it must be strengthened against their entrance by the addition of some alkali—best, carbonate of soda, about  $\frac{1}{4}$  oz. in a pint bath of hypo containing 2 oz. of hypo. These facts, which are the source, we believe, of most of the failure with thiocarbamide as a toning agent, may be emphasised in quoting an enconium of the thiocarbamide bath which appears in a recent issue of the *Photo-Gazette*, by M. V. Crenier. M. Crenier would have us believe that the thiocarbamide bath is the only one which cannot fail its user at critical moments, and though we would be unwilling to make such a claim for a solution which depends for its reliability on the manipulation which it receives, yet we would draw attention to the bath as one which may solve the difficulties of those who complain of double tones,



and of being unable to get rid of them by the sulphite modification of the sulphocyanide bath, a variation of the usual sulphocyanide formula which in many cases will be found sufficient to prevent the recurrence of the trouble.

M. Crenier says:—

"After numerous experiments with other methods of toning I have adopted the thiocarbamide bath as presenting the most advantages as follows:—It is very easy to make; it can be used immediately when made; it never gives double toning, and all tones from red to blue-black can be obtained with it; it tones very quickly, at 60 deg. Fahr. a violet tone can be obtained in five minutes; it remains active for a long time; it is not necessary to overprint so much, as it reduces the prints but little.

"The method adopted for making it is the same as suggested by Valenta:—

Gold chloride .....	2½ grs.	.25 gms.
Distilled water .....	½ oz.	25 ccs.
Add, to dissolve precipitate first formed, sufficient of:—		
Thiocarbamide .....	10 grs.	1 gm.
Distilled water .....	2 ozs.	50 ccs.
About 144 minims (14-15 ccs.) will be needed. First add		
Citric acid .....	48 grs.	.5 gm.
and		
Distilled water to .....	10 ozs.	500 ccs.
and finally		
Salt .....	96 grs.	10 gms.

"The prints should be printed slightly darker than they should

be when finished; they should then be washed in several waters and then immersed in the toning bath and kept on the move. After toning the prints must be well washed and then fixed in a hypo bath, with the addition of bisulphite, if the fixing bath is to be used over again. On drying, the prints become slightly colder."

"In summer it is advisable to add a little alum to the bath, and in winter the bath should be warmed to 60 deg. Fahr. With some papers it is also advisable to dilute the bath with an equal quantity of water, or else it tones too quickly. The usual quantity the bath requires is 170 minims for thirty-five square inches of prints.

"The tones obtained are remarkable for their freshness and variety. Some papers with a pink-tinted face do not give such good results as those with mauve.

"Some operators object that it takes longer to finish the prints with the separate baths; but this does not apply to this bath, as it certainly requires from twelve to fifteen minutes in the combined bath to obtain perfect fixation. In the thiocarbamide bath it only takes about five minutes for toning and ten for fixation in a 10 to 15 per cent. solution of hypo.

"If it is necessary to save time, two prints can be toned at once by placing them back to back, and occasionally separating them. If two prints from the same negative are toned, one with the combined, and one with the thiocarbamide bath, the results will be very convincing. Very frequently paper which has been in stock for some time, and tones badly in a combined bath, will tone well by this method."

## AMERICAN PROFESSIONAL PHOTOGRAPHY IN LONDON.

At the present time Messrs. J. H. Dallmeyer, of 25, Newman Street, Oxford Street, London, W., are exhibiting in their show-rooms a small but choice collection of portraits by American professional photographers made without exception with Dallmeyer lenses. With the exception of those taken with the Dallmeyer-Bergheim lens, of which there are one or two examples, the negatives are usually done with the 3A and 4A portrait lenses; and one thing which the visitor should notice before he looks at anything else, is the good use which is made in several cases of the large 4A lens for work which is little larger than cabinet. We referred to this very fact only a week or two ago in an article on studio lenses, and those who noted the advice at the time may now go and see what it means in practice. They should notice particularly the portraits by Mock, Hayes, and Schreiber in this connection. The portrait by Pirie Macdonald of Mr. Carnegie, we believe, is a piece of 4A work. An identical print is among the collection which will be shown at our offices. Of other exhibitors whose work Messrs. Dallmeyer have brought forward are Dudley Hoyt, Rochester; S. R. Lewis, Utica, N.Y.; Notman, Montreal, whose portrait with the Bergheim lens is worthy of special notice; and F. J. Feldman, El Pasco, Texas. The collection can be seen daily until 4 o'clock and on Saturdays until 1 o'clock.

The exhibition of American professional portraits which we shall bring before our readers on Monday next is made of work by a quite different set of photographers. Only in two instances, those of Core and Macdonald, are there exhibitors common to the two collections. Some fifteen photographs are the work of Mr. J. S. Strauss, of St. Louis, the man who has made his studio as famous as any institution in his city. This result he has achieved purely by his original methods of business. At one time he formed a collection of portraits of all the eligible bachelors of St. Louis, which was on view to any caller in the gallery, furnished, as are all the apartments in his establishment,

in as substantial and tasteful style as money can buy. Music is provided to complete the pleasure of the visitor to the Strauss galleries, and ladies out shopping in St. Louis will think of calling in at the Strauss house as naturally as the London lady of fashion visits the Dowdeswell. Mr. Strauss recently held an exhibition of portraits of personages in English society by Mr. Walter Barnett.



Mr. Pirie Macdonald's latest impression of himself.

Mr. E. B. Core, of New York, is a quiet, pleasant man free from the characteristics of many Americans. He photographs only children, or will photograph a grown up person only with a child. On one occasion the two aged heads of a family of multi-millionaires, grandfather and grandmother, and with enough money to buy half the State of New York, arrived in Mr. Core's studio and asked to be photographed. The order was politely refused, by informing them that he could consent to take their

photographs only if they brought one of their children's children with them and allowed a group to be made of the three.

Mr. W. N. Hollinger commenced life as a tintype tout on a seaside beach. He is now in the very front rank of New York photographers. He is the man who has made a success of the one-print business. He will perhaps take half a dozen negatives of a sitter, but will supply only one print, the size, style, and mounting of which—everything except the price—is left absolutely to his discretion by the sitter.

Mr. Pirie Macdonald is a "photographer of men," but advertises his business to women on the shrewd policy that men are driven to a photographer's, as they are driven to drink, by their women folk. Mr. Macdonald understands pictorial advertising. One of his designs shows him in the act of ejecting from his studio the perfectly-dressed effeminate dude of the musical stage type. Over the fanlight are the words "PHOTOGRAPHER OF MEN." The fancy portrait of Mr. Macdonald which we reproduce is taken from his New Year's card addressed to the B.J.

## THE COMPARATOR: A NEW PHOTOGRAPHIC PHOTOMETER.

(A Paper Read before the French Photographic Society.)

To estimate the relative intensities of two sources of light from a photographic point of view, the following method may be employed: To receive them on two identical sensitive surfaces and to vary their action till equal effects are obtained, and to note the exposures necessary to give this equality. From the ratio of the latter the ratio of the corresponding actinic intensities can be deduced.

If, for example, it is desired to determine the absorptive power of a certain medium, one sensitive surface should be illuminated by the direct light, and the other by the same light after it has passed through the absorptive medium.

The two exposures for each test being generally of unequal duration cannot be quite simultaneous. If the action of the light is continuous for each, it necessitates (in order that it may be exact) that the intensity of the light used should not undergo any variation during the test. It is thus impossible to use daylight, notwithstanding the fact that this is constantly used in photography.

This troublesome necessity may be overcome when the ratio of the intensities of the light to be compared remains fixed, as in the pre-

permits of this suppression if their apertures are given the necessary shape. They ought to be cut in such a manner as to give regularly graduated exposures to different parts of the sensitive surfaces. After development the two plates should be placed side by side and the position of zones of equal density observed; these positions will give the corresponding apertures of the discs—that is, those which produced the equal results. The desired ratio will thus be determined by a single test.

M. Bellieni has realised this in a practical and elegant manner by placing the revolving discs in the dark slides of two ordinary cameras. They are revolved by two electric motors.

At the back of the modified dark slides are two frames to take plates 6.5cm. by 9cm., which are pressed against metal frames which limit the surface acted upon. The shape of each aperture in the discs is with one side straight and the other curved in an analogous manner to Scheiner's sensitometer, as seen in Fig. 1, and so that the ratio of the duration of exposure of two points of the plate depends entirely on the differences of their distances from the axis of rotation. Two outlines of this kind having been made, the first giving a ratio of time of exposure equal to two for differences of distance from the axis equal to 10mm., and the second giving the same ratio for a difference of 25mm. It will then be easy to calculate the others.

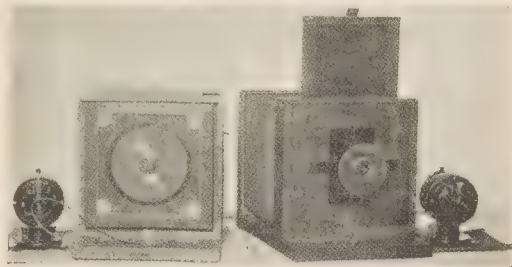


Fig. 1.

ceding example. The constancy of the absolute intensity of each light is no longer indispensable if the continuous action of the light is replaced by a discontinuous and rapidly intermittent action, such as is obtained by the rotation of a perforated disc in front of the sensitive surfaces. During the same total duration of exposure, two discs with unequal apertures give different times of illumination. If under these conditions equal effects are obtained, the ratio of the apertures of the discs enables one to determine the ratios of the luminosities of the two sources of light.

This amounts, in fact, to replacing a test of comparatively long duration by a large number of tests of very short duration, the effects of which are totalled. The final result will be just as if the luminous intensity remains practically constant during the time of each elemental test—that is to say, during the intervals of time comprised by two successive illuminations of the sensitive surface. It is always possible to satisfy this condition by giving to the discs a sufficiently great rapidity, and in practice it is not necessary to have recourse to extreme rapidities.

There only remains to overcome a serious inconvenience of this method: the necessity of a series of estimations to obtain equality of effects on the two sensitive surfaces. The use of revolving discs

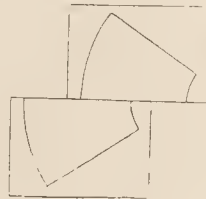


Fig. 2.

The distance of the disc from the sensitive plate is reduced as much as possible, and does not exceed 1.5mm. The exterior axis ends in a double pulley and an arrangement for counting the number of revolutions. The discs can be set in motion by two independent motors, or may be coupled up and then actuated by one motor.

After development of a plate exposed behind a rotating disc the sector will have a graduated tint, becoming lighter the further it is from the centre. To compare the results of a test, the two plates must be developed together, and then cut in two along the middle radius of the sector. A half of each plate is then placed side by side on white paper or against ground glass lighted from behind and then shifted one against the other till the tint on each coincides at their line of contact; the distance between the circular edges of the two sectors immediately tells one the ratio of the times of exposure which gave equal results. The distances are, in fact, proportional to the logarithms of the corresponding ratios, and a table can be prepared for each kind of disc.

In practice glass or paper is divided into millimetres to enable the distances to be read off at once. There is nothing to prevent other methods of comparison of the relative positions of equal zones of density on the two plates. For example, the two halves of the



plates may be compared with the tints in opposite directions and the line found at the point of contact where the opacities of the two plates are rendered equal.

The first purpose of the comparator was a study of the loss of light of two lenses, based on the comparison of the illumination given by two small holes, the lenses to be examined being placed behind each hole. For this special purpose two V supports were fitted which could be moved both vertically and horizontally; this enabled the lenses to be rapidly placed in the camera and the centres of the lenses to be easily adjusted at the height of the small holes.

The cameras were directed for this test to a sheet of white paper, carrying two parallel black lines; the distance of the images of these bands on each plate indicated the scale of reduction, which it was necessary to consider when calculating the ratio of the illuminations.

The small holes were pierced in small screens, and outside these were plates of metal pierced with holes of some millimetres diameter, which limited the field, thus preventing the light from being reflected by the lens and forming spots on the plates.

Besides this special use, the comparator can be employed for any photometric determination of the same spot, and also to a study of the action of light on sensitive surfaces. It was also proposed to commence this last application to see what approximation could be obtained and to see if it would be useful to apply corrections to the rough results.

The questions to be resolved are principally as follows: (1) Two equal quantities of light given by the same illuminant, do they give equal effects when one is given continuously and the other intermittently? If not, how does the effect vary with the conditions of intermittence? (2) Two equal quantities of light given continuously by two different sources, do they give equal results? If not, how does the result vary with the intensity of the illumination?

The study of these questions is not new; it has been especially answered by Dr. Eder in his "System der Sensitometrie," the answer being given partly by the author's own experiences and partly by reference to the results obtained by Schwarzschild. It may be interesting to examine how the indicated laws apply to the particular case of the comparator.

All the tests were made with Lumière "Blue Label" plates, the two plates of each test were cut from the same 13 by 18 plate, and developed exactly the same in the same developer; the discs carrying the two apertures were revolved about 600 times a minute.

A series of tests relating to the first question were made with a source of light, a paraffin lamp, practically constant, and placed at equal distance from the two plates. The duration of each test was not more than four minutes.

In the first preliminary test two plates were exposed for a period equal to ten seconds, the one continuously and the other behind a special disc, opened for a twentieth of its circumference, and thus exposed for 200 seconds. The tint was directly darker on the plate which received the continuous exposure.

In the following test different exposures were given to two plates

placed behind discs having a ratio of 0.2 for 10mm. The results obtained were as follows:—

Ratio of Exposures.	Distances Calculated in Millimetres.	Distances Observed.
1.5	6	5 to 6
2	10	9
3	16	14
4	20	17 to 18
6	26	24
8	30	26 to 27
16	40	36

This shows that an intermittent action diminishes the effect produced by a certain quantity of light the more, the smaller the ratio of time of illumination is to the whole. It may also be observed that the observed distance is almost always very near the product of that calculated by 0.9. This may be expressed by the following rule: If  $t$  and  $t^1$  are the exposures of two plates,  $r$  and  $r^1$  the ratios of the corresponding intermittent exposures, so that  $rt$  and  $r^1t^1$  are the real exposures, the effects produced will be the same, not as  $rt = r^1t^1$ , but as  $rt^{0.9} = r^1t^{1.0.9}$ . It would be rash to generalise a law based on such a small number of observations and so slightly varied, but one may consider it as sufficiently near under the conditions and the limits of these observations; it applies, moreover, fairly well to the results given by Eder as obtained under analogous conditions.

Another series of tests relating to the two combined questions were carried out by allowing two illuminants of known ratio to act on two plates for the same time through revolving discs, the ratio of illumination being determined by placing the plates at different distances from the same source of light, which was an incandescent electric lamp with rectilinear filaments placed in a box with black sides to obviate reflections from surrounding objects.

The results obtained were as follows:—

Ratio of Illumination.	Distances Calculated.	Distances Observed.
6.4	26.9	26 to 27
14.2	38.3	37 to 38

In another test the plates were exposed to daylight reflected from white paper, through two small holes of equal size, but with different extensions for the two cameras. The discs were fitted with apertures having a ratio of 2 for 25mm. of distance. The ratio of illumination calculated were 2.25, the distance calculated 29.2, and the observed distances were 31mm. With the first form of apertures these numbers should have been 11.7 and 12.2.

In this second series of tests it will be seen that the observed distances differ very little from the calculated distances; this is also in accord with the results obtained by Eder. If one admits with him that, according to Schwarzschild, the effect of an illumination of an intensity,  $i$ , during a time,  $t$ , depends solely upon the product  $itp$ , it is sufficient to put  $p=0.9$  to reconcile the two series of tests; this value is very close to those cited by Eder.

In every case it may be said that in the conditions under which the experiments were made a pierced disc revolving does not act exactly as though it diminished the time of exposure in the ratio corresponding to its aperture, but rather as though it diminished the luminous intensity in the same ratio. It is then sufficiently appropriate to photometric applications.

H. COUSIN.

## COLOUR - FILTERS FOR ASTRONOMICAL PHOTOGRAPHY WITH REFLECTING TELESCOPES.

From the *Astrophysical Journal*.

(Concluded.)

As all dyed filters generally dry with a slight shift in absorption towards the red, allowance must be made for this; therefore two other glasses are coated with slightly smaller amounts of solution, and then dried rapidly by fan. Exposure to the spectrum are then made through each and any other further correction noted.

In coating the optical glass for the finished filter the drying cabinet (which should be large and roomy) is carefully dusted with a damp cloth, and the supporting plate carefully levelled. The glass being coated with the determined amount, and laid upon the levelled plate, the door is closed, and left so until dry.

In filters of exact adjustment, where there are two components, it will be found advisable to flow each plate separately, as a much closer result can be thus arrived at than by combining the dyes and flowing once.

The solution actually used for coating the glass plates was made up as follows:

Gelatine, 5.0 grams { Stock.  
Water, 200.0 cc.  
Dye solution A: Stock gelatine solution, 100.0 cc.  
Tartrazine, 0.15 gram.  
Dye solution B: Stock gelatine solution, 100.0 cc.  
Auriculin, 0.2 gram.

Of solution A 2.5 cc. was flowed upon the glass plate of 58 sq. cm. area, while 3.6 cc. of solution B was flowed upon the cover-plate of similar size. The actual amounts of dye on each surface would then be A=0.00375 gram, B=0.0072 gram.

This process seems lengthy in the repetition, but is in reality quite rapid in performance. Especially is this the case where, as in

the laboratory of the writer, the spectrograph, visual spectroscopes (prismatic and diffraction), and spectrophotometer are permanently set up in position for immediate use. The collection of dyes in colour-wedge form, with their accompanying photographic records ready for consultation, is obviously of inestimable value in many ways.<sup>4</sup>

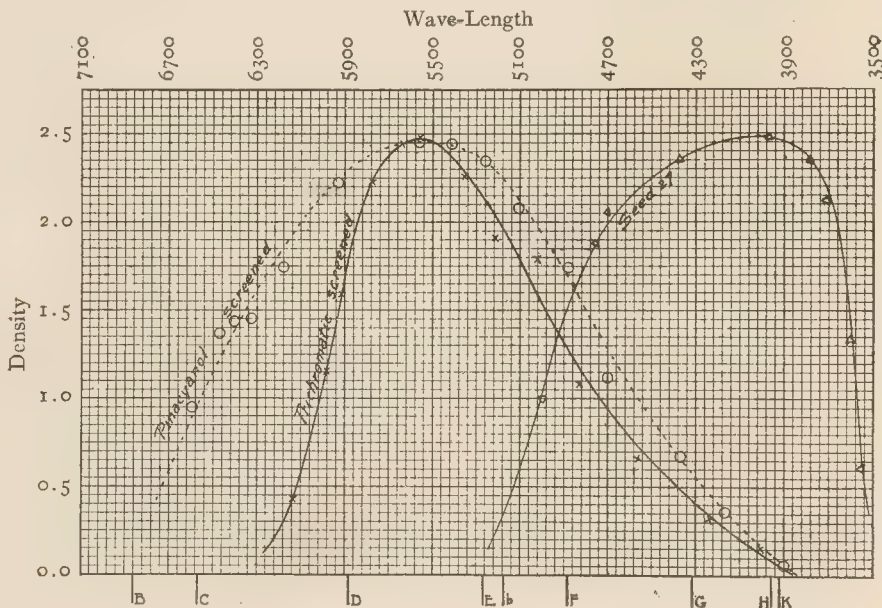
In the testing of such a filter the first consideration is that of its influence upon the correct representation of the spectrum luminosity. A series of exposures was therefore made upon two plates, a Cramer "Trichromatic," and a Seed "27" bathed in pinacyanol. These negatives were then measured in the spectrophotometer and the curves plotted; in each case that spectrum selected for measurement gave as its maximum density<sup>5</sup> of 2.5 (Hurter and Driffield).

The best result, as will be seen from the curves, is obtained by the use of the pinacyanol-bathed plate, which was prepared in a bath of  $\frac{1}{500000}$  for a period of  $2\frac{1}{2}$  minutes, and followed by a washing of about 3 minutes; the plates bathed were Seed "27 Gilt Edge." The spectra obtained upon this plate leave little to be desired, but it would be obviously advantageous if use could be made of a com-

mercially followed one another; the entire time for both exposures being less than five minutes, the light meanwhile appearing constant. These plates were then developed together. The difference in exposure time necessary to obtain similar densities was then readily calculated from the distance apart of the plotted densities of the plates when measured, and was found to be for the Trichromatic and filter 9.2 times, and for the pinacyanol plate and filter 24.5 times. A number of subsequent exposures made in the camera confirmed these figures.

The absorption of the colour-filter was next measured by the spectrophotometer in the yellow-green ( $\lambda$  5500) and found to amount to 3.8 per cent.

The actual performance of the plate and filter in the telescope was determined by exposures upon objects of the class for which it was primarily constructed, viz., coloured stars. Figs. 3a and 3b show the long period variable *U Cygni* ( $\alpha = 20$  hr. 15 min. 7 sec.;  $\delta = +47^\circ 26'$ ), *B. D.* +  $47^\circ 3077$ , which is classified by Chandler<sup>6</sup> in his colour-scale as 9.3, "where 0 corresponds to white," and so on, "through increasing shades of intensity up to the deepest red



mercial plate already prepared and easily obtained. The "Trichromatic" was found to give very favourable results (Fig. 3), where the extreme red was not required, although the lowering of sensitiveness in the blue-green at  $\lambda$  5100 is still apparent, as will be seen from the measurement points on the mean curves.

In the series of varying time exposures upon this plate, it will be noted that the point of maximum intensity—i.e., highest luminosity—remains as a stationary point about  $\lambda$  5580, midway between the Fraunhofer lines D and E. In the "Purkinje phenomenon" the maximum (visual) luminosity, in strong illumination, lies close to this point, but shifts toward the more refrangible end of the spectrum as the illumination decreases, and finally, at near the point of extinction, lies in the blue-violet. This, however, is a purely physiological phenomenon and in no wise affects the real maximum as recorded upon the photographic plate. The point of strongest action therefore remains constant.

The increase in the exposure time consequent upon the selective filtration, as compared with that of the Seed "27," was determined by equal exposures made with the Hurter and Driffield revolving sector disk. The exposures were made to diffused daylight, and

of which we have cognisance in the heavens." In the eyepiece of the 24-in. reflector this star presents an extremely beautiful appearance, almost spectacular in effect. Mean visual estimations by Messrs. Parkhurst, Jordan, and the writer, on the evening of October 3, rate it as being possibly a trifle brighter than its neighbouring white star (*B. D.* +  $47^\circ 3078$ ), which is rated as of magnitude 8.3, and separated from it  $1' 35''$ . The photographic record of this intensely red star, as obtained upon the ordinary Seed "27" plate, shows it as far below its actual value; while, on the other hand, the beneficial effect of the filter and plate needs no comment.

The actual measurements of the disk diameters show that of the pinacyanol-bathed plate the red star is slightly larger compared with the white star, while on the "Trichromatic," owing to its less sensitiveness to the least refrangible end of the spectrum, the disk is of practically the same size.<sup>7</sup>

A further word may be said relative to the exposure through such a colour-filter as has been described, and which applies generally to all others. For definitely comparable results it is essential that the temperature and time of development, and chemical constitution of the developer, be kept as constants. This is so, then the only variable which enters into consideration

<sup>4</sup>All carefully measured filters made by the writer, such as those for the 40-inch Yerkes refractor, the Lowell Observatory, etc., have been derived in a similar manner.

<sup>5</sup>The development of all spectrum exposures is kept constant in constitution of developer, and time and temperature of development.

<sup>6</sup>Third Catalogue of Variable Stars, *Astronomical Journal*, 18, 145, 1896.

<sup>7</sup>Further and complete information relative to this work is shortly to be published by Messrs. Parkhurst and Jordan.



length of exposure. That this quantity must always be variable is unfortunately true, but to the worker of even limited experience the variance cannot be great, the trained observer being able to detect any decided "thickening" during the course of the exposure; this element of uncertainty obviously becomes greater as the exposure time is increased.

The influence of this variation upon the colour-correction is indicated by the graduated exposures in Figs. 2 and 3, and is self-explanatory. With increasing exposure up to that point which represents the true filter-multiple, the remainder of the photographic opacity increases about proportionately to that at the point of maximum sensitiveness at 45600; beyond this point the spectrum shows a tendency to spread out at either end. This is to be expected from the character of the filter where the absorption must be gradual and not in any way abrupt. This spreading (at the violet end) is a point, however, which need not be taken seriously, as it would require an exposure of about double the correct length of time to show any decided difference in the spectrum.

The drop in the reflectivity of the telescope mirrors as the silver films age<sup>8</sup> is a matter of no moment as affecting the relative exposure, as, for the work immediately under consideration, the screened exposure is always the same multiple of the unscreened plate, viz., 9.2 and 24.5 respectively. The tarnishing of the silver films ought, however, to be guarded against, as it exercises a more or less strong absorptive action upon the violet end of the spectrum according to the amount, and would thereby in critical work disturb the balance of action between the two sets of plates when taken at different periods.

It is a matter of some importance that the exposure multiple of the filter and plate over the Seed "27" be kept as nearly constant as possible, because, owing to the variance of the density-exposure curve of the plate with change in wave-length, a direct comparison of the faintest stars shown constitutes a very unreliable guide to exposure.

Although this filter has been made up primarily for use with a reflecting telescope in the work of photographic photometry, yet it will be plainly seen that its use does not end there. With the refractor it would be entirely unsuited, but with the ordinary high-grade doublet camera lens where all rays come to approximately identical focus, and on objects bright enough to allow for sufficient exposure, the gain in truthfulness of representation would be marked.

In conclusion, the writer begs to acknowledge his indebtedness to Messrs. Parkhurst and Jordan for exposures at the telescope and general interest in the work.

ROBERT JAMES WALLACE.

#### COLOUR WORK IN "PENROSE'S PICTORIAL ANNUAL."

THERE are 56 examples of colour printing, all of them, with the exception of one, being photo-mechanical in character. The one exception is that of the Aerograph Company, an example of stenciled printing, which can only be described as fearful and wonderful. It is hardly likely to recommend the method, in our opinion, to show such an example as this, and it is unnecessary as well, when the process can be made to give very fair results as shown by the supplement in the current "Photo-Engravers' Monthly."

The three-colour work, as shown by all the leading firms, both English and foreign, is excellent, and the English firms have nothing to be ashamed of by the comparison. There are several four-colours; most of them look a little heavy as compared with the three-colours, though there is one notable exception, a fine example of a vase in four-colour collotype.

The commercial colour work for catalogues, etc., appears to be best, and is a decided improvement upon that of previous years. There is much more relief in the work shown this year than hitherto, particularly noticeable in the vase mentioned above and in the four-colour example of an armchair. The three-colour tapestry, carpet, and edible articles are also notably good.

The most interesting colour work is perhaps the two-colour, one of the examples shown from "Pearson's Magazine," a drawing by Lewis Baumer, being quite delightful. It is certainly astonishing that photo-engravers and publishers do not attempt to get more of the very effective illustrations which appear to be possible by the use of only two printings.

Taken all together, the colour work shown is excellent, as indicating what is at present possible. The misfortune is that there is no indication how much of this is due to skilled hand work, and how much is due to the mechanical process. If we could only get some of the leading firms to show us some results before any fine etching, as well as their finished result, it would be extremely interesting to all those dabbling in colour work in every direction, as well as to those engravers not at present attempting colour, who might imagine from the results shown that photo-mechanical colour work is simple and all plain sailing.

#### SOLAR PRINTS.

THE following method of making this particular form of camera enlargement is given by Drs. Hildebrand and Feibus. The raw paper should be that specially made for this purpose by Steinbach and Co.

##### THE IODISER.

Acetic acid .....	97 cms.
Skim milk .....	2 1/2 litres.

Boil and filter. To 1 litre of the filtrate add:

Potassium iodide .....	33 gms.
Potassium bromide .....	8 gms.

The paper should be painted with a flat brush, or pad of cotton wool, with this solution, and dried quickly in a dark, warm place.

##### THE SENSITISER.

The dried paper is sensitised with the following solution, which is applied in the same way:—

Distilled water .....	500 gms.
Silver nitrate .....	42 gms.
Acetic acid .....	63 gms.

A deep yellow or red light is, of course, necessary. The paper should be exposed wet.

##### THE DEVELOPER.

Pyro .....	6 gms.
Acetic acid .....	80 gms.
Citric acid .....	6 drops.
Distilled water .....	1,000 ccs.

The print should be immersed in the above, and when sufficiently developed rinsed with water and fixed in a 1:8 solution of hypo for five or ten minutes.

The following method is also given, but it is a little more trouble:—

##### THE IODISER.

Sulphuric acid (pure) .....	57 gms.
Hydrochloric acid (pure) .....	15 gms.
Linseed (whole) .....	40 gms.
Water .....	2,000 ccs.

Boil and add:—

Sugar of milk .....	170 gms.
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Then boil for half an hour, filter, allow to cool, and add:—

Cadmium bromide .....	22 gms.
Potassium iodide .....	74 gms.
Cadmium iodide .....	22 gms.
Water .....	500 ccs.

Then add:—

Mercuric chloride .....	1.5 gms.
Water .....	200 ccs.

##### THE SENSITISER.

Silver nitrate (pure) .....	10 gms.
Nitric acid .....	1 drop.
Water .....	1,000 ccs.

##### THE DEVELOPER.

A.—Pyro .....	25 gms.
Citric acid .....	25 gms.
Water .....	2,000 ccs.
B.—Eikonogen .....	10 gms.
Potassium metabisulphite .....	5 gms.
Hot water .....	2,000 ccs.

For brilliant negatives 1,000 parts of A with 10 parts of B. Increase of B. gives soft results and reduction, harder results. The temperature of the developer should be 104 deg. Fahr., and may be stopped

<sup>8</sup>C. A. Chant, *Astrophysical Journal*, 21, 211, 1905.

by immersing the print in cold water or a 5 per cent. solution of common salt. For fixing, a 1:3 solution of hypo should be used, and the prints left therein for one hour. Iodised paper will keep for a month in a cool dark place. In order to save the silver solution it should only be applied to that part of the paper on which the image is to appear. With a little experience and care  $\frac{1}{2}$  gm. = (7 $\frac{1}{2}$  grains) of silver nitrate will suffice for a sheet of 50 x 60 cm. (= 20 x 24 inches).

#### THE LATE J. T. SANDELL.

MR. SANDELL'S death, announced in our last issue, has not altered the need of the fund to which many of our readers contributed, and in reference to which the sums sent to Mr. Thos. K. Grant have been acknowledged in our columns. Mr. J. B. B. Wellington, to whom also a large number of donations have been sent, now sends a complete list, from which we select for publication those which have not been previously acknowledged in our columns. It need scarcely be said that Mrs. Sandell is left without support other than that of friends, and though the burden of an invalid husband has been lifted from her, the maintenance of a family the eldest of whom is sixteen years, still devolves upon her, and therefore any further donations will be thankfully received by Mr. Grant or Mr. Wellington, or sent to them by ourselves. The list, abbreviated as already specified, runs as follows:—

Fred Schofield .....	£0 5 0
X. ....	0 2 6
Reader of "Focus" .....	1 0 0
Anonymous .....	0 10 0
Birt Acres .....	5 0 0
C. H. M. Ambler .....	1 1 0
Carslake Winter-Wood .....	0 10 0
Everton Camera Club .....	1 1 0
An Amateur .....	0 2 6
K. L. Bilbrough .....	2 2 0
"The Photographic News" .....	2 2 0
Geo. Davison .....	1 1 0
W. R. L. ....	1 0 0
West Surrey Photographic Society .....	2 3 6
Houghtons, Ltd. ....	3 3 0
Anonymous .....	0 10 6
T. C. Thatcher .....	0 1 6
Iford, Ltd. ....	5 5 0
W. Butcher and Sons .....	1 1 0
W. H. Beeby .....	0 10 6
R. C. S. ....	3 0 0
Lt.-Col. E. O'Hara .....	2 0 0
F. H. Hutton .....	0 10 0
South Norwood Photographic Society .....	3 0 0
E. Douglas Brown .....	0 2 0
G. A. Kenyon .....	1 0 0
Anonymous .....	0 10 0
Leek Photographic Society .....	0 12 9
M. K. Iles .....	0 2 6
C. H. Crosby (\$5) .....	1 0 5
Phipps Lucas .....	1 1 0
Scott B. Wilson .....	1 0 0
Graham Yates .....	0 10 0
J. S. Culverwell .....	1 0 6
Polytechnic Staff .....	21 0 0
"Photography" (Readers) .....	27 0 0
A. Stroh .....	1 1 0
Anonymous .....	1 0 0
R. A. R. Bennett .....	0 2 6
E. J. H. ....	0 5 0
Clouds .....	0 5 0
Dr. Grindrod .....	1 1 0
J. B. Jones .....	0 2 6
Dr. A. R. F. Evershed .....	0 10 6
F. T. Spielmann .....	0 5 0
"The Amateur Photographer" (Readers) ...	28 19 6
Liverpool Photographic Society .....	1 6 6
Richard Jahr .....	2 2 0
"The British Journal of Photography" (Readers) .....	4 1 0
.....	—
.....	£133 2 8
Amount already acknowledged .....	129 12 0
Total .....	£262 14 8

#### HOW MR. BENEDICT HERZOG WORKS.

THE figure studies of the clever New York amateur photographer, Mr. F. Benedict Herzog, is the subject of the critique in the current "Camera Work," in accompaniment of the reproduction of two of Mr. Herzog's marvellous studies of line. The writer of the critique assuming that the figures in Mr. Benedict's photographs are posed as they appear, the editors append a description of an actual composition. As a matter of fact, Mr. Herzog proceeded approximately as follows:—Having made innumerable single or occasionally double-figure studies on 4 x 5 plates, and having made bromide enlargements from each of these negatives, and having from these enlargements cut out the figures, paper-doll fashion, he then proceeded on a large panel, and with these figures and a paper of pins, to group and re-group, arrange and re-arrange—in short, carry on experiments in his "hunt for the line!" When finally the composition satisfied his eye, he pasted down the pinned figures, and with brush and pigment filled the gaps and pulled together the sections of his composition. Lastly, he photographed this result in various sizes, thus producing a number of "original" negatives.

#### DEATH OF MR. S. D. MCKELLEN.

It is with much regret that we have to announce the death of Mr. S. D. McKellen, of Manchester, which took place on December 26, shortly after an operation for a serious internal complaint. The present generation of photographers may or may not be aware of the fact that Mr. McKellen was the father of the modern camera. Photographers of twenty years ago will well remember the advent of the McKellen Camera in 1884, when it obtained the first medal for apparatus ever offered by the Photographic Society of Great Britain (now the Royal Photographic Society), and how it entirely revolutionised the construction of this instrument.

Mr. McKellen first commenced photography upwards of fifty years ago with a cigar-box and spectacle lens as his apparatus. Since then his photographic experiences with the wet plate apparatus—where a pony and cart had to be obtained to carry one's paraphernalia about, and later with a 15 in. by 12 in. McKellen camera, and three double slides (before the days of small plates and subsequent enlarging)—were always worth listening to, and one can only think that they were enthusiasts in those days. Mr. McKellen was seventy years of age at the time of his decease.

#### Photo-Mechanical Notes.

MESSRS. JOHN SWAIN AND SON, LIMITED, have made a step forward in installing the Levy acid blast etching machine in their establishment, and have issued an illustrated circular showing the remarkably sharp results obtainable by the blast method of etching. The process is designed specially for the making of newspaper half-tones, and newspaper men who may think of using such on a large or small scale are invited to witness a demonstration of the process at Messrs. Swain's factory, 58, Farringdon Street, London, E.C.

#### Multi-Colour Prints in Grain.

The speed of typographic blocks with the quality of lithographs are the aims of an inventor of a multi-colour printing process for which an English patent (No. 4,476, 1906) has been granted. The inventor, Mr. John Bachmann, 355, New York Avenue, Jersey City, U.S.A., designs to employ the process particularly for catalogue work, labels, etc., although it is intended for any purpose for which good colour work is desired. The process consists in:—

1. Making photographic negatives of the originals through colour filters.
2. Making positives from these negatives on gelatine plates, sensitised with bichromate, and printing in the required colours from these plates.
3. Treating these prints to give them a lithographic grain and preparing negatives from the prints, and from the negatives actual printing plates.

The printing plates referred to in (2) are made by coating ground glass plates with a substratum of porter and caustic potash and



silicate of soda, the last applied immediately after the mixture of the first two. After drying, the plates are rinsed in water (to remove glucose derived from the porter), and given a coating of:—White gelatine, 50 parts; potass. bichromate, 15 parts; chrome alum, 1-15 part; water, 500 parts. After coating the plates are baked.

The exposure of these colour plates under the negative is the stage in the process during which the texture is developed into a printing possibility. Before exposure the plate is again placed in the oven in which it is baked, but before doing so a pan with water is put in the bottom of the oven for the purpose of creating moisture. Heat is applied and the temperature brought up to 100 deg. Fahr. When the plate has become warm in the moist atmosphere, which will require about six minutes, it is ready to be exposed under the negative. The print is complete when the deepest shadows have a transparent appearance. After this the plate is taken into the dark room and washed in running water to remove the chromate, then taken out of this room and dried. Before printing from the gelatine plate with printing ink the plate must first be dampened for about 15 minutes with a solution composed of 500 parts of water, 400 parts of glycerine, 50 parts of ammonia, and 50 parts of common salt. The plate is now put on the press and rolled over with a leather roller charged with black ink. The image will soon begin to show, and when it has developed, or its values appear to the eye in the form of black printing ink to the required extent, then the paper can be laid directly on the plate and an impression drawn. Upon inspection of this impression it will be found to be of a fine open grain in texture. It becomes closer approaching the shadows and absolutely solid black where the colour in the original copy is deepest.

From such described plates, charged with black printing ink, impressions are now drawn on white paper or cardboard. Assume that a job has to be done which requires three of the final metal printing plates of one colour, say blue. In order to get them we employ the following method:—The gelatine plate which has been exposed under the blue negative is moistened with water containing ammonia, and rolled over with a leather roller charged with the stiffest of black ink. The very deepest parts of the image of the plate only will take the black printing ink, and as the deepest blue on the copy corresponds with these parts of the plate, it is natural that an impression drawn therefrom will represent that value in black. For the medium blue less stiffened ink, we roll longer and use less ammonia in the dampening water. For the pale blue, soft ink is used, no ammonia in the dampening water and rolling until the last possibility in the plate is developed, or made visible in the form of black printing ink.

To obtain a litho grain, after all the required impressions from the gelatine plate are drawn in black, this plate is washed clean with turpentine, and the same is again rolled over with a roller charged with a pale blue ink of such consistency as will allow itself to adhere to the entire image on the gelatine plate. From this so inked plate, with light blue colour, an impression is once more drawn on the same sheet that has already been printed in black from the gelatine plate. Care must be taken that it will register exactly to the one in black; it is easily done by the use of pointing needles. This blue print is necessary for a guide and retouching the prints in black, and as this, which may be called a key, is in light blue colour, this colour will have no effect upon the negative, which must later on be taken from the black prints.

The black prints from the chromate gelatine plate with the blue key now pass to the hand of a man known as a stippler, whose task is to join his art to the existing texture found in the black prints from the gelatine plate. This can be done with a pen, brush, or whatever may be found most practical to give the prints the ear-mark of lithography.

From these prints drawn from the chromate gelatine plates, and treated by the stippler to give them the ear-mark of lithography, negatives are now taken preferably by what is known in photography as the wet plate process. After the print has passed the hands of the stippler the negative is taken from the same; its use is explained further down. When this has been done the same print is taken again and printed from the chromatic plate, the value of the medium shade whereby the print in the darker parts will be intensified. This leaves only the extended medium shades to be treated by the stippler. We now take a negative of this print and proceed in the described manner with the next shade, thus obtaining the three negatives practically from the one positive.

Typographic colour plates on copper are now made with a sensitiser of bichromated albumen fish glue, and etched first in a bath consisting of ferric chloride, 16 gr.; water, 80 ccs.; gum arabic, 20 gms.

## Exhibitions.

### WISHAW PHOTOGRAPHIC ASSOCIATION.

WISHAW Exhibition is a New Year one, and runs from the one year to the other, making its mark in the New Year celebrations of the district. On its opening night one can be almost certain of meeting some of the leading photographic lights of the vicinity. There one had the pleasure of meeting Charles Reid, of Wishaw, known to all country folks and photographers as the animal photographer. Reid o' Wishaw must be one of the first specialists, and he has specialised to some purpose. How many prize horses, sheep, cattle, etc., he has photographed it would be difficult to say; in fact, it would be easier saying what celebrated animals he had not photographed. All over Britain has he found food for his camera, and as indicating the universality of his pictures it might here be stated that they are not only popular with the experts of the breed depicted, but they are also popular with the general public, as proved by a clearest of proof—they sell.

From his studio near by came Dan Dunlop on the opening day. It is difficult to say what his particular line is; he has not yet settled down; he is still in the butterfly stage, flitting about from one thing to another, and, perhaps unfortunately, doing well in them all. He must have medals and awards for nearly every phase of photography, with perhaps the exception of micro-photography and astronomical photography, but one never knows. Debonair and dainty, as one of his birch tree studies—Dan, as he is frequently called, is a "hail-fellow-well-met" with all acquaintances.

The open classes of the Exhibition do not seem to have received much support from the profession, the only known name being G. L. A. Blair, Paisley, who, with "Little Venice," takes first place in the Federation Class.

In the invitation section, however, the profession monopolises the walls. Wm. Crooke has a trio of his "grand" portraits on view—Kate Wiggin, Brough the artist, and his celebrated Irving; J. Craig Annan shows "On the Thames at Hampton Court" and "Stirling Castle," with its full rich shadows; Dan Dunlop shows "Pensive," his most recent success; J. M. Whitehead sends three examples of his peaceful, poetic landscapes; John Patrick is represented by his great portrait of Carlyle; James Patrick (who judged the show), has, amongst others, "A Stilly Hamlet Home," etc. and "Light at Eventide"; John Moffat shows his dainty, "The Dance," while Reid o' Wishaw sends some of his more popular animal studies. He also helped the show by lecturing on "Our Animal Friends."

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between December 24 and 31:—

**CINEMATOGRAPHS.**—No. 29,333. Method of producing and exhibiting cinematograph pictures in such a manner that they are seen in the colours of the original. Edward Ferdinand Grün, The Hall, Southwick, Sussex.

**STEREOSCOPES.**—No. 29,419. Improved stereoscopic apparatus. August Fuhrmann, 322, High Holborn, London.

**LENSES.**—No. 29,446. Improvements in photographic objectives. Carl Zeiss, a body corporate, Jena, Germany.

**LENSES.**—No. 29,447. Improvements in photographic objectives. Carl Zeiss, a body corporate, Jena, Germany.

**CATATYPE.**—No. 29,480. Process and apparatus for converting silver pictures into platinum pictures having catalytic power. A. G. Bloxam, Southampton Buildings, Chancery Lane, London, for the Neue Photographische Gesellschaft, Berlin.

**SHUTTERS.**—No. 29,487. Improvements relating to exposure shut-

ters for photographic cameras. Harold Walter Pearn, 18 Southampton Buildings, Chancery Lane, London.

CAMERAS.—No. 29,580. Improvements in photographic cameras. Arthur Lewis Adams, 26, Charing Cross Road, London.

LAMPS.—No. 29,616. Improvements in or relating to electric mercury vapour lamps. Robert Hopfelt, 110, Gitschiner-strasse, Berlin, Germany.

LENSES.—No. 29,640. Improvements in photographic lenses. George Lindsay Johnson, 322, High Holborn, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

DEVELOPING MACHINE FOR ROLL-FILM.—No. 25,857, 1905. The invention consists of an apparatus for daylight development of roll-films, containing a "two-roller" system, working in a trough provided with means of inspection. The trough *a* resembles the back part of an ordinary folding roll-film camera of the usual type. The open top corresponds to an aspect viewed from the inside of the camera. At each end of the trough are pins *b*, *b*, on which the spools *c* can turn, but for each spool there is a turning or driving device. The ends of the trough are formed with wells *a*<sup>1</sup>, *a*<sup>1</sup>. The exposed spool having

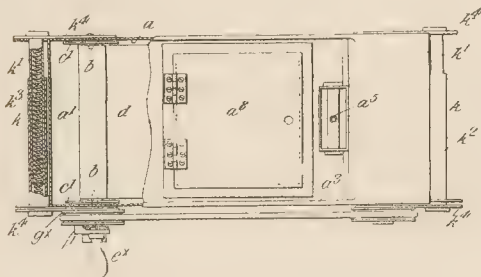


Fig. 1.

been placed on the pins at one end of the trough, an empty spool is placed on the pins at the other end. A sufficient length of the protective black band *d* is then unrolled to enable the end to be passed through the slot (not shown) in the core of the uncharged spool.

Developer is poured into the trough *a*, the band of protective backing is wound on the uncharged spool, and with this band the sensitive film also travels. At this stage or a little later, the fluid first poured in may be suitably modified. If the operation has been commenced with plain water a powder containing suitable developing chemicals may be sprinkled in or added; or a strong solution of such chemicals may be added.

By the method described above, and assisted by the regular

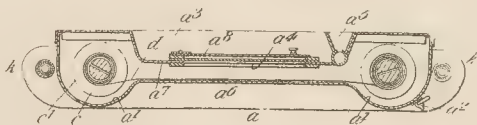


Fig. 2.

shape of the trough, also by the brush or flap described below, a film of liquid is induced and retained by capillarity in the convolutions of the roll, thereby obviating the necessity of introducing what is known as an "apron" or separator between the convolutions during the process of development.

The trough is covered with a closely fitting lid *a*<sup>3</sup> carrying one or more red windows *a*<sup>4</sup> for viewing the progress of development, and has means such as indicated at *a*<sup>5</sup> for pouring in liquid without exposing the film to daylight. That portion of the trough between the well portions *a*<sup>1</sup>, *a*<sup>1</sup> and across which the film travels may be made with a raised bottom or be less deep as shown at *a*<sup>6</sup>, and the cover *a*<sup>3</sup> may be recessed over this raised portion *a*<sup>6</sup> as indicated at *a*<sup>7</sup>. This recessed portion

of the cover is found to be a convenient position for the non-actinic inspection window *a*<sup>4</sup>, but a hinged flap *a*<sup>8</sup> should cover this window. On one side of this recess is attached the inflow funnel *a*<sup>5</sup> and at a convenient point in the bottom of the well or wells a tapped outflow *a*<sup>2</sup> is provided.

The other mechanical details of the developing machine are described at length in the specification. William Fraser Cloughton Kelly, 8, Perham Road, Kensington, S.W., and Thomas Bolas, 60, Grove Park Terrace, Chiswick, S.W.

FLASH-LAMP IGNITION.—No. 6,705, 1906. The invention consists in the particular combination of a source of current with an induction device, whose circuit is closed and opened by actuating the instantaneous shutter, and in which an induced current is made in the secondary circuit which may consist of two or more parallel circuits. The secondary circuits are interrupted at the spots in which the flash lamp is to be ignited and the flash light powder is ignited directly or indirectly by the spark of the secondary current, which is high tensioned as compared with the primary current springing over at that spot. The arrangement of the source of current and induction device and flash-lamps may be any which is desired, and can be altogether independent of the photographic apparatus, the actuating device being connected with the instantaneous shutter. Wilhelm Venier, Jenullgasse, 17, Vienna.

EXPOSING PLATES AND FILMS.—No. 4,992, 1906. This invention consists in improvements in the exposing chamber of Specifications Nos. 10,097, 1904, and 15,953, 1905. The chief claims are:—

1. In adapters or dark slides for exposing photographic plates or films, the combination of a frame, a sliding door having a wedge-shaped inner end to enter a V-shaped groove in the frame, and a hinged door fitted with a spring-connected focussing frame and a hinged shutter therein fitted with side pieces to act as a folding hood.

2. In adapters or dark slides for exposing plates or films in the camera, the combination of a hinged door fitted with a hinged shutter, side pieces to act as a hood, and a spring-supported focussing plate.

3. In light-tight envelopes for carrying photographic plates (Specification No. 10,037, 1904), a block or bar or alternatively corner pieces within the end groove of the inner envelope in combination with a block on same.

4. In light-tight envelopes for carrying plates or films, forming the sliding paper cover of the inner envelope with side wing pieces, and folding the same over the edge of the inner envelope before inserting the same in the outer envelope. George Wishart, High Bushyhill, Cambuslang, Scotland.

VIEWING PANORAMIC PICTURES.—No. 16,917, 1906. An instrument for properly examining a completely circular panoramic photograph is constructed as follows:—

A total reflection prism *a* (figs. 1 and 2) is placed as indicated in the drawing within the panorama *c*, *d*, *e* with its longitudinal

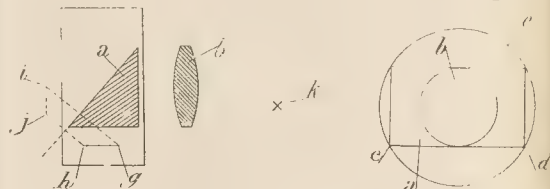


Fig. 1.

Fig. 2.

edges parallel to the diameter of the circle *c*, *d*, *e* and the centre of its hypotenuse lying on the axial line of the panorama or substantially so. The portion *c* *d* of the picture is reflected by the prism and a vertical image symmetrical with the actual picture is formed with regard to the plane of the hypotenuse of the prism. A line, *g*, *h*, for example, of the actual image is seen at *i*, *j* (Fig. 1) by the observer placing his eye in front of the prism at a point *k* exteriorly of the panorama. There is interposed between the eye of the observer and the prism a biconvex lens *b*, the purpose of which is simply to magnify the virtual image seen by the eye from the point *k*.

The different parts forming the apparatus are secured in



the required place by supports arranged in any suitable manner.

The more the longitudinal edges of the prism  $\alpha$  are extended the larger will be the portion of the reflected picture.

All the different parts of the cylindrical panorama may be successively viewed by rotating same about its horizontal axis. Société Anonyme Périphote et Photorama, 33, Rue Joubert, Paris.

**CAMERA FRONTS.**—No. 17,092, 1906. The invention consists of a mechanism by which the front and back of a camera are maintained parallel and upright during the opening or closing of the instrument.

The movement of the mechanism is not easy to describe without the numerous diagrams, but consists in the attachment to the front of the camera of a sliding bracket, a lever on which, pivoted to the bracket, is caused to actuate the stretcher of the camera front as the baseboard is moved upwards to close the camera. As the board is raised the lever on the bracket pushes the stretcher outwards so that the movement of the baseboard is compensated and the camera front remains upright. The object of the movement is not stated. The Thornton-Pickard Manufacturing Company, Ltd., Altrincham, George Arthur Pickard and Frank Slinger.

## New Trade Names.

**WATALU.**—No. 287,937. Sensitised photographic plates, sensitised photographic films and all other photographic materials included in Class 1. The Self-Developing Plate Company, Limited, 7, Southampton Street, Bloomsbury, London, W.C. Manufacturers and dealers in photographic materials. November 15, 1906.

**BOROXYLITE.**—No. 287,954. Chemical substances used in photography. Siebe, Gorman and Co., Limited, 187, Westminster Bridge Road, London, S.E. Submarine Engineers. November 15, 1906.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### What to Leave Out?

THIS, says Mr. Arthur Guest in "The Amateur Photographer," is often one of the most puzzling problems that the artist has to solve, and the more sensitive he is to the beauty that surrounds him, the more painful becomes the duty that he knows he must fulfil, of ignoring some of the fascinating life that, modestly or coquettishly, sometimes even vociferously, beckons his attention. In one way it is a great help to regard everything in Nature as alive, a conception justified by the scientific dictum that atoms are in perpetual movement, and one that enforces the expressiveness of so-called inanimate objects, and so tends to obviate dullness in a picture. But this standpoint only intensifies the regret at the ruthless abandonment of silent things that have made their appeal and convinced us of their charm. "Yet art is, and must always be, one long story of sacrifice, and unless these claimants on our sympathy can show their usefulness to the end that we have in view, their call will be callously disregarded—or, perhaps, noted for response on a more appropriate occasion. We must harden our hearts; for if we give way to these charmers the result is bewilderment, and diversion from our main purpose.

### The Real Outdoor Photography.

"A Painter," writing in "Photography," says:—"More study of Nature and more study of pictures is what we all want. The photographer is tempted to scamp his Nature study, because his process gives him his complete picture so quickly, and even then most of the short time it takes is time spent away from his subject. I do not know how far it would be practicable, but I should like to see a photographic study which had had all its handiwork put on it by the photographer in full view of his subject. It might possibly be no better, but the training which such a system would give the photographer himself would be quite invaluable."

## Orthochromatic Photography.

Mr. Arthur Payne, F.R.P.S., in "The Photographic News," waxes warm on his favourite topic of orthochromatic photography, a term which he anticipates will extinguish itself by the very popularity of colour-sensitive plates, the public being represented as coining the term "blue-sensitive" for plates of the present-day "ordinary kind." Mr. Payne concludes by mentioning a curious fact:—

"I wish to mention that for some as yet unexplained reason it is necessary to develop the orthochromatic plate when used without the light filter for a longer time than when the light filter is used, in order to get the same degree of contrast in the negative, and consequently in the print."

### Still Life Subjects.

"The lighting of still life studies" (says Mr. Henry Walker in "Focus") "is a factor of the greatest importance. Where resort cannot be had to a studio, and where the work must, forsooth, be done in an ordinary room, considerable difficulty will be experienced in securing satisfactory lighting. Cross lighting is to be preferred, with the use of a reflector to soften the shadows. If there is much top light from the window it should be cut off entirely, and if the light from the lower portion is very strong it should be subdued by the use of a sheet of tissue paper. The mistake is usually made of placing the subject too near the window, with the result that the shadows come out heavy, and the high lights chalky. Further from the window the light is more subdued, and if a reflector, made by throwing a sheet of white paper over a clothes-horse, be placed so as to illuminate the shadows, the tone values will be preserved."

## New Books.

"Camera Work." No. 17. Edited and published by Alfred Steiglitz, New York.

As usual this sumptuous magazine is filled with plates that are all of them interesting, if not quite all beautiful; and its literary matter is keenly and learnedly critical, and therefore valuable.

Of the pictures, the first one, "Leonore," is the best. It is one of a set of six by Mr. Joseph T. Keiley, and is a delightfully soft and rich presentment of a handsome maiden seated upon the floor. We should like to get rid of the ugly lines made by the carpet edge; beyond this trifle we have nothing but praise. A portrait of "Miss De C." is likewise a work of much distinction. Its posing is admirable, and the character in the sitter's face a pattern and lesson to all portraitists. Two crowded compositions by F. Benedict Herzog, "The Banks of Lethe" and "Twixt the Cup and the Lip"—of which we prefer the latter, because it is simpler in interest and larger in style—accompany an article from the pen of Charles H. Caffin. Mr. Caffin is by no means an admirer of the work of Mr. Herzog; but the reasons he gives for this antagonistic attitude do not win us over to share his views. His attitude is that of one who can only believe in the present and the promise of the future. He appears to think that because certain notions of decorative art were held in past times they have therefore been superseded. Such a view of art is perhaps indigenous to America. Personally, we think there is much more Art (writ large) about the best of Mr. Herzog's Veronese-y compositions than some of the up-to-date strivings after passing phases of painting, which are in reality much less within the scope of the camera. "In the Circus," by H. C. Rubincan, is a great triumph.

Mr. Fredk. H. Evans has an article upon last year's English Salon. It will be understood that we cordially endorse his sentiments of disappointment when we say that his remarks practically reproduce our own when we reviewed the same exhibition.

We are glad to see signs of a solid commercial prosperity about "Camera Work" in the shape of plenteous advertisements in the present number.

A NEAT piece of photographic evidence was produced in a Norfolk police court last week. The owner of a cart was brought up on remand for failing to have his name painted on his cart. He alleged that the whole name was legible. A photograph produced in court, however, showed certain letters brighter than others owing to their recent addition. The owner was fined 15s. and the costs of the photographs. He now wishes he had engaged Dr. Mees for his defence.

## New Materials.

New Mezzo-Tint Paper. Made by Marion and Co., Limited, 22-23, Soho Square, London, W.

In this printing paper the makers have evidently set before themselves the production of a print which should have an appearance both handsome and out of the common, and that they have achieved this end without burdening the user with anything beyond the usual manipulation is matter for congratulation. The paper is toned in a platinum bath exactly like P.O.P., the formula of the makers being the well-known mixture of citric acid, salt, and potassium chloroplatinate. In this bath we found the paper to tone to a fine sepia colour. There is little weakening of the prints in toning and fixing and only the slightest over-printing should be done; less, we think, than with the average P.O.P. The surface of the prints is a matt, with just a shade of semi-gloss, the latter noticeable only in the shadows, where it relieves the prints of a choked-up appearance. We are glad to have the opportunity of introducing the paper, particularly to our professional readers, to whom it will undoubtedly appeal as a paper permitting of fine effects by very simple means. We can imagine that a very attractive line of portraits might be done in mezzo-tint printed with a white margin and issued in a folder. Messrs. Marion do, indeed, recommend and supply folders as effective settings for the prints, and the hint is worth taking. The price of the paper is 5s. 6d. for 72 half-plate pieces.

### FORTHCOMING EXHIBITIONS.

1907.

January 14 to 26: Royal Institute of Fine Arts.—Sec., J. Lizans, 101, Buchanan Street, Glasgow.

January 18 to 31: Paisley Philo. Institute and Photographic Society.—Sec., Hugh F. Hamilton, Glaisnock, Bank Street, Paisley, Scotland.

January 23 to 25: Dover Photographic Society. Secretary, J. W. Howells, 6, Gladstone Terrace, Dover.

January 24 to 26: South Essex Camera Club. Entries close January 17.—Sec., T. Mitchell, 180, Browning Street, Manor Park, E.

January 31 to February 1: Isle of Wight Photographic Society. Entries close January 17. Sec., H. G. Morgan Hobbs, Sunnyside, Watergate Road, Newport, I.W.

January 31 to February 2: Nelson Photographic Society.—Sec., Henry H. Beetham, 98, Brunswick Street, Nelson.

February 6 to 7: Cowes Camera Club. Entries close January 23.—E. E. Vincent, 4, High Street, Cowes, I.W.

February 7: Borough of Tynemouth Photographic Society. Entries close January 25.—Sec., J. R. Johnstone, 159, Linskill Street, North Shields.

February 11 to 14: Cripplegate Photographic Society.—Sec., J. B. Parnham, "Chagford," Old Church Road, Chingford.

February 12 to 23: Sheffield Photographic Society. Entries close January 26.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 13 to 15: Northern Tasmanian Camera Club.—Sec., F. Styant-Brawne, 112, Brisbane Street, Launceston, Tasmania.

February 15: Cardiff Photographic Society.—Hon. sec., A. E. Harris, 44, Partridge Road, Cardiff.

February 20 and 21: Royal Albert Institute, Windsor.—Hon. Sec., Mr. J. W. Cooch, 9, High Street, Windsor.

February 20 to 21: Canterbury Camera Club. Entries close February 9.—Sec., G. T. Hobbs, 3, Norman Road, Canterbury.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge, Norwich.

February 23 to March 2: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 23 to March 9: Edinburgh Photographic Society. Entries close February 9.—Sec., H. Stewart Wallace, W.S., 77, George Street, Edinburgh.

February 25 to 28: Worthing Camera Club. Entries close February 16.—Sec., E. F. H. Crouch, 11, South Street, Worthing.

February 26: Norwich and District Photographic Society. Entries close February 12.—Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 27 to March 2: Nottingham Camera Club. Entries close February 14.—G. R. Cranch, St. Jude's Avenue, Nottingham.

March 2 to 9: South London Photographic Society.—Sec., W. L. White, Bank House, Ladywell, London.

March 6 to 9: Wearside Camera Club. Entries close February 20.—Octavius C. Wilmot, 297, High Street West, Sunderland.

March 6 to 9: Bolton Amateur Photographic Society. Entries close February 16.—Sec., Gilbert Holt, 187, Deane Church Lane, Bolton.

March 7 to 16: Leicester and Leicestershire Photographic Society. Entries close February 16.—Sec., Lewis Ough, "Fernleigh," St. James' Road, Leicester.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

March 22 to April 13: Northern Photographic Exhibition.—Sec., C. F. Inston, 25, South John Street, Liverpool.

April 17 to 19: Belfast Y.M.C.A.—Sec., J. W. Bushey, Y.M.C.A. Camera Club, Belfast.

April 29 to May 14: Photographic Society of Ireland.—Sec., R. Benson, 35, Molesworth Street, Dublin.

### CATALOGUES AND TRADE NOTICES.

WYNDHAM AND CO., LTD., Printers, Bollo Lane, Acton, W., send a circular giving particulars of the special cash terms which they are now offering for colotype postcards from customers' prints. Messrs. Wyndham's work, which is of a high class, merits the notice of readers who have orders of this kind to place. The firm also prints in bromide and P.O.P., and in other respects is able to supply the printing and illustrating requirements of photographers.

THE Art Photographic Supply Co., a firm which has made a specialty of enamels, send us two charming examples of their latest work. They supply these enamels not only unmounted but complete as gold pendants, lockets, bracelets, etc., at prices which both for the unmounted and complete work appear to us extremely moderate. The illustrated circular, obtainable from Grosvenor Buildings, Steelhouse Lane, Birmingham, will give particulars of the prices and styles.

THE Tress Co., 42, Oxford Street, W., send us their catalogue of professional specialties, including the Tress gas lamp and styles of enlargement. The firm's goods are very moderately priced.

The Rotary Photographic Company have issued a 1907 list of their numerous specialties, bromide, and gaslight papers, carbon films, etc., in waistcoat-pocket size, which should prove a convenience to their many patrons.

A new catalogue of frames, specially offered to photographers reaches us from Mr. Fred W. Forbes, of 11, Clerkenwell Green, London, E.C. Mr. Forbes, who is an actual wholesale maker, produces a large variety of frames, shelf frames, overmantels, hat-peg frames, etc., and makes a specialty of Rococo styles, of which he has shown us several attractive specimens. His list, which runs to twenty-four pages and is fully illustrated, should be worth getting.

MESSRS. ALFRED AND J. KNUTTON, who have hitherto represented Mr. William Tylar, of 41, High Street, Aston, Birmingham, are no longer connected with that firm, and Mr. Tylar asks that in future orders may be sent to him direct at the above address.

A SEAMAN of Penzance, dressed in the uniform of the Royal Marines, unlawfully appropriated the sum of £9 belonging to a master mariner of the same town. He was arrested in London, and though passing under an assumed name, was identified by means of his photograph which was in the possession of the police. This is another proof of the valuable aid which photography renders in the cause of justice.

THREE-COLOUR Prints.—Re the frilling up and separation of the three-colour carbon prints (writes Mr. Hamilton Smith), I think your correspondent, "Trichrome," will not be troubled with the frilling if in mounting the finished print he binds the edge of print with a strip of art paper similar to a lantern slide. I use this method and have no trouble.

"OUR NAVY."—Mr. West, whose popular cinematograph show, "Our Navy," continues to attract audiences to the Regent Street Polytechnic building, is now on his way to the West Indies to obtain fresh material for the "Our Colonies" part of the entertainment.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JANUARY 11.

Loughton Photographic Society. "Enlarging on 'Rotograph' Bromide Paper." Rotary Company.  
 Sutton Photographic Club. "Platinum Printing." Demonstrated. A. Werner, F.R.P.S.  
 Aberdeen Photo Art Club. "Pictures with the Goetz Lens."  
 Sutton Photographic Club. "Toning Bromide Papers." A. P. Hoole.  
 Hampstead Scientific Society. "Timber, and Some of its Diseases." Mrs. Plomer Young  
 Cardiff Photo. Society. "Bird Holidays in Pembrokeshire." J. J. Neale.

MONDAY, JANUARY 14.

Southampton Camera Club. "Memories of a Mighty Marshland Minster." H. W. Harvey P. Per.  
 Derby Photographic Society. "English Cathedrals."  
 Preston Camera Club. Demonstration by Messrs. J. and J. Griffin, London.  
 Oxford Camera Club. "British Birds and their Nests." Mrs. Veley, Dec.  
 Leek Photographic Society. "Toning P.O.P." Demonstrated. Mr. F. Bradley.  
 Leamington Photographic Society. "Pinatype."  
 South London Photographic Society. "Architectural Photography." E. R. Bull.  
 Aldershot and District Camera Club. "Enlarged Negative on 'Rotograph' Negative Paper."

TUESDAY, JANUARY 15.

Royal Photographic Society. "The Beauties of the Higher Alps." Louis J. Steele.  
 Wigan Camera Club. "Tabloid Brand Photographic Chemicals."  
 Reigate and District Photographic Association. "Wensleydale." F. Brandrett.  
 Holmleigh Photographic Society. "English Ecclesiastical Architecture." C. B. Hoell.  
 Hackney Photographic Society. "Photographic News Slides."  
 Darlington Camera Club. "Toning Bromides." R. Borrow.  
 Manchester Amateur Photographic Society. "The Scottish Photographic Federation Folio." Dr. A. T. Lakin.  
 Salisbury Photo. Society. "Enlarged Negative on 'Rotograph' Negative Paper."  
 Altrincham Photographic Society. "Theory and Practice of Self-Toning Paper." John J. Griffin & S. R. Borrow.  
 Birmingham Photographic Society. "Ozobrome." James Gale.

WEDNESDAY, JANUARY 16.

Edmonton Photographic Society. "Latest Kodak Productions."  
 Cambridge Wells Amateur Photographic Association. "Figure Study." E. T. Holding.  
 Everton Camera Club. "Recent Advancements in Photography." Demonstrated. H. Wade.  
 Woodford Photographic Society. "Forest Life." Martin Duncan.  
 Croydon Camera Club. "Odds and Ends, or Useful Hints from Members."  
 Borough Polytechnic Photographic Society. Third Lantern Slide Competition.  
 Southsea Photo. Society. "Postcard Photography on 'Rotograph' and 'Rotox' Postcards."  
 Birmingham Photographic Society. "Enlarging and Printing on Bromide Paper."

THURSDAY, JANUARY 17.

London and Provincial Photographic Association. "A Trip to the Victoria Falls of the Zambesi." J. K. East.  
 Chelsea and District Photographic Society. Lantern Evening—Affiliated Slides. 1905.  
 L.C.C. School of Photo-Engraving. "Etching Proper, Photo-mechanical Etching and Fine Etching." A. H. Tinkler.  
 Handsworth Photographic Society. Lantern Exhibition. "Photographic News Prize Slides."  
 Liverpool Amateur Photographic Association. Annual Meeting and Members' Exhibition.  
 Hull Photographic Society. "Further Experiments in Toned Bromides." F. J. Webb.  
 Bristol Photographic Club. "Stories and Glories of Westminster Abbey." E. W. Harvey Pper.  
 Chichester Photo. Society. "Enlarged Negatives on 'Rotograph' Negative Paper."

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held January 8, Mr. A. Haddon in the chair. A brief reference was made to the loss sustained by the society in the death of Mr. Thomas R. Dallmeyer.

A paper on the "Action of Substances upon the Latent Image," by Dr. S. E. Sheppard and Dr. C. E. K. Mees, was read by Dr. Mees. The first part of the paper dealt with the action of chromic acid upon plates, with especial reference to the theory of primary and secondary development put forward by Mr. Sterry in January, 1904. This theory suggests that the primary image formed by the development of the "latent" image is intensified by silver transferred from other parts of the film. The authors found that exposed plates, dipped in chromic acid solution before development have their  $\gamma$  and inertia unaltered, but the development velocity constant K lowered by the action of the chromic acid absorbed to the silver bromide. This chromic acid could be destroyed by sodium sulphite, and the plates then gave a normal K. If, however, a plate was left after chromating, before development, a fall in  $\gamma$  was found, which could not be destroyed by sulphiting, and which, therefore, showed an absolute destruction of the latent image. Probably this action was a re-oxidation process.

The second part of the paper dealt with a peculiar action of salts

of copper, iron, mercury, and uranium which desensitise the plate, so that enormous exposures are required to produce normal results. If the plates were exposed and developed after desensitising, K and  $\gamma$  were found to be normal. If, however, the plates were left for a long period after exposing, then the desensitisers destroyed the latent image by lowering  $\gamma$  in the same way as chromic acid. The theory advanced for this action was that desensitisers act by catalysing the acidation reaction, which is the opposite to the ordinary light reduction reaction, and this view was supported by experiments, which showed that with copper, quinine salts, and with iron, oxalates restored the lost sensitiveness, a result analogous to that obtained for the negative catalysis of quinine in the case of the catalysis of sodium sulphite oxidation by copper. The authors suggested that these strong desensitising actions may be the cause of obscure troubles in emulsion making.

Mr. Sterry, in confirmation of his original observations, pointed to the fact that the chromate process was now in practical working for development of bromide papers. He referred to the difference in the condition of chromate in an acid pyro-developer, such as he suggested in 1899, containing one part of chromate in 50,000 or 500,000 parts of pyro solution as a developer of P.O.P. The chromate, no doubt, preserved the pyro. He had found that dipping a plate in chromate, followed immediately by development, caused a long curve in the under-exposed portion, and gave a higher "gamma infinity" than in ordinary development. Dipping with development after some time was examined by the speaker in a series of experiments, in the course of which a constant result was regularly reached. He was also able to use bromine and potassium permanganate satisfactorily between exposure and development. The latter was best used in 1 in 10,000 alkaline solution.

Mr. C. H. Bothamley, among other statements, said he agreed with Dr. Mees in the total undevelopability caused by potassium bichromate.

Dr. Mees replied, and a vote of thanks to him brought the meeting to a close.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—On Monday last Mr. W. L. F. Wastell, F.R.P.S., gave his lecture, "A Dive into Belgium." The lecturer's reputation as a humorist had preceded him, and his audience were not disappointed, being kept in a state of merriment by his gentle wit. At the same time, by a series of excellent slides, conveying a good insight into the scenery of canal and river, of street life and of the beautiful mediæval architecture of such historical old cities as Brussels, Antwerp, Ghent, Bruges, Louvain, etc., the lecturer travelled via the River Thames and across to Ostend, by which route he was enabled to obtain also some interesting pictures of river craft, and some fine sunset effects. The lecturer remarked that his pictures were all taken with a folding pocket camera, and fully demonstrated the usefulness of the hand camera to illustrate a lecture of this sort. At the next ordinary meeting of the Society on January 21, Mr. T. Manly will give his lecture and demonstration on Ozobrome.

**SOUTHAMPTON CAMERA CLUB.**—The members held their eleventh annual general meeting on the 7th inst., when there was a good attendance under the presidency of Mr. W. B. Hill. The Committee's report was a very cheerful document, showing progress all the way round, while the statement of accounts was most gratifying. On the exhibition account a profit was shown of over £15, and this, carried to the general account, made the balance for the year's working over £18 to the good, the sum at the bank to the club's credit being over £71. After the report and accounts had been adopted the members proceeded to elect officers, the President, Mr. W. B. Hill, and the Hon. Secretary, S. G. Kimber, both receiving musical honours on their re-election. Messrs. G. T. Vivian and A. Horsley Hinton were re-elected Vice-Presidents, and the names of Dr. Milner-White, LL.D., A. E. Henley, and F. G. Ryder, were also accepted for the same office. The Hon. Lanternist, Treasurer, and Reporter (Messrs. Vivian, Trigg, and Ryder) were again installed in office. C. D. Kay and the Hon. Secretary were appointed delegates to the R.P.S., and the Committee were elected as follows:—Messrs. Daw, Weaver, Cooper, Kay (W. R.), Baker, Essex (re-elected), Irish, Russell, Parson, and Smith (new members).

**WINDSOR PHOTOGRAPHIC SOCIETY.**—Councillor G. Bell Harrison opened the new headquarters of the Windsor Photographic Society

at 5, High Street, Cardiff, last week. Hitherto the society has been in residence at Quay Street, but the number of members having considerably increased, a wish was expressed for more convenient premises. The new rooms consist of a large lecture-hall, parlour, and a dark room, with every appliance and apparatus.

## Commercial & Legal Intelligence.

**ALLEGED CANVASSING FRAUDS.**—In support of a charge of false pretences preferred at Wigan, on January 2, against Robert Gibson, it was stated that the prisoner professed he was canvassing for orders for the enlargement of photographs, and collected 1s. a week from different persons, making all manner of excuses for the non-delivery of the enlargements promised. One woman had paid weekly from March to November. A remand was granted in order that several other cases might be brought against the accused.

### NEW COMPANIES.

**LILFORD AND CO., LTD.**—Capital £500, in £1 shares. Objects: To carry on the business of wholesale, retail, and manufacturing chemists, druggists, drysalts, oil and colour men, dealers in photographic, electrical, surgical, and scientific apparatus, etc. The first subscribers are: F. Porter, 18, Salford Street, Leicester, accountant; J. Heatherill, 16, Albion Street, Leicester, paper dealer; A. Hodgson, 57, Biddulph Street, Leicester, optician; C. Munton, 63, Basinghall Street, E.C., manufacturers' agent; T. May, 18, Halford Street, Leicester, accountant; H. T. Millman, 427, Welford Road, Leicester, accountant; and Mrs. B. J. May, The Lilacs, Knighton Rise, Leicester. No initial public issue. Re-registered without articles of association. Registered office, Bank Buildings, Gallowtree Gate, Leicester.

**J. SAVAGE AND CO., LTD.**—Capital £20,000, in £1 shares (10,000 preference). Objects: To adopt an agreement with J. W. Savage and G. S. Savage, and to carry on the business of druggists, drysalts, wine and spirit merchants, mineral-water manufacturers, perfumers, photographic outfitters, optical instrument makers, etc. The first subscribers are: A. Amber, Legrams House, Bradford, chemist and druggist; A. T. Bailes, 21, Ellercroft Road, Bradford, chemist and druggist; G. S. Savage, 8, St. Andrew's Villas, Bradford, chemist and druggist; H. Savage, 8, St. Andrew's Villas, Bradford, chemist and druggist; J. W. Savage, Ellercroft, Legrams Lane, Bradford, wholesale druggist; F. C. Savage, 309, Legrams Lane, Bradford, manager; and H. Raw, 21, Station Road, Clayton, Yorks, chemist and druggist. No initial public issue. The first directors are J. W. Savage and G. S. Savage. Qualification, 250 ordinary shares. Remuneration as fixed by the company. Registered office, 140, Listerhills Road, Bradford.

## News and Notes.

THE "Bromide Monthly," the familiar organ of the Rotary Photographic Co., appears with the New Year under the modified title, "Photo Notes and the Bromide Monthly." It is now printed on a paper which permits of half-tone illustration in the text, and will at the same time enlarge the scope of its articles as indicated in its new title. For some time past its programme of articles has ranged through all departments of photography, and its title with the suggestion that it was limited to bromide work has been a misnomer. The date of publication will now be the first of each month, and to induce interest in the new year the Rotary Company will send a copy post free on receipt of twopence in stamps.

THE Leicester and Leicestershire Photographic Society start the new year with a record membership of 192, no fewer than sixty-three of whom have been enrolled during the past twelve months, and the programme for the current session shows that those responsible for its production are very much awake to the desirability of up-to-date information. Mr. C. W. Leake has recently undertaken the duties of hon. sec., and communications should in future be addressed to him at 2a, Dulverton Road, Leicester.

THE Cripplegate Photographic Society's Exhibition will be held

from February 11 to 15, 1907. Entries close on January 28, 1907. The entry-forms are now ready, and can be had on application from F. O. Bates, hon. sec., 37, Beresford Road, Hornsey, N.

**PINATYPE.**—Messrs. Fuerst will give a demonstration at the Photographic Club on Wednesday next, January 16. The secretary of the Club asks us to say that any member of the Society of Colour Photographers, or any one interested in three-colour work, is welcome to attend the meeting, which is held at 19, Paternoster Square, E.C., at 8 p.m.

MR. LOUIS J. STEELE, who is to lecture on Alpine photography to the Royal Photographic Society next Tuesday, is electrical engineer

to the Portsmouth Dockyards, and, apart from his profession, has shown himself possessed of such accomplishments as painting, mountaineering, and photography. His record in Alpine climbing has made him a member of the Alpine Club and the Climbers' Club, and for many seasons he has made ascents of the Swiss and Italian Alps. The Hautes Pyrenées, and the wilds of the Canadian North-West are also familiar ground to Mr. Steele, who, despite his few years, has had many exciting experiences as a traveller, and has swollen the dividends of the plate-makers to the tune of 6,000 negatives. Mr. Steele, whose views on Alpine photography were communicated some months ago to the "Photographic News," and are summarised



MR. LOUIS J. STEELE.  
Photograph by F. J. Mortimer, F.R.P.S.

in the B.J. ALMANAC, is an adherent to the hand-camera, and rarely exposes an unbacked plate.

MR. F. T. CORKE, lately resigned from the managership of Messrs. Raphael Tuck's postcard department, has now established himself as the "Studio of Design," 2, 3, and 4, Cheapside, London, E.C., where inquiries as to any production and publication work, especially three-colour, may be addressed to him.

THE Photographic Convention.—A suggestion has been made that the 1908 meeting should be held in Edinburgh on the occasion of the proposed Scottish National Exhibition in Edinburgh in that year. The suggestion emanates from the guarantors of the Exhibition.

THE Houghton Smoker.—To see the large Crown Room at the Holborn Restaurant crowded by the members of the Ensign Athletic Club of Houghtons Ltd. was to obtain a forcible demonstration of the importance of the firm and of the cordial relations which exist between the principals and their staffs. Mr. Edgar Houghton occupied the chair, and with him were Mr. George Houghton (founder of the business), Mr. Charles Houghton, Mr. Smith (manager), Mr. P. G. R. Wright (advertisement manager), and Mr. A. S. Spratt and others representing the associated branches of Houghtons Ltd. The entertainment programme, arranged by Mr. Phil Payne, was admirable—we hope we may never have to listen to a worse one, but we are positive we shall—yet it is no disrespect to the artistes to say that not one of them was so enthusiastically received as the song, "Glorious Devon," sung by Mr. Austin Edwards, who had come from Warwick to attend the smoker. After more than £9 had been collected for the "Referee" children's dinner fund, an informal toast, "The Prosperity of 'Houghtons' and the Houghtons," was given by Mr. A. Horsley Hinton, to which Mr. George Houghton very simply and gracefully responded. The Houghton smoker was a function for mutual congratulations. Its numerical strength cast a flattering reflection on the magnitude of the High Holborn business, and its enthusiasm denoted a loyal staff. Long may it be an annual function.



## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE MEASUREMENT OF BUILDINGS FROM PHOTOGRAPHS.

To the Editors.

Gentlemen,—I have to thank Mr. Harvey Collingridge for his very useful data regarding the variations in measurement of brick courses in different localities.

I must point out, however, that, as a matter of fact, no mention is made in my article ("B.J.," December 28) of brick or masonry courses being used for vertical measurement. I simply suggested that they could be employed to find the vanishing point and horizon line of a photograph, which is, of course, quite a different thing.—I beg to remain, etc., yours very truly,

A. LOCKETT.

88, Brook Street, Kennington, S.E.

January 4, 1907.

## Answers to Correspondents.

*\*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

*\*\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

*\*\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*

*\*\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

*"The Northern Photographic Company, Wesley Place, Blaydon-on-Tyne. Four Photographs of Lieut. T. Bates, 1st V.B.N.F."*

**THE POWDER PROCESS.**—I am an experienced commercial printer, disengaged, and have been promised a good engagement if I can work the dusting-on process. Should be glad if you could reply to this, and give me the whole process from the beginning, and a good and reliable formula. Should like, if you can, to reply in Friday's issue, as my living depends upon it.—**DUSTING ON.**

To give you full working details of the powder process would occupy far more space than can be afforded in this column. In "Burton's Photographic Printing," published by Marion and Co., several pages are devoted to the dusting-on process. We should recommend you to get this work. However, here is a good formula for the sensitive material, for this time of year: Honey, 3 drams; albumen, 3 drams, saturated solution of bichromate of ammonia, 5 drams; water, 1 pint. You must keep in mind that the whole process depends upon the hygroscopic state of the film, and less honey should be used in damp weather than dry. Of course, you know that in producing a positive picture a transparency, and not a negative, is necessary. The transparency should be a thin one.

**LENS FOR STUDIO CAMERA.**—I should be glad if you would kindly let me know if a half-plate lens; diameter of tube body  $4\frac{3}{4}$  in., and inside diameter of flange  $4\frac{3}{4}$  in., would be too large to be fitted to a  $8\frac{1}{2} \times 8\frac{1}{2}$  studio camera, or what size camera would be best for such a large diameter lens.—**J. T.**

A half-plate camera is naturally most suitable for a half-

plate lens, and one with square bellows and plain front with a sliding movement or loose panel should take the lens. A very rigid front is essential, as the lens must be heavy, but if you want any movements on the front, a whole-plate camera,  $8\frac{1}{2}$  in.  $\times 8\frac{1}{2}$  in., will be necessary. We cannot say if the lens will fit every pattern of whole-plate studio camera, but probably you can find one that it will fit. The focal length will be too short for whole-plates, but you can use half-plates in carriers.

**VARIOUS.**—The Editor of the BRITISH JOURNAL OF PHOTOGRAPHY would oblige by stating, in Answers to Correspondents column, where a work on "Line" can be obtained. 2. Also where imitation jewellery, as seen on enclosed card, may be obtained.

### LINE.

1. We are not quite sure of your meaning, but apparently "A Handbook of Illustration," by A. Horsley Hinton (Dawbarn and Ward, ls.). 2. From Reinemann and Co., New Zealand Avenue, Barbican, E.C.

**SOLUBILITY.**—In the table in your "Almanac" and the "hot water" column, the word "decompose" appears opposite one or two chemicals. 1. Does this mean that if that chemical is dissolved in hot water its power or virtue is destroyed, and that that particular chemical should be dissolved in cold water always? 2. Is there any table in the Annual from which I can get the amount of a given chemical which, if dissolved in a given amount of water, will make what is called a "saturated solution"? I often want to make a saturated solution, and it would be most useful to have such a table. Of course, the table of solubilities would do if the figures there mean that the given quantity of water will dissolve the given quantity of chemical and no more.—**W. ISON.**

1. The substance is altered wholly or partially, and cold water should be used. 2. All the figures are for saturated solutions. Thus, 50 parts of lead nitrate (p. 1,106) in 100 parts of water make a saturated solution.

**CELLULOID.**—I find a difficulty in procuring exactly what I want, and should be glad if you could give an address where such a thing is obtainable, viz., celluloid (very thin) coated with a slow emulsion to make transparencies on, and without the gelatine coating on the celluloid side.—**TEETOTALER.**

Try the Lumière N.A. Co., 4, Bloomsbury Street, London, W.C. The only marketable form of the material is that used for cinematograph work.

**GASLIGHT POSTCARDS.**—I shall be much obliged if you can give me the quickest process to print gaslight postcards. Can they be printed while the negative is wet? Also, can they be dried with methylated spirits. If so, which is the best make for this process?—**B. POULTER.**

The quickest way would be to use one of the special printing machines for the purpose, such as the Reynaud, the Hana, or the Sickle, particulars of which you will find in the "Almanac." We should not advise you to take more than one or two prints from a wet negative, as you are sure to get it damaged in making a number. The gaslight print may be dried with spirit, but the surface is not improved by the process; the usual way is to blot the prints off on a hard blotting-paper or muslin and dry them in a place where there is a current of warm air.

**F. K.**—We should certainly advise 1 in preference to 2, in view of constant use.

**AMIDOL.**—I have been troubled with amidol stain on my finger nails ever since I have done black and white printing, and should be much obliged if you could tell me anything that would remove same.—**AMIDOL.**

By rubbing a little crystal of ammonium persulphate on the fingers.

**A PATENT QUESTION.**—Four practical photo printers have invented a most simple but efficient time-saving attachment for printing frames. They have in confidence submitted same to a practical manufacturing wholesaler, who is greatly taken up with the idea, and whose only reason for not advising its protection is, so far, that it is so simple that when on sale every amateur or other who sees it will simply say "Splendid idea," and not buy, but go home and in a couple of minutes make the alteration to his own printing frame—as we understand, legally there is nothing to prevent him so doing. In consequence, we should be

greatly obliged if you would inform us what the law would be under the circumstances below: Taking it that anyone can copy and use a patent article for their own use, would this mean that any firm could do so for their own use? A firm of trade printers could make the alterations to say 500 frames, and thus save yearly, perhaps, £200 in wages. The point is, as they would not offer the improved frame for sale, would they be in any way liable for infringement under the patent laws?—R. BELL.

It is illegal to make a patented article or use a patented process. This applies to both firms and individuals.

**RETOUCHING (E. E. L.).**—A considerable advance upon the last specimens you sent. Soft and natural work, but the modelling is open to improvement. The nose should be made to stand out in better contrast to the small cheek, the face line more clearly defined, and all the high lights strengthened. Impossible to fix salary. What we consider you are worth does not concern an employer of retouchers. Make the best terms you can.

**ARC LIGHT.**—My studio is a sidelight only from a large window facing south, no top light being available owing to rooms over. I get good results for a bust, but figures standing full length are very dark on shadow side. Although I use powerful reflectors, and the room is of a very light colour, it is impossible to tip the cheek on shadow side, which gives roundness unless turned to the light. Would it be an improvement if I employed an arc overhead such as the Jandus, carefully diffused through curtains, etc., so as to use the daylight and arc together? I possess a Boardman open arc, but I think I should need one of the enclosed type (movable) on an overhead wire. Should it be much in front of sitter so as to illuminate bottom portion as well? Your valued opinion would be of great help to me.—B. O. O.

If you read the article on p. 1,023 of the issue of this journal of December 28 last, and that on pp. 716-7-8 of the "Almanac" for the current year, you will probably see a way out of your difficulty. The article in the "Journal" deals with the subject more fully than can be done in this column, and applies especially to such cases as yours.

**PRICE OF LENS.**—I have just bought a lens at a dealer's (second-hand), and it is marked Richter's universal rapid aplanat, No. 3. Could you tell me what price it is listed at; if not, whether it is by a good firm? Thanking you for the trouble I am giving you in the matter.—A. Y.

We are sorry we cannot give the desired information, as we do not possess a price-list of the maker whose name the lens bears. Personally we have not tested any of these lenses, so are unable to give any opinion on their merits. You can easily test its quality by taking one or two pictures with it, using a large aperture.

**POSTCARD STATIONERY.**—Would you kindly give me the names of suppliers of (1) picture postcard albums, wholesale; (2) revolving and other holders for displaying picture postcards?—HEATHER.

(1) Raphael Tuck, Moorfields, London, E.C. (2) St. Paul's Studio of Design, 2, 3, and 4, Cheapside, London, E.C.

**GEO. HRST.**—In almost all cases it is methyl violet.

**FINISHER.**—We should advise you to obtain a square camera bellows camera or one with not too small a front. It is not so easy to combine all the requirements in one instrument, but the chief point is to have it rigid and firm, and of sufficient extension. This must be at least double the focus of any lens that you use.

**LANTERN.**—Yes, there is no doubt that the heat from the lantern melted the film, which could not have been properly dried. We should advise you to use the fixing bath given on p. 727 of September 14, 1906, or p. 759 of the Almanac. After this no heat will affect the film.

**COLOURING P.O.P.**—Will you in your next issue kindly inform me how I may colour P.O.P. prints? I have read somewhere that by pasting print on glass, then scrape or glass-paper the back of print until only the film remains. I believe wax is used in the process, then the print is coloured with water-colours, I believe, on the back of print. I have lost the book in which I read about it.—WM. G. LOWRY.

The method referred to is no doubt that known as *crystoleum*, in which the print is affixed face down to glass, the paper removed by friction and scraping, and then the colours applied. It is almost impossible to satisfactorily apply this process to P.O.P., as this is coated on a gelatine and baryta surface paper, which is absolutely opaque and difficult to remove. The old albumenised paper is the best for this purpose. Full instructions can be obtained from Alston and Co., New Bond Street, W.

**C. D. V.**—The picture is obviously either a collodion or gelatine positive, toned with uranium, and backed up with gold leaf or Dutch metal, the latter most probably. We know of no firm who now do this, but you can see from the above how easy it would be for you to do it yourself.

**F.R.P.S.**—Would you be good enough to inform me (1) if the annual subscription of £1 1s. to the Royal Photographic Society authorises the photographer to use the letters M.R.P.S. after his name? (2) How is the F.R.P.S. obtained?—ANXIOUS.

1. No, there is no such title. 2. Applications from members for the fellowship are considered twice a year by a committee which recommends or does not recommend election of the applicants. The final election is by the Council. You had better write the Secretary of the Society, Mr. J. McIntosh, 66, Russell Square, W.C.

**COPPER TONING P.O.P., ETC.**—1. Formula for a reliable copper toning bath for P.O.P. Also is copper permanent? 2. Do you know of a process which will give the following: Prints from tracing negatives which can be done by magnesium; the lines must be black, and the paper on which the print is done must be in a condition to take water-colours. I have seen advertisements of printing by what they called the West process, in which they claim that the lines are printed in Indian ink. Do you know of this process?—ARTHUR J. PRENTICE.

1. Whilst it is possible to apply copper toning to P.O.P., results obtained are extremely unsatisfactory, and not worth bothering about. 2. A process of this kind is worked by Messrs. B. J. Hall and Co., 39, Victoria Street, London, S.W., and Messrs. Norton and Gregory, Westminster Palace Gardens, London, S.W., but neither supplies the materials.

**REGIMENTAL MOUNTS.**—In reply to a recent correspondent, Mr. Hamilton Smith writes from Devizes, saying that "regimental mounts" may be obtained from Gale and Polden, Aldershot.

**STATE CINEMATOGRAPH FILMS.**—Animated records depicting Parisian state ceremonies, great gatherings of public and national interest, festivals, manoeuvres, and the like, are to be handed down for the use of future generations of students of French national life and customs. The municipality of Paris has decided to establish a bureau for the sole purpose of acquiring and preserving such films, thus recognising the value of the cinematograph as an educational factor. These present day business methods, and the state functions of our generation, will prove of inestimable value in the future, but no official movement has hitherto been made to secure the subjects. For electioneering purposes, too, animated pictures are proving not only of present use, but will serve as permanent records of the methods of our time, and thus be more serviceable than any still life pictures or verbal and statistical descriptions.

**\* \* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

The first of a series of chapters on the working up and colouring prints and enlargements with the aerograph appears on page 40.

The Progress Medal of the Royal Photographic Society has been awarded to Mr. E. Sanger Shepherd for his researches in three-colour photography. (P. 52.)

We regret to record the death of Mr. Sebastian Davis. (P. 46.)

Mr. F. C. Tilney, in some notes on the portraits by American professional photographers now being shown at the B.J. offices, comments on the freedom from excessive retouching and the command of lighting and mounting which many of the examples show. (P. 41.)

An American professional speaks of the favour into which carbon printing has lately come among professionals in the States. (P. 44.)

The patented Pietzner method of colouring photographs by means of a stripping film is the subject of an article on page 42.

Mr. Herbert E. Ives has published details of a method permitting the duplication of Lippmann colour photographs. (P. 38.)

A man, who has been practising the most impudent canvassing ruses in the North of England has been sentenced to jail for two months. (P. 46.)

An ambitious scheme for using micro-photographic reproductions of books and documents has been advanced by the Brussels Institut Bibliographique. (P. 39.)

Roller-blind shutters and other shutter mechanism, invisible printing and panoramic cameras are among the patents of the week. (P. 48.)

Uniformity of formulæ for developers of plates and papers is a point put forward by Mr. A. Gascoigne. (P. 43.)

A German writer has published instructions for the making of artificial negatives. The directions should equally serve for the production of diagram lantern slides. (P. 45.)

## Copyright in America.

### EX CATHEDRA.

Photographers in the United States are justly indignant at the efforts being made through Congress to deprive them of the rights of reproduction of their photographs which it is proposed to grant them under a revision of the copyright law of the States. As the Bill recently stood before the American legislature it did give the photographer some protection against those who, under the existing conditions, can take what is not theirs with impunity. An amendment, obviously emanating from the newspaper proprietors, has been put forward to the effect that "Provided, however, that the reproduction of a photograph in any newspaper by the process known as stereotyping shall not be construed as the infringement of the copyright of such photograph." It is difficult to suppose that a barefaced proposition such as this can carry any weight in the alteration of a measure which at present is reasonably equitable, but only a slight acquaintance with American politics is necessary to recall instances of similar travesties of justice having proved successful. We hope, therefore, that photographers throughout the States will respond to the call of Mr. B. J. Falk, the president of the Photographers' Copyright League, by such an outcry as shall compel the Government to place photographers on the same footing as other illustrators in the matter of copyright in their works.

## Pictorial Photography in London.

On Monday, January 28, at the Galleries of the New English Art Club, 67A, New Bond Street, an exhibition will open of photographs by the following:—

J. Craig Annan.  
Alvin Langdon Coburn.  
F. Holland Day.  
Robert Demachy.

Gertrude Kasebier.  
A. de Meyer.  
C. Puyo.

The exhibition, which will remain open for a fortnight, will afford an opportunity of seeing again works of the pictorial school which have been admired at previous exhibitions, but it will be chiefly remarkable for bringing again before the public the photography of Mr. Holland Day, whose mystic productions attracted a good deal of attention a few years ago, and obtained, we are glad to remember, some candid outspoken criticism. The arrangements as to organisation and hanging of the forthcoming exhibition have been in the hands of Mr. A. L. Coburn, to whom our congratulations are offered in advance on providing the opportunity for an inspection, side by side, of the work of MM. Demachy and Puyo, three notable American photographers, and one Scotsman in the person of Mr. Craig Annan.

## Three-colour Lippmann Photography.

Apart from the long exposures necessitated by the slowness of the emulsion, the fact which has stood in the way of the more general use of the Lippmann interferential pro-

cess of colour photography is that it has so far been impossible to reproduce the results. A hope of the realisation of this was held out by Professor Lippmann in a paper published in the *BRITISH JOURNAL OF PHOTOGRAPHY* for June 30, 1905, p. 505, in which it was pointed out that brilliant complementary colours could be seen from the back of the film when bichromated gelatine bearing an interference photograph had been saturated with silver iodide; but beyond that stage no advance has been made. Now Mr. Herbert E. Ives has published a method by means of which it is possible to duplicate interferential photographs. The method adopted is extremely simple and is based on the use of three-colour records or transparencies projected by means of an enlarging lantern and sunlight, with the aid of a heliostat, on to a grainless emulsion plate, in contact with which was a grating having the opaque spaces twice the width of the transparent. When an exposure has been made with the one-colour record illuminated by the correct coloured light, the grating is shifted so as to cover the exposed line and uncover another unexposed line, and the transparency is changed and also the light. These operations are then repeated for the third colour record. It will be seen that the process may be said to be a combination of the three-colour method, with the shifting grating (as described by Mr. Ives for his diffraction process in our issue for August 3, 1906) and the Lippmann process. To quote the author's words, the results "are not, of course, colour pictures taken directly in the camera, the ideal for which we aim, but they are faithful colour pictures, produced entirely by photographic means; they are held in the hand to observe, and may be duplicated indefinitely." The full text of the paper will appear in our next "Colour Photography" supplement.

\* \* \*

#### Bogus Impressionism.

In his Royal Academy lecture on "The Hour," Professor Herkomer made some timely and much-needed comments on the bogus "Impressionism" that so often poses as "Art." The Professor's remarks were aimed chiefly at a certain modern French circle of so-called artists, but as the influence of the offenders is by no means confined to France, and has certainly contaminated photography to some extent, this particular Royal Academy lecture deserves a wide circulation. Professor Herkomer referred to the works of Turner and Holman Hunt as examples of true impressionism, for, widely as these two painters differed in their views, "both painted their impressions." He denied that the modern decadent school had any right to the name of "Impressionists," and suggested "Imperfectionists" or "Idiotists" as more truly expressive designations, for, "It's the badness of the work that knocks one over," remarked the Professor as he dramatically unveiled some shining examples of the "Modern School." He told a story that illustrates most aptly the characteristic line of defence adopted by the perpetrators of these fraudulent productions that masquerade as pictures. He described one of the "masterpieces of the school" shown him by a disciple in Berlin. He asked the disciple if he thought the picture was a good composition. "No. That was not its aim." Did he think it well drawn. "No. That, again, was not its aim." Nor was colour; and of its real aim the lecturer was still ignorant. There is always a comic side to such travesties of Art, some of which, as is well known, have been deliberately produced for the simple purpose of playing a practical joke on the critics.

\* \* \*

#### The Decay of Illustration.

A writer in "The Academy" deplores the degeneration of "black-and-white" artists. In another column we print an extract from the article, by which it will be seen that the

imitation of a photograph is held to be the *ignis fatuus* which has lured the poor foolish artist to destruction. According to the dicta of many authorities, however, this must be a veritable turning of the tables upon the artist. For our own part we do not agree with our contemporary, for we fail to see that the dozen or so of illustrators who drew for "Once a Week" and "Good Words" in the famous sixties cannot be matched to-day. The real point is, we think, that there are now perhaps a hundred times as many doing the same thing less well, to whom the door has been opened by cheapness in reproduction. Forty years ago the cost of making blocks was about twenty times as great as it is to-day, and it would never have paid editors then to have spent from five to ten pounds upon engraving such a drawing as the cheap magazine can get to-day for ten shillings. There are just about as many good artists as ever there were; but there are also hosts of inferior ones nurturing upon art-editors who ask for cheap drawings; and the name of such editors is legion

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#### Stereoscopic Lantern Slides.

A correspondent in "Nature" (December 27, 1906) suggests what he considers to be two very easy ways of showing stereoscopic slides to a large audience. In the first place a slide showing a pair of stereoscopic pictures is prepared, and the two pictures are projected side by side on the lantern screen. Each member of the audience is then supplied with a form of stereoscope through which the pictures are to be observed, one form suggested being two mirrors apparently arranged somewhat in the manner of Mr. Theodore Brown's "stereoscopic transmitter," while the other form is a simple prism placed in front of one eye. There is nothing new in these suggestions, and there are many other ways in which the same purpose can be fulfilled, but from our own experience with various forms of stereoscopes we are inclined to think that very few members of the audience would master the use of such out-of-the-way contrivances. In the ordinary prismatic stereoscope everything is made easy for the observer, and, provided the instrument is properly adjusted and the vision is not very abnormal, almost anyone can quite readily see the stereoscopic relief. This instrument is, however, the only one that is really easy to use from the beginning. A non-prismatic or lenticular stereoscope of similar form is not so quickly mastered, neither is a Wheatstone reflecting stereoscope. With all these instruments the pictures observed occupy a fixed position and the whole apparatus can be so arranged that with a little practice the effect is readily secured. But when the optical portion of the apparatus is quite disconnected from the prints one has not only to adjust the mirrors or prism, or whatever it may be, but also to secure a right direction, and this is not always easy even when one is fairly expert. What we may call "one-eyed" stereoscopes, such as the prism suggested, are very troublesome to use. We are much inclined to think that the double mirror arrangement suggested for use as a stereoscope would be quite as troublesome as the one-eyed arrangement, and just as ineffective in the unpractised hands of a mixed audience.

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#### One-eyed Stereoscopes.

It is very desirable that instruments such as these should be used with caution, for, from the nature of their construction, they generally put a very undesirable strain on the eye. This may not be the case when a distant lantern projection is observed, but it undoubtedly is so when an ordinary stereoscopic slide is studied at close quarters. The optical construction, whether it be an arrangement of mirrors or a simple prism, lengthens the path of the rays from the object to the eye, hence the eyes are focussed on different



distances, and their accommodation varies. This is an altogether unnatural state of things, and the strain, which is of an injurious kind, is very soon felt. In a properly adjusted lenticular binocular stereoscope of any ordinary pattern there is no strain whatever to injure normal eyes, and the effect required to combine the pictures with non-lenticular binocular arrangements, or without any instrument at all, does not involve any strain that is likely to work mischief. The eyes work in unison in these cases, but the independent accommodation required with the monocular instrument is just as apt to work mischief as the use of the familiar "monocle," which no one can wear except at the cost of damaged eyesight.

#### MICRO-PHOTOGRAPHS AS DOCUMENTARY RECORDS.

In the report of the congress of photographic record at Marseilles, which appeared in our issue of November 23, was a reference to a scheme proposed by a M. Robert Goldschmidt, of the Institut de Bibliographie, of Brussels, which was stated to be receiving the consideration of the Congress. M. Goldschmidt's paper has since been published by the Institut under the title "*Sur une Forme nouvelle de Livre*" ("On a new form of book"), and turns out to be a most ambitious and comprehensive scheme of applying photography to library and bibliographical purposes. According to M. Goldschmidt the present system of storing the actual volumes published for general reading is too heavily weighted with drawbacks to answer much longer the purposes of directors of large libraries. In considering the formation of a great international centre of bibliography, the obstacles in the way of collecting original books, periodicals, and manuscripts, not to say of finding room for their storage, appear so enormous as to lead the Brussels Institut to formulate a plan which is advanced by it as satisfying the following conditions laid down in reference to the constitution of an ideal library of reference. The desiderata in a document to be consulted at intervals in an immense library are:—

- Small weight and volume.
- Uniform size.
- Absolute permanency.
- Low cost.
- Facility of storage.
- Ready accessibility.
- Facility of duplication and of multiplication.

The realisation of these conditions are to be found, we are told, in the micro-photographic reproduction of the printed volumes and journals. The tiny copies are to be made on a flexible film the rolls of which are susceptible of storage and are equally readily available for consultation by insertion in a projection lantern or lantern microscope. This idea, as the brochure points out, is not an entirely novel one, for it was suggested in 1865 by Wharton Simpson, and, indeed, six years previously, at a meeting of the Manchester Photographic Society, some photo-micrographs were exhibited, of which one was a copy of two pages of "Quekett's Treatise on the Microscope" reduced to the superficial area of one-sixteen hundredth of an inch. It included 3,631 letters, every one of which was as perfectly sharp and legible as in the original printing. But a scheme of such magnitude as that of the Brussels Institut has probably not been advanced, and we are doubtful if the suggestions of M. Goldschmidt are backed up by practical trials of the process in the application which is suggested for it. For the requirements of the micro-photographic book are very exacting ones. According to the brochure before us the size of the standard section of film which is to contain these bibliographical

records is to be that of the international postage stamp, or 1 by  $\frac{3}{4}$  inch, and in this area it is proposed to reproduce 72 pages of a printed book, with space between the pages to permit of them being separately examined. The writer appears to anticipate some little difficulty in obtaining images of sufficient fineness of grain to permit of legible projections of these minute negatives, or copies, and he mentions casually that the present celluloid film, from its inflammability, would not be adapted to the purpose, but that a non-inflammable film is merely a problem for the technical chemist. He is right. It is.

But unless we are mistaken there is another equally formidable objection to the successful employment of the micro-photographic method, and this will be apparent on considering the problem which confronts the photographer who is asked to prepare a film of postage stamp size containing the copies of no less than 72 printed pages. Assuming that these latter are the moderate size of 9 by 5 inches, a common size of type space in scientific works, and that they are arranged in six rows of twelve pages each across the length of the film, a simple arithmetical calculation will show that the length of a single printed line will be less than one-seventieth of an inch, even when no allowance is made for space between the pages. An average number of letters in a line of type occurring in such a page is something over seventy, so that the breadth of a letter in the micro-photograph is about one five-thousandth of an inch. Such a minute degree of definition calls for the very finest grain in the plate. The supporters of the scheme appear to have recognised that commercial dry plates will avail them nothing in their work, but they do not say how they will obtain the necessary fineness in their sensitive material. We very much doubt the ability of anyone to get it except under the most favourable conditions—conditions which we believe could not be fulfilled with the certainty and regularity which such work as the reproduction of pages to be read by students of necessity requires. Mr. George Shadbolt, many years ago, exhibited some of the earliest micro-photographs to be made by the wet-collodion process, and in the *BRITISH JOURNAL OF PHOTOGRAPHY* for 1859 (p.104) gives a description of his method of working. He mentions there the necessity of securing a structureless collodion, and what was true at that time is to all intents and purposes true to-day of the collodion process. The usual iron developer will not give the fineness of deposit which is obtainable with pyrogallie acid. With this latter reagent the image amounts to something very like a stain instead of a granular deposit, and in conjunction with a neutral sensitising bath the best conditions are provided for the attainment of the very critical definition which the proposed record work calls for from the photographer.

**GASLIGHT Postcards.**—A correspondent writes: Perhaps your correspondent, "B. Poulter," in your issue of January 11, may not be aware that "Tula" postcards, manufactured by the Bayer Company, may be treated with hot water, and dried by heat in a few minutes.

**THE Cinematograph at the Alhambra.**—In appreciation of the paramount excellence of the "Urbanora" animated picture exhibit, and in order to afford still greater facilities to the expert operators of the Urban Company, the management of the Alhambra has had constructed a new and spacious cinematograph chamber with a unique electrical equipment. It is (as, indeed, is the entire theatre, and every inch of scenery and drapery within it) absolutely fireproof, and, unlike its predecessor, is out of the view of the public, and merged in the scheme of rich Moorish decoration which distinguishes the celebrated place of entertainment. The apartment was used for the first time on Monday evening last, when some very beautiful and realistic scenes of the Atlantic Ocean were added to a programme already replete with variety.

## WORKING - UP AND COLOURING WITH THE AEROGRAPH.

The following first number of a series of articles on this subject deals with the general principles of the application of colour to photographic enlargements and prints by the means of an air-spray of colour. The succeeding instalments will treat of the care and manipulation of the instrument, the choice of the best colours, the working-up of different types of subjects, vignettes, etc., and the special methods of portrait colouring.

It is the purpose of the writer to make these papers on "aerograph work" as practical as possible, avoiding theories and debatable points, and dealing with technicalities. There may be references to the materials, such as colours, supplied from various sources; the artist, the beginner especially, wants to know definitely about these things, so it may be necessary to mention the names of makers, and although one may be recommended, it will not follow that others are not as good, but only that they have not come within the experience of the writer. We shall deal with the character of the enlargement, the colours to be employed, the treatment of backgrounds, and details of pictures, etc. But we think that our first chapter should be one on the handling and the care of the instrument and hints for beginners.

### The Difference Between Aerograph and Brush Work.

There are many artists who have acquired the technique for finishing photographs with a brush who will be interested to learn more about "aerograph" technique, as the two differ very considerably—almost as widely as oil painting and water-colour drawing. The difference is inherent in the tools, if I may call them such: a brush naturally makes a hard definite spot, or line of colour, whereas the "aerograph" makes soft lines and easily-graduated tints. This means in practice that brush work must be applied with much nicety, and great care exercised to obtain softness, whereas with the "aerograph" care must be exercised to keep the work as sharp and definite as possible. Perhaps in practice the best results are obtained with a judicious combination of the two methods; but the writer is of the opinion that at the present time only a few artists have given sufficient attention to the technique of the "aerograph" to thoroughly master the possibilities of the instrument. It is quite natural that artists who have spent several years acquiring the skill to use a brush, should be slow in changing their method of work, and if they only use the "aerograph" occasionally for broad washes, they might work many years with the instrument and never understand its possibilities or be said to have properly acquired the technique of the "aerograph." It will probably be many years before the art of the "aerograph" is properly understood, as it will be necessary for artists to be developed by the use of the instrument, as they have been with brushes, to inform us of its capabilities and its limitations. At the present time it is serving as an aid to artists—and principally trade art; but to come more directly to our subject,

### The Principle of Aerograph Work.

The colour leaves the point of the "aerograph" in a gradually-expanding spray, or, in other words, the colour which is in the air forms a cone with its base on the paper and its apex at the point of the instrument. It is therefore obvious that the further from the surface the instrument is held the broader will be the surface covered. This, with the fact that the amount of colour delivered determines the depth of the tint or line, is, broadly speaking, the whole theory of its application, but there are many points of consideration which must be understood to make practical application of the method. For instance, the "aerograph" does not make a flat tint except as it is applied in overlapping strokes; we can best explain this by a diagram. Let Fig. 1 represent, diagrammatically, in cross section, the quantity

of colour delivered by a single stroke of the "aerograph"; the colour is deeper in the centre and decreases gradually to each edge of the stroke. To make a flat tint it is necessary to overlap a number of these strokes, as in Fig. 2,

Fig. 1.



Fig. 2.

which makes for all practical purposes an even tint. It is obvious from this that the artist should take strokes with the "aerograph," as he does with the brush, and the strokes should be parallel and overlap (3-B-B) (3-B-B-B).

It seems hardly necessary to say that if an attempt is made to get an even tint with a circular movement, as one could do with a stump, the result would be failure, as where lines crossed the colour would be deeper, and a lumpy (we cannot call it a cloudy) effect would be produced.

### To Begin: How to Make Strokes.

Everyone who has used a brush for washes of colour knows that skill and long practice are required in the art of bringing the brush in contact with the paper, and in removing it at the end of the stroke to avoid irregularities of line and superabundance of colour. With the "aerograph" the starting and stopping point of the line or stroke are critical points. The hand carrying the instrument must be in motion at the time when the finger button is pressed to start the flow of the colour, and must continue its movement until after the flow of colour is stopped at the end of the line, otherwise there will be surplus colour at the ends of the line or stroke. Take strokes with the instrument and stop the flow of colour at the end of each stroke. Do not try to work keeping the colour on and dodge from one part to another.

Where a tint requires a sharply defined edge it is necessary to work with a line along the edge, gradually getting further from the surface of the paper as one gets away from the edge of the tint.

In certain classes of work, as in drawings of machinery, etc., to be reproduced by process engraving, the sharpest definition is required; tracing-paper masks may then be used to secure sharpness, but for portrait subjects we should not advise masking. Additional sharpness may, however, be obtained with the eraser. But we shall have more to say about erasers in a later chapter.

To keep the point of the "aerograph" near to the paper helps to keep the work sharp and clean.

### Tints, Shadings, Lines.

Having learned to make strokes with the "aerograph," in making tints and shadings, it is important that the strokes should follow the contour of the portion of the picture to be shaded—i.e., if shading the curve of the cheek in a portrait, the strokes should always follow the contour of the cheek.

And now a few words as to making lines. It is, of course, obvious that for sharp lines the point of the instrument should be very close to the paper—the point of the instrument may even rest on the paper if held at a slight angle. For very fine work the little guard may be removed from the point of the instru-



ment, only great care must be taken not to bend the point of the needle, which would then be exposed.

It is absolutely impossible to do very small drawings unless the instrument is set for a fine line by means of the knurled band—the instructions sent with the outfit explain the operation of this regulator for the line, so we will not go into it here, only to say that this band must be changed slightly for different colours, as all colours do not flow with the same freedom.

The knurled band should be set for the minimum amount of colour or the finest lines that are required for the work in hand. One can easily do small details of a drawing, if certain that when the finger lever is pressed (keeping it forward) one is only going to get a definite small quantity of colour, but if you have to press the lever and then gradually pull it back until the colour comes, you are working at an unnecessary tension and with a large degree of uncertainty, and the colour is likely

to come too suddenly and spoil the work. **DO NOT TRY TO DO FINE LINES WITHOUT HAVING THE INSTRUMENT SET FOR A FINE LINE.**

And while on the subject of lines we should like to say that many workers with the "aerograph" are content to use the instrument for tints only, and do not try to make it useful for lines.

There is not much doubt that while there is a great saving of time by laying tints with the "aerograph," there is still greater advantage in using the instrument for lines; the technique is much more difficult to learn, but, once acquired, the artist has lines of all the varying degrees of softness which no other artist-tool can give.

In the next article, after instruction in the care of the "aerograph," we shall proceed to the use of the eraser, the selection of the other few accessories, and the choice of colours.

## PORTRAITS BY AMERICAN PHOTOGRAPHERS.

BETWEEN the best photographic portraiture of America and the best of other countries there has always been a slight but sufficiently distinguishing difference. As long ago as a quarter of a century I remember being struck by the stylish look of certain portraits of actors that were displayed in French's windows in the Strand. These were by Sarony, and I have a distinct remembrance that the celebrities they portrayed seemed to be more dignified and irresistible people than our own notables, as rendered by the leading London photographers. The American work was usually larger, and mounted on heavier boards, of "panel," and other shapes new to me. The work was, as a rule, of richer colour; the poses of the sitters more arresting; and the general finish smarter. Perhaps, all this was a false impression, the outcome of inexperience in these things; but whether it were so or not, one fact remarkable about the matter is, that American professional work to-day gives me exactly the same impression. It seems to be in the van of progress. New departures, quaint developments, and all those slight changes which come about, not because there is any real need for them, but because they excite interest and cupidity in the customer—all this freshness of style seems to spring into being on American soil.

At the "little gallery," in the premises of "The British Journal of Photography," there is now arranged a show of about eighty works by American professional photographers. A more instructive and inspiring exhibition could hardly, I should think, be placed before any operator who is anxious to pick up suggestions as to ways and means.

One of the first things that will strike such a visitor is the passing away of that egg-shell texture of flesh, resulting from laborious and ill-directed retouching. The faces shown here, even those that have been exhaustively retouched, are not at all the porcelain masks, at which the amateur delights to sneer. They are fleshy, even if they are smooth and wartless. And in this exhibition, wrinkles and other signs of age appear to be capital in the photographer's hands, and the interest derived from it is certainly very great.

W. M. Hollinger, of New York, shows a lady whose face is all wrinkles, and whose hands, holding her spectacles so naturally in her lap, tell the same tale of a life spent in good works, as does the face. Beneath this excellent piece of character hangs another, which though entirely different in subject, resembles it in the matter of a suggested smile, or rather a smile held back, but anxious to be let loose all over

the face. The charm of such an expression can be imagined, when, as in these cases, it is the outcome of the sitter's own feelings, and not a property affair displayed at the operator's suggestion. Mr. Hollinger has evidently the knack of interesting and amusing his sitters, and making them feel the fun of the thing. These two sitters have entirely lost sight of the awful, haunting doubt of ladies in these circumstances—"I wonder whether I'm looking all right." The latter subject, together with the other works here by Mr. Hollinger, instances his fine sense of colour-values. The handsome full-face, though surrounded by darkness of tone, is by no means bright. The brightness is all left to a scarf or necktie, and the face is without conventional high-lighting. It keeps its place and retains its importance by other means than being the brightest thing in the picture. Consequently, it appears to have the proper colour-tone of flesh, as compared with the tone of a white scarf. This is one of Mr. Hollinger's methods, judging by its employment in four other works, No. 4 of which, by the way, all but speaks.

A young man's face, by Browne, seems to me to suffer by a too concentrated lighting, which culminates upon the nose; a system that would appear impossible unless a candle were held close to that organ.

Elias Goldensky, of Philadelphia, achieves lovely effects in low tones, without any loss of the charm of brilliance. No one should miss the delightful profile of a girl with her head bent. All the face is in a clean, deep tone and the light upon the shoulder is but the merest bit lighter than the background. The mounting, in ochre-tinted papers, is entirely harmonious with the print. A full-face is lit from beneath, the chin receiving the only high light, and the background having a luminous treatment that makes a picture of a head thus trickily lighted. Mr. Goldensky evidently gives a deal of thought to his schemes of light and effect. He "patterns" his subjects, and thus gives them a pictorial value that is an incalculable asset to a mere likeness, however good that may be upon its own merits. In his mounting, the tints almost invariably match the colours of the print.

An irresistible little girl in a print dress is signed Baldwin. Her pose is new and pretty; but what I should like to draw attention to particularly is the admirably convincing differences in the textures of the print frock on the one hand, and of the hair and flesh on the other. Those differences are of the utmost value in such a subject as this.

### A. Photographer of Children.

One screen is entirely devoted to the works of E. B. Core (New York), who specialises in children. It appears to be his object always to get a pictorial idea into these youthful portraits. In one, for example, half-a-dozen children are playing at school. In two others, a young baby is introduced as motive. The infant is held in the arms of a nurse, who holds it down to a child that reaches up to take it; or the baby forms an object of interest to its mother and grandmother who bend over it dotingly as they sit upon a settle. Perhaps, the finest of the baby pictures is a circular print of a mother and child; the former quite taken up with the latter's behaviour, and oblivious of herself; the baby on the utmost stretch of expectancy and wonderment as to the "little bird," or other base subterfuge by which the camera man has secured its lively expression. Another print shows five separate portraits of a child's head, à la Reynolds's so-called angels' heads. It is an idea, certainly, but one that would soon pall by repetition.

### J. S. Strauss and Pirie Macdonald.

Another idea is seen in the costume or historical exploits of Strauss (St. Louis), who selects with admirable cleverness his types of sitter, and disposes them in costume and pose recalling certain classes of painting. Thus one looks for all the world like a Holbein, another like an Italian painting of the great periods. Amongst them is an actual imitation of a portrait of Napoleon, and the likeness is remarkably good. Herr Dührkoop, from whom, by the way, this collection comes *en bloc*, is photographed as a Venetian Doge. Naturally enough, all this sort of manœuvring involves a deal of hand-work, and in my humble opinion, it is just there where these clever things fall short. The purely photographic part, and the carrying out of the idea are commendable; but the drawing and painting that have been added are not convincing. Some of the hands "give the show away," if I may be excused such slang. Mr. Strauss also shows some delightful child portraits, the most moving of which, is perhaps, the one that is caressing its mother's face. All the work in this section is forcible and rich.

Pirie Macdonald ("The photographer of men," New York) may be known by the look of astuteness that his sitters seem to bear. The smiling gentleman who showed at the R.P.S. Louis Windmuller, by name, is here, and is well matched in strong characterisation by another gentleman, who ought to be Meissonier, the French painter, if he is not. Mr. Macdonald delights in strong work and powerful contrasts.

### Garro and Hall.

Oval trimming, dainty mounting, and softness of effect suit

well the languishing charms of a head and bust by G. Garro, of Boston. Another head and bust at full face by the same worker has a light background, whilst the head is strong in its tones. The mean between these two extremes lies in the drapery of the bust, which is in soft undemonstrative tones. The result is a print of the utmost strength, sparkle and softness. What could be better adapted to lure the cultivated Philistine sitter?

Handiwork is again somewhat aggressively evident in the clever full-length, by L. A. Steffens, of Chicago. The shadow upon the wall and the reflections in a floor supposed to be polished are neither pleasing nor convincing, and the outline of one light dress is made hard and "cheap" by the added work. Apart from these defects, however, the figure is stately and winning.

Another piece of work more remarkable than pleasing to my captious eye, though I do not doubt that it wins many admirers, is a furniture-piece, wherein the sitters with difficulty hold their own, by H. Hall (Buffalo). So strong are the contrasts in this, that the effect is almost reduced to one of sheer black and white. Perhaps, firelight is simulated. Of course, the thing is very striking, and would be sure to attract, but it strikes me harder than I like. The same photographer has full-length ladies and the best part of a Gibson girl, and these have backgrounds either quite empty or slightly tinted with a touch of water-colour. His finest work for quality is a face, neck, shoulder, and bust, a little less than in profile, and oval-trimmed. Better as portraiture is a beautiful profile in full tone, across which loose and bright hair is allowed to float. This is daringly done, as the hair is quite loose in focus. There are other "fetching" things by J. H. Field (Berlin, Wis.), who is a great believer in the effect of tulle as drapery. J. Parrot (Fort Mayne) also has a swathing of tulle round a fat little naked boy. The splendidly decorative head by R. Eickemeyer, Jr. (New York), is already known to Londoners.

The most attractive of the prints by J. E. Greene (Boston) is a full-length figure close to a wall, whereon a side light plays rather acutely. It gives charming gradation in the background, and illuminates the upper part of the lady's figure, whilst the rest is in a clear low tone. The effect is highly pictorial.

The visitor will find many other examples worthy of his attention which have necessarily been passed over by me; and I am convinced that his own study and judgment will be of greater service to him than these remarks of mine. From the trade point of view, of course, I do not know what I am talking about, and am prepared to be told so—but from the point of view of an onlooker, and as a possible or typical customer, my likes and dislikes may be judged to be mildly interesting.

F. C. TELNEY.

## COLOURING PHOTOGRAPHS BY THE PIETZNER METHOD.

THE following article from our Viennese contemporary, the "Freie Photographen Zeitung," amplifies the particulars of the patented process of Herr Pietzner which appeared on the publication of the latter's complete specification in our issue of November 9, 1906:—

Statements about colour photography always excite general interest both in technical and general circles, because it is on these lines that the photographer will reproduce Nature more correctly. Even if we say that colour photography is still a problem to be solved, and that no satisfactory solution has yet been attained, we can approach by some methods very close to the multiplicity of colours in Nature, yet the goal will always remain unreached so long as the personal equation and skill remain as the most potent factors in attaining this end.

This not only applies to all three-colour methods, but much more

so to all the numerous methods of colouring which of late years have been published as "colour photography." They are incorrectly so-called, and should rather be known as coloured photographs, as their aim is to convert any photograph by treatment with chemicals or pigments into a coloured image.

### Colouring by an Applied Film.

About six months ago an announcement was made in the technical Press that Pietzner, a well-known photographer in Vienna, had succeeded in working out a process of "colour photographing" which—as stated in the prospectus—"had been patented in all civilised countries, and that would probably create a sensation in all photographic circles." When the first results were published it was at once seen to be by no means so sensational, for although the pic-



tures made by this method gave one a very good impression, every one recognised at once that they were no photographs in natural colours, but merely collodion prints with a backing of oil colours, which appeared to be on linen. Actually, there is little new in the method to be called sensational or patentable, for in the 'seventies photographs with an oil colour backing were sold as "chromophotographs." These differed from the new colour photographs in that they were squeegeed to glass, and then coloured.

As it may interest many readers to learn how Pietzner's colour photographs are produced, I will proceed to explain.

As in the old chromophotographs, Pietzner's process consists in the transfer of a coloured photographic film on to a painted photograph or other support. This is effected so that the contact between the two painted images is very close, softer effects than hitherto being thus obtained. The outlines of the photograph are traced out, and this tracing transferred to a support of linen, wood, paper, leather, ivory, or metal. It would be better, instead of using a tracing, to mount a second photograph on the support.

To make the upper picture, stripping collodion paper should be used. The print should be finished in the usual way, and then transferred to glass or celluloid, so that it can be subsequently stripped from the same. In order to do this, the glass, celluloid, or paper should be coated with gelatine solution to which is added tannin, formaline or chrome alum. This hardening agent should prevent the expansion or solution of the gelatine. If the stripping collodion print is now squeegeed under water on to the hardened gelatine film, taking care to avoid air bubbles, the dimensions of the film will remain unchanged, and thus the outlines of this upper picture will coincide more exactly with those of the image on the support.

#### Stripping the Collodion Film.

It is essential to ensure that the collodion image can be subsequently stripped from the hardened gelatine. To this end the

latter is coated when dry with shellac solution, allowed to dry, and then painted with wax dissolved in ether. On this coating the collodion picture can be squeegeed, and when it is ironed with a moderately warm flat iron it will adhere, and the paper can be stripped. The film can again be stripped by means of heat.

Before further manipulations are proceeded with the ground image is coloured with tube oil colours, and these smoothed down with a suitable tool. This is necessary, because, if the painted surface be too rough, the picture will look unsatisfactory. In order to control this work, the upper image which was squeegeed to the gelatine should be superimposed from time to time to see how it looks, and whether corrections are necessary.

When the painting is finished, the stripped collodion picture is brought by means of some mountant into accurate register. For this a solution of shellac or gelatine, with a sufficient addition of acetone, can be used. The acetone softens the celluloid film without dissolving it, and renders the penetration of the oil colours into the upper picture possible, which is very important, because by this means an excellent effect of colour is obtained, and an intimate contact between the two pictures. Afterwards the gelatine transfer surface can be stripped, and one has now a coloured photograph of brilliant colour effect, which is similar to an oil painting. This can now be varnished.

It should be noted that the mountant should be merely spread on the surface of the lower picture. If delicate miniature portraits are required, the stripped collodion image should be first softened with acetone, and then the details, such as the lips, eyes, ears, and gold ornaments, be painted. After renewed fixing with acetone, gelatine, or shellac solution, it should be transferred to the coloured lowered image.

With this process imitations of oil painting can be prepared on canvas, and imitations of water colours on paper and silk.

GUSTAV WALTER.

## STANDARD FORMULÆ.

It would be extremely interesting to know how many plate and paper users employ the special formulæ which are recommended by the makers. Also one naturally wonders why there is such a multiplicity of formulæ when in practice. It is found that, except in abnormal cases, equally good results are obtainable on various makes of papers and plates with one particular developer. Does not this naturally lead one to think that there is no particular virtue in a particular formula, and if so, would it not be possible to frame a developer which should be applicable to any plate or paper?

Certainly this method would considerably simplify the matter for all users of sensitive materials, and it ought to do the same for the makers. The former would know that he need only use a developer he was accustomed to, no matter whose plates or paper he might want to try, and the latter would certainly save considerably by the absence of a lot of printed matter, a great deal of which at the present time goes to litter up one's dark room.

Desiring recently to try a particular brand of plate, I naturally examined the directions for use, and had to sit down with pencil and paper to calculate out what was the actual composition of the pyro-soda developer recommended in grammes per litre, as I always use the metric system. Suddenly I thought of the "Almanac," and found that there it was done for me. After using the maker's pet formula I then tried the Hurter and Driffield standard pyro-soda developer, and found, except for a higher *k*, or more rapid development, the results were the same.

From this fact I was led to examine other pyro-soda developers, and finally reduced them to the same proportion, and although I do not pretend to have examined all the plates and developers recommended, I have tested six and found no practical difference in results. Why, then, should makers and users of plates not adopt a standard pyro-soda developer?

The following table gives the constitution of the various developers

in parts per 1,000, which, if halved, may be practically considered as "grains per ounce."

	Pyro.	Sodium Sulphite	Sodium Carbonate	Potassium Bromide	Remarks.
Austin Edwards.....	6.25	62.5	58.5	—	Nitric Acid .025
Cadett and Neill .....	5.5	52	22	—	Citric Acid .09
Elliott .....	6	56	57	1	Nitric Acid .25
Gem .....	10	80	60	—	Metabisulphite 5
Griffin .....	7	50	50	115	—
Ilford .....	7	50	50	1.2	Mean formula
Imperial .....	6.225	50	50	.975	Metabisulphite 1.5
Eastman .....	7.5	30	30	1	1
Lumière .....	5.6	32	20	—	Nitric Acid .4
Marion .....	6.25	50	50	.075	Sulphuric Acid .075
Mawson .....	6.875	70	55	—	Metabisulphite 1.75
Paget .....	6.25	46	46	—	—
Rajet .....	6.25	50	50	.5	Metabisulphite 1.75
Wellington .....	5.47	54	43.75	—	Citric Acid .5
Wratten .....	6.5	37.5	37.5	—	75
Agfa .....	7	50	50	—	Sulphurous Acid 7.5

Under the heading of "Remarks" are given the acids or acid salts used as additional preservatives in the pyro solution. "Mean formula" against Ilford refers to a mean developer between their strongest and weakest (in pyro) formula.

The mean, small fractions being omitted, of the above developers is given below, and against it Hurter and Driffield's standard pyro developer.

	Mean Developer.	H. and D. Standard.
Pyro .....	6.6	8
Sulphite .....	50	40
Carbonate .....	45	40
Water .....	1,000	1,000

The bromide has been neglected, as apparently eight plate makers

advise it, and eight do not. If it is considered desirable to include this, the quantity would be 0.5 parts per 1,000.

Is there any serious objection to the adoption of either of these formulæ as the standard pyro-soda developer?

Having proceeded thus far, I was led on to examine the question of a standard metol-hydroquinone developer, first as regards bromide and gaslight papers alone, and then it occurred to me that it would be possible to compound one which could be used both for negative and positive work. This was found to be a little more complicated, because one or two makers appear to prefer potassium carbonate or hydrate to sodium carbonate.

#### NEGATIVE DEVELOPERS.

	Metol.	Hydroquinone.	Sodium Sulphite.	Sodium Carbonate.	Potassium Bromide	Remarks.
Cadett .....	1.875	1.875	15	15	1	
Griffin .....	3	12.5	100	172	5	
Imperial (Single Sol.) .....	5.5	4.5	57	57	3	
Kodak .....	1	1.75	37.5	25	5	
Marion .....	3	3	40			
Wratten .....	1.6	6	16.6	16.6		
Agfa .....	5	7.5	100		1	

The following gives the bromide paper developers treated in the same way:—

	Metol.	Hydroquinone.	Sodium Sulphite.	Sodium Carbonate.	Potassium Carbonate.	Potassium Bromide.
Cadett .....	3	1.5	10	12.5	—	1.5
Elliott .....	6	4	75	—	25	1.5
Iford .....	2.5	1.4	25	12.5	—	2
Kodak .....	9	3.5	36	36	—	2
Kajar .....	9	3.45	37.5	37.5	—	2
Rotary .....	5.8	4.6	58	58	—	2.9
Wellington .....	5	1.5	50	—	10	1

#### GASLIGHT DEVELOPERS.

	Metol.	Hydroquinone.	Sodium Sulphite.	Sodium Carbonate	Potassium Bromide.
Cadett .....	2	6.5	65	65	21
Elliott .....	1.75	7	75	70	7.1
Iford .....	1	4.6	60	50	25
Illingworth .....	2.6	6	44	80	7
Dekko .....	1.8	7	72	72	4
Leto .....	2	6	25	130	98
Rotary .....	1.8	6.3	60	125	35
Wellington .....	2	6	70	70	6

The following shows, as far as possible, the mean of these tables and the mean of the three developers:—

	Negative.	Bromide.	Gaslight	Mean.
Metol .....	3	3.2	1.9	2.8
Hydroquinone .....	4.5	2.85	6.2	5.2
Sulphite .....	53	42	56	50
Sodium Carbonate .....	57	31.3	83	57
Or Potassium Carbonate .....		17.5		
Bromide .....	5	1.3	4	7

A developer made up exactly as the "mean" was found to work well, not only with plates, but also for bromide and gaslight papers, so far as I have been able to test it. To try it with all plates and papers would be a serious task, and useless, unless under exact test conditions, which at present are beyond my power.

It is possibly hopeless to dream of makers adopting such standard formulæ, for there must obviously be some reason, occult or otherwise, that induces such wide variations as are to be seen in the above tables. Users of sensitive materials can, of course, please themselves. Personally, I should like to know whether there is anything so different in the composition of plates and papers which shall make them not amenable to a common formula, such as the above. Certainly the adoption of standard formulæ, which need not be confined to development, but could be equally applied to printing out materials, would make the path, of the beginner at least, far easier than it is now.

A. GASCOIGNE.

## CARBON PRINTING IN AMERICA.

THE attitude of the American professional photographers towards the modern printing processes is a question of no little interest to ourselves in this country, where a much greater choice in printing media is open than in America. Collodio-chloride paper has dominated the market and the practice of photographers for years past in the States, and it is only of late that the newer processes have been taken up at all largely. The following account therefore (in "Wilson's Magazine") of the increasing use which is being made of carbon speaks for itself of the value of the pigmentary process in the hands of the professional photographer.

A great deal has been written of late, to encourage the professional, as well as amateur photographer, to make use of the superior advantages offered by the modern methods of carbon printing, to improve the artistic qualities, as well as permanency of his work, and as a means by which to uplift the standard of his profession to a higher place among the arts, where it justly belongs.

The supremacy and great capabilities of the modern carbon process, and its adaptability to the most varied requirements of our present day photography, have been amply demonstrated by men of high professional standing everywhere, which ought to be a sufficient recommendation to induce every progressive photographer in the country to at once adopt this beautiful process for at least their better class of work.

It is, indeed, gratifying to note the progress made in carbon printing within the past year and the encouragement offered to those who are striving to better and improve the methods that yet appear difficult to the ordinary worker.

In Europe, every new invention—every improvement is applauded by the press; which, like a pat on the shoulder by a good friend, encourages and gives new impulse to further efforts in improving this valuable process.

Perhaps in no other country has carbon printing made such rapid progress as in America. The great artistic beauty and indisputable permanency of carbon pictures especially, appeals with irresistible

force to every honest and upright photographer who has the good of his profession at heart.

If we look back over the work of our leading professionals of to-day, we find invariably that nearly all the work they stake their reputation on is invariably printed in carbon. It is also a notable fact, that nearly all the work made for permanent exhibits, salons, art galleries, and pictures intended for historical purposes, are printed in carbon. For the latter, especially, the indisputable permanency of carbon pictures, is a matter of inestimable value, and every photographer who is entrusted with the making of pictures that are to be handed down to future generations as historic mementoes of past events, should, by all means, print them in carbon.

I was never impressed with the truth and great importance of this fact as I was when I recently called on the secretary of an historical society, to show him the great value of carbon pictures for historical purposes. When I compared my carbon pictures with the yellow and faded pictures on the walls, and explained their merits, as to permanency, he at once recognised the truth of my assertions, and was profuse in acknowledging the same, and promised that henceforth all the work that is done for the society must be printed in carbon.

For a number of years past I have come in contact with a great many professionals, as well as advanced amateur, photographers, which gave me an opportunity to observe the growing interest and



the increasing numbers in the ranks of carbon printers in this country.

A few years ago there were perhaps a dozen, all told, and thousands of photographers who had never seen a carbon picture or knew the first principle of the process. To-day there are at least a thousand, and their number is fast increasing, a fact to which I can testify with a long list of names, including some of the most prominent professionals in the country.

The advantages and supremacy of the modern carbon process, in its present state of perfection, are now universally recognised by the profession the world over; and American influence has also proven itself to be a great factor, even in the progress of the world's photography—a fact which is evinced by the great demand from abroad for our books, covering the newest methods in carbon photography. The most gratifying results, however, are shown by our own professionals. Every day the mails contain letters from photographers who have recently taken up the carbon process, and who express their great pleasure and delight at the results they have obtained, after a short acquaintance with the process.

At the present writing I have before me a picture of an old man, a most exquisite piece of work in sepia, and one that would do credit to the best professional carbon printer in the country. It was sent to me by a young man who, three months ago, knew nothing whatever about the process. In his letter he says:—"I am not conceited enough to make any great pretensions as a carbon printer; I merely want to show you where I am at, and express my great pleasure and delight at the results I have obtained in the few months I have attempted to do my own carbon printing."

A Southern photographer writes:—"I wish to thank you for being so persistent in urging me to take up the carbon process. I had never dreamed that such grand artistic work could be produced by such simple means, and I am very sorry now that I did not begin sooner. Many of the fine pictures I have made within the past year, I am convinced, would have been greatly improved, and I would rest assured that they were absolutely permanent."

A leading professional from Iowa writes:—"It seems almost foolish for a man to get stuck on his own work; but I must confess, since I have taken to carbon printing, I spend more time in admiring my own work than I can really afford. There is something so extremely fascinating about these pictures, that one will study and admire, and drink in the beauty of this work, until he is entirely oblivious of himself. Such depth and richness of tone, and such exquisite rendering of values, even to the smallest details, certainly cannot be equalled by any other process."

"I am so charmed with this beautiful work that I want to tell you that if I never sold a single carbon picture, I would consider the pleasure and great satisfaction I have derived therefrom the greatest compensation for the time and money I have spent in accomplishing these beautiful results."

I give the above to show the enthusiasm and spirit with which the American photographer, when his interest is awakened, enters upon a field of photography comparatively new to him, and conquers every difficulty with a zeal peculiar to him. In another year I hope to see an increase of several thousand more, and then the time is not far distant when every photographer in the country will understand the carbon process.

A. M. MARTON.

## ARTIFICIAL NEGATIVES.

(A Contribution to Liesegang's "Photographischer Almanach.")

By this term is meant such negatives as are prepared by hand drawing on prepared glass plates.

Anyone who possesses sufficient skill in drawing can produce such negatives, as the work is precisely the same as drawing with the pen on paper. The first trial will prove how the graving needle must be used, and at the worst the plate only requires regrounding when the drawing is a failure.

The artificial negatives have the advantage over those produced by photography in that the drawing is absolutely clear glass and transparent, which is absolutely impossible to obtain in the ordinary way.

If it is desired to produce a negative from any line drawing, picture, or half-tone photograph, there is no better way than the artificial negative, which can be made as follows:—

From the subject, the line drawing, or photographic print, a copy as accurate as possible should be made on transparent tracing paper with black ink and a pen, then this can be traced, either reversed or not on the ground plate, by placing under the transparent print a sheet of tissue paper rubbed with powdered English red, and then tracing over all the lines with a sharp lead pencil, so that they are transferred to the coated plate.

In order that the transparent print may not shift, it should be fastened at its top edge with wax, and then one can lift it up to see the progress of the work as often as one likes.

### Tools for the Work.

As regards the actual etching, no advice can be given, for here the skill in drawing comes into play. A good English sewing needle of the largest size (mounted in a round handle like a lead pencil) can be used as a graver. With this point all fine lines can be worked in, and the needle should be held like a pen. Broader spaces can be scraped out with a sharp-pointed pocket knife, with which it is possible to obtain both broad and fine lines according to the position of the hand. The whole work goes on easily, as the etching ground presents no resistance, and the more filled one is in drawing the quicker the work is done. Excellent line blocks can be made from such negatives.

The graver must always be kept very sharp, and a whetstone and some machine oil should be kept close at hand.

### An Etching Ground.

The most important point in this process is the etching ground, which must have the necessary resistance and elasticity with absolute opacity. It must not break away from the glass, and lines at the most acute angles for shading must be possible. Many formulae have been given for such a preparation. I use one of the following composition:—

Canada balsam .....	1 part.
Rectified turpentine .....	2 parts.
Liquid siccativ .....	$\frac{1}{4}$ to $\frac{1}{2}$ part.

These are thoroughly mixed together and as much lampblack or pine soot added as will give it the consistency of an ointment. The glass should be evenly coated with this by the aid of a badger-hair softener. The plate should be held up against the window so as to see that there are no pinholes in the coating, as the plate must be absolutely opaque. Care should also be taken to see that the film is as even as possible.

If the ground should become thick during the coating, a little turpentine should be added. The plates will take several hours to dry, and when they are no longer sticky they can be used. First of all the plate should be dusted with powdered graphite and a soft pad. After well dusting it is then ready for use.

In order to see every line as it is made it is advisable to use a retouching desk and reflect the light through the plate with a sheet of white paper. The lines will then appear white on the black ground, and the effect of each can be at once seen.

If errors occur they may be blocked out with a fine brush charged with the ground, but the plate must be quite dry when this is done. A ruler may be used for straight lines or outlines; even circles or curves may be put in by means of sectors, etc., only care should be taken when using these not to damage the ground.

When the etching is finished it should be examined against a window, and if everything is satisfactory it is ready for use.

The etched lines should be clear and sharp in order to give good impressions, and it is therefore advisable during the etching to use a broad soft brush to remove the little bits that are scraped up, so that they do not adhere to the lines.

### A Modified Formula.

Another etching ground consists of

Syrian asphalt (powdered) .....	50 parts.
Golden-yellow Venice turpentine .....	10-12 parts.
Linseed varnish or oil .....	15 parts.
Oil of turpentine .....	15 parts.

The asphalt, Venice turpentine, and turpentine should be placed in an enamelled saucepan on a moderate fire and boiled and stirred till everything is completely dissolved; then it should be removed and the linseed oil added in a thin stream and continual stirring. To the mass should be added enough lampblack till it is of the consistency of salve and a deep black. The well-cleaned glass plate should be evenly coated with this till opaque, allowed to dry and rubbed over with a little lampblack mixed with a little gum water. At first the resinous ground will repel this, but by repeated coating it will adhere.

Care should be taken that the ground is not too thick, otherwise the lines will not be clean, but one or two trials will soon tell one the correct thickness.

The gum coating can also be used for the Canada balsam ground if the latter is not sufficiently opaque. The resin ground should be kept in a well-corked wide-mouthed bottle.

Old negatives cleaned from their films can be used, and it is advisable to clean them with diluted hydrochloric acid and then with acetic acid and chalk, and, finally, well washed and dried.

JOHANN MAI.

### DEATH OF MR. SEBASTIAN DAVIS.

A NAME that was very familiar to the past generation of photographers disappears with the death of Mr. T. Sebastian Davis. The deceased gentleman, who until quite recently was in full possession of his usual health, had been a member of the Royal Photographic Society for fifty years, and during a great part of that time, had taken an active interest in the Society's affairs. His interest in all branches of photographic work was maintained for a long period of years, and his experience, an extremely wide one in matters technical, was always freely at the disposal of those to whom it might be of value. In his younger days, Mr. Davis was engaged in chemical industry, and for many years had been a Fellow of the Chemical Society. At the time of his death he was in his seventy-ninth year.

### HEARTLESS CANVASSING FRAUDS.

ROBERT GIBSON, 48, Queen Street, was brought up on remand at the Wigan Borough Police Court last week charged with obtaining money by false pretences.

The Chief Constable said there were only two cases brought against the prisoner, but he seemed to have been practising for nearly twelve months a course of systematic frauds, collecting subscriptions weekly for enlargements of photographs he obtained from different people, but never executing the orders, and making excuses when he called that the weather had not been suitable for enlarging or developing, or some other process. Some of the people had been bled to the extent of large amounts, as one poor woman to the extent of £1 7s. in weekly contributions. No more deliberate frauds could have been practised on these poor people. Gibson had used the names of many people in the town, though he (Mr. Hardy) did not wish to mention them unnecessarily, and the prisoner ought to have been ashamed to drag them in. He had been well brought up and was well educated, and had been respectable. It was only a short time ago that there was a case of two parents being brought up for neglect of children, and this man it was proved was living in their house and would not leave it, but the magistrates ordered that he should be bundled out. He had been obtaining subscriptions from poor people of 6d. and 1s. a week without any hope whatever of giving people any value for their money.

Mrs. Ellen Dunbar said on the 22nd ult. the prisoner called at her house canvassing for orders for photograph enlargements. She had been married twice, and she was anxious to obtain an enlarged photograph of her first husband. The prisoner told her the cost ought to be 35s., but he would charge her 30s. The terms were for payment of that sum at a shilling a week. She had paid him 6d. or 1s. each time. He kept calling, sometimes missing about three weeks. The last time he called was on the 26th of November last year. Altogether

she had paid him 6s. He came drunk sometimes, and that made her suspicious of him. She had been done once by a fellow from Manchester, but as the prisoner was in Wigan she thought it was all right. It was not until the police called that she found out that there was a fraud.

A card was produced which the prisoner had used, on which appeared the following:—Wigan and District Oil-Painting Company, Robert A. Gibson. Private address: George Street, Wigan. Sitting address: 25, Mesnes Street, opposite the Market Hall. Canvasser's name, R.G., £1 10s." The witness identified this card.

The Prisoner: Did I explain that sittings only took place at Brazendale's?

Witness: Yes.

By the Magistrates' Clerk: He said he was manager for Moot Hall Chambers, but that the sittings were at Brazendale's.

James George Brazendale, photographer, 25, Mesnes Street, said the prisoner, about the last week in February, 1906, came to him to execute two orders for him, for which he paid 12s. 6d. Witness never authorised him to put on his card that he was his manager or that he had sittings at witness's place, or to use his name on the card. When witness heard something a few weeks after he went to see the prisoner, and asked him what he meant by putting witness's address on his card. The prisoner said he had it for sittings only on the card, and did not think witness would mind. He had one person sitting at witness's place before he went to see him.

By the Magistrates' Clerk: There was no arrangement made for sittings to take place any more than for casual customers walking in.

By the Chief Constable: Witness told him the cards must be destroyed, as he would not allow the prisoner to use them, and he said afterwards that they had been destroyed, but witness had since learnt that they had not. He had never been employed by witness as manager or agent. Witness did not know of any such company as the "Wigan and District Oil-Painting Company."

The Prisoner (to the witness): Did I not make arrangements with you to take sittings for me?—No.

Detective Gordon said he took Gibson in custody under a warrant, and charged him with obtaining 6s. by false pretences from Ellen Dunbar, between the 22nd of January and the 26th of November, 1906. He replied, "She would have got her picture when it became due." Witness found in Gibson's possession the book produced, and had interviewed many people whose names appeared on it.

The prisoner pleaded guilty.

The Chief Constable said he was prepared to call a witness as to the payment of £1 6s. to the prisoner. He referred to numerous other cases, mentioning that of Ellen Tocker, 2, Zulu Street, who had paid £1 6s. in contributions from the 3rd of March until the 26th of November. He had never been near Mesnes Street, Mr. Hardy remarked, since February.

Alderman Richards: I suppose all these people will lose their money?

The Chief Constable: It is a clean sweep for a lot of them. They will lose everything.

The Prisoner: I do not wish them to lose it. It is a matter of time.

The Chief Constable: He has been up twice for drunkenness.

The Bench did not hear any further evidence, and sent Gibson to gaol for two months.

### THE CONVENTION WINTER REUNION.

THE Convention Social Evening took place on Friday last in the Galleries of the Royal Society of British Artists, Suffolk Street, Pall Mall, S.W., where a very fine exhibition of modern painting was on view. The programme consisted of a reception by the President, a vocal and instrumental concert (under the direction of Mr. F. A. Bridge), to which Miss Margot Severn, and Mr. J. R. Bovett contributed some enjoyable songs, Miss Louise Ferrar some charming violin solos, and Professor Otto Sondermann a very strikingly original pianoforte fantasia on some themes by Wagner. Miss Alice Kent, L.R.A.M., was the accompanist.

After a "refreshing" interval came a little dance of nine numbers, Mr. Alfred Ellis and Mr. Walter Potter acting as M.C.s, and Miss Irenie Harding as pianist.

About 140 invitations had been accepted, and among those present were:—Mr. E. J. Humphery (President) and Mrs. Humphery, Mr. F. A. Bridge (Hon. Sec.) and Mrs. Bridge, Mr. W. T. Carless (Hon.



Local Sec. Hereford Meeting), Mr. and Mrs. Alfred Ellis, Miss Effie Ellis, Mr. Douglas Ellis, Mr. Alex. Corbett and Miss Lillie Corbett, Mr. M. Black and Miss Black, Mr. and Mrs. Beeching and Miss Beeching, Mr. and Mrs. W. H. White and Miss White, Mr. E. J. Walker, Mr. and Mrs. Walter F. Potter and Miss Potter, Mr. and Mrs. Guy Dancy, Miss Tarry, Mr. W. H. White, Mr. and Mrs. Robert Dixon and Miss Dixon, Mr. Geo. E. Brown, Mr. A. W. Brooks, Mr. Hector Maclean, Miss Maclean, and Miss Sheila Maclean, Mr. and Mrs. E. J. Wall and Miss Wall, Mr. F. J. Mortimer, Mr. A. Horsley Hinton, Mr. P. R. Salmon, Mr. H. Snowden Ward, Mr. J. W. P. Rawlins, Mr. and Mrs. T. K. Grant, Mr. and Mrs. Charles Winter, Mr. J. A. Bovett, Mr. and Mrs. Allworth, Mrs. Thomas Sexton and Miss Sexton, Mr. Thomas Scott, Dr. S. Walshe Owen, Mr. and Mrs. Lawrence Spicer, Mr. and Mrs. R. Lang Sims, Mr. and Mrs. Hedley M. Smith, Mr. and Mrs. Sidney Keith, Mr. G. B. Bainbridge, Mr. and Mrs. O. S. Dawson, Mr. W. H. Smith, Mr. W. E. Dummore, Mr. C. J. Aldham, Mr. S. H. Wratten, Mr. Geo. Glanville, Miss Margot Severn, M. Paul Berton, Mr. and Mrs. R. Meynell, Professor and Mrs. O. Sondermann, Mr. Martin Jacoetto, Mr. and Mrs. Bartley Finn, Mr. A. Mackie, Mr. and Mrs. R. R. Beard, Mr. A. W. Green, Mr. R. M. Mayell, Mr. and Mrs. A. C. Baldwin, Mrs. C. M. Gaze and Miss Olive Gaze, Mr. J. Hernaman, Mr. H. J. Harding, Miss Irene Harding and Miss Dora Harding, Mr. Hans Müller, Miss Gabelle, Mrs. and Miss Louise Ferraris, Mr. and Mrs. G. W. Atkins, Mr. W. R. Dunn, Mr. A. Dunn, Mrs. and Miss Beaumont, Mr. S. Barker, Mr. C. L. Burdick, etc.

The singing of the National Anthem about 11.45 brought a very enjoyable evening to a close.

## Exhibitions.

### PHOTOGRAPHS BY AFFILIATION MEMBERS AT THE ROYAL PHOTOGRAPHIC SOCIETY.

THE present house exhibition at Russell Square consists of a collection of prints made by members of affiliated societies. A number of plaques are awarded by the Affiliation, the judges being Messrs. Furlay Lewis, J. A. Sinclair, E. T. Holding, C. H. Oakden, and J. T. Ashby; the above gentleman making up, with Mr. Reginald Craigie, the board of judges appointed by the Affiliation. In addition to the plaques awarded individually to the exhibitors, certificates have been granted to societies on a system of marking the individual prints. The collection includes a very fair proportion of promising work, all of which, with scarcely an exception, is technically good, and there are pictures by a number of men who have not yet been heard of prominently in exhibition circles, but who, from their technical command of processes, should gain distinction in the future. No. 17, "Early Morn," by W. A. I. Hensler, is a print of very simple composition with a delightful suggestion of early morning mist. Mr. E. R. Bull is well represented in one of his architectural studies, No. 20, and Mr. Kimber, of the Southampton Society, shows us once again, "A Relic of the Past," No. 26. Rothenburg, in Southern Germany, recently extolled by Mr. Shaw, of Manchester, provides the subject of a delightful architectural study by Mr. F. Mordaunt. No. 36, "The Lock Keeper's House," is quite one of the most instructive photographs in the exhibition, for it would be difficult to find a better example of "the picture within a picture." If the print be cut almost exactly vertically down the middle, one obtains two exceedingly good pieces of composition. As it stands, the photograph is a horrible example of balance run mad. As notable a work as any on the walls is No. 42, "The Cauldron," the subject a waterfall, possibly in the Lake District, but treated in a fine imaginative fashion. We hope to see more of Messrs. H. and F. Read's work. The Exhibition will remain open until February 23, after which the photographs are to be circulated among affiliated societies.

"THE British Optical Almanac and Opticians' Year-Book" for 1907 is to hand, and, as in previous years, contains a large amount of information which should be of considerable value to those engaged in the optical trade. It is issued from the offices of "The Optical Journal," Temple House, Temple Avenue, E.C., and is supplied gratis and post free to all subscribers.

### FORTHCOMING EXHIBITIONS.

1907.

January 14 to 26: Royal Institute of Fine Arts.—Sec., J. Lizars, 101, Buchanan Street, Glasgow.

January 18 to 31: Paisley Philo. Institute and Photographic Society.—Sec., Hugh F. Hamilton, Glaisnock, Bank Street, Paisley, Scotland.

January 23 to 25: Dover Photographic Society. Secretary, J. W. Howells, 6, Gladstone Terrace, Dover.

January 24 to 25: South Essex Camera Club.—Sec., T. Mitchell, 180, Browning Street, Manor Park, E.

January 31 to February 1: Isle of Wight Photographic Society.—Sec., H. G. Morgan Hobbs, Sunnyside, Watergate Road, Newport, I.W.

January 31 to February 2: Nelson Photographic Society.—Sec., Henry H. Beetham, 98, Brunswick Street, Nelson.

February 5 to 7: Salisbury Camera Club. Entries close January 22.—Sec., T. S. Broom, Farnett, Salisbury.

February 6 to 7: Cowes Camera Club. Entries close January 23.—E. E. Vincent, 4, High Street, Cowes, I.W.

February 7 to 9: Borough of Tynemouth Photographic Society. Entries close January 25.—Sec., J. R. Johnstone, 159, Linskill Street, North Shields.

February 11 to 14: Cripplegate Photographic Society. Entries close January 28.—Sec., J. B. Parnham, Chagford, Old Church Road, Chingford.

February 12 to 23: Sheffield Photographic Society. Entries close January 26.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 13 to 15: Northern Tasmanian Camera Club.—Sec., F. Styant-Brawne, 112, Brisbane Street, Launceston, Tasmania.

February 15: Cardiff Photographic Society.—Hon. sec., A. E. Harris, 44, Partridge Road, Cardiff.

February 20 and 21: Royal Albert Institute, Windsor.—Hon. Sec., Mr. J. W. Gooch, 9, High Street, Windsor.

February 20 to 21: Canterbury Camera Club. Entries close February 9.—Sec., G. T. Hobbs, 3, Norman Road, Canterbury.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge, Norwich.

February 23 to March 2: Birmingham Photographic Society. Entries close February 12.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 23 to March 9: Edinburgh Photographic Society. Entries close February 9.—Sec., H. Stewart Wallace, W.S., 77, George Street, Edinburgh.

February 23 to March 16: Scottish National Salon. Entries close January 31.—Sec., Robert Milne, Linndale, Potterhill, Paisley.

February 25 to 28: Worthing Camera Club. Entries close February 16.—Sec., E. F. H. Crouch, 11, South Street, Worthing.

February 26 to March 2: Norwich and District Photographic Society. Entries close February 12.—Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 27 to March 2: Nottingham Camera Club. Entries close February 14.—G. R. Cranch, St. Jude's Avenue, Nottingham.

February 28 to March 7: Queen's Park Amateur Photographic Society. Entries close February 14.—Sec., J. Moir, 644, Cathcart Road, Glasgow.

March 2 to 9: South London Photographic Society.—Sec., W. L. White, Bank House, Ladywell, London.

March 2 to 24: Marseilles Photographic Society.—Sec., M. Cullet, Rue St. Savournin, 38, Marseilles.

March 6 to 8: Aldershot and District Camera Club. Entries close March 2.—Sec., D. Morrison, Kilry, York Crescent, Aldershot.

March 6 to 9: Wearside Camera Club. Entries close February 20.—Octavius C. Wilmot, 297, High Street West, Sunderland.

March 6 to 9: Bolton Amateur Photographic Society. Entries close February 16.—Sec., Gilbert Holt, 187, Deane Church Lane, Bolton.

March 7 to 16: Leicester and Leicestershire Photographic Society. Entries close February 16.—Sec., Lewis Ough, "Fernleigh," St. James' Road, Leicester.

March 14 to 16: Coventry Photographic Club. Entries close March 9.—Sec., T. J. Mercer, 6, Cope Street, Coventry.

March 22 to April 13: Northern Photographic Exhibition. Entries close March 8.—Sec., C. F. Inston, 25, South John Street, Liverpool.

March 23 to April 2.—Glasgow Southern Photographic Association. Entries close March 16.—Sec., Charles Young, 217, Crow Road, Partick, Glasgow.

April 10 to 13: Ilkeston Arts Club, Photographic Section. Entries close March 27.—Sec., A. Smith, 11, Graham Street, Ilkeston.

April 17 to 19: Belfast Y.M.C.A.—Sec., J. W. Bushey, Y.M.C.A. Camera Club, Belfast.

April 25 to 27: Wallasey Amateur Photographic Society. Entries close April 10.—Sec., W. Hayes, 110, Brighton Street, Seacombe.

April 29 to May 14: Photographic Society of Ireland. Entries close April 22.—Sec., R. Benson, 35, Molesworth Street, Dublin.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between January 1 and 5:—

**COLOUR PHOTOGRAPHY.**—No. 32. Improvements in methods of and appliances for utilising Lippmann photographs. Carl Zeiss, a Body Corporate, Jena, Germany.

**COLOUR SCREENS.**—No. 58. Improved method of producing autotypic screen for colour-photography. Robert Krayn, 33, Cannon Street, London.

**SHUTTERS.**—No. 95. Improvements in photographic shutters. Gustav Dietz, Birkbeck Bank Chambers, Southampton Buildings, London.

**COLOUR SCREENS.**—No. 194. Improvements relating to the manufacture of screens for use in colour-photography. Louis Ducos Du Hauron and Raymond De Bercegol, 11, Southampton Buildings, London.

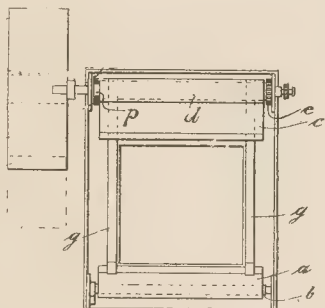
**CINEMATOGRAPHS.**—No. 206. Improvements relating to the synchronous operation of combined cinematographs and phonographs. Leon Gaumont, 7, Southampton Buildings, London.

**BACKGROUNDS.**—No. 303. Improvements in photographic background stands. John William Sagar, 54, Colne Road, Burnley.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**FOCAL-PLANE SHUTTERS.**—No. 13,107, 1906. The invention relates to shutters consisting of two roller blinds, one of which is movable in reference to the other for the purpose of altering the width of the slit. In the shutter, the tapes serving for the adjustment



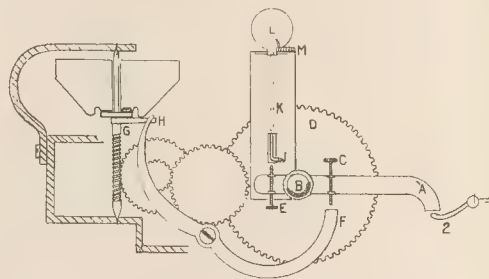
of blind of one shutter section are adapted to pass along and through the other shutter section, the latter being of such stiffness and special construction as to remain undisturbed when the tapes of the lower section are moved relatively to the upper section. The invention also comprises improved means for winding the tapes and shutter, and also for tripping the upper roll while means are arranged for locking the slot aperture adjusting mechanism after it has been once set. The lower shutter section a

is wound upon the usual spring roll *b*. The upper shutter section *c* is wound upon the tripping roll *d* which has a ratchet wheel *e* engaged by a tripping pawl *f*. Slit adjusting tapes *g*, attached to the lower shutter section, pass loosely through passage ways or hems in the upper shutter section, and thence through slots *h* in the tripping roll to winding rolls *i*, *i*, on the endwise movable roll shaft *j*. The shutter section *c* is to be of such character that when it is down and the winding rolls *i* are rotated, tapes *g* will draw the edge of the lower shutter section toward the edge of section *c* to reduce the width of the slit, or permit the edge of *a* to recede from that of *c* to increase the width of the slit without disarrangement of the shutter section *c*. This characteristic of the devices is the primary feature of this invention.—Louis Borsum, 953, Woodland Avenue, Plainfield, New Jersey, U.S.A.

**INVISIBLE PRINTING.**—No. 5,183, 1906. This invention relates to a process of printing invisibly, views, designs, or other matter which can be rendered visible by heat on paper, postcards, or the like, the object being to provide interesting and entertaining printed designs, views, and subject matter. The inventors invisibly print on or apply to the paper, views, etc., with a preparation of sulphuric acid otherwise termed "invisible ink," and consisting of, say, one part of sulphuric acid to about ten parts of water. The type blocks are made of rubber, or they may be coated with india-rubber and applied to the paper in the usual way; that is to say, the chemical is applied to the paper by the block which is of any desired form. The designs or other matter is previously printed on the paper with visible ink, missing portions being filled in with invisible ink. On heating the paper the matter printed by means of the rubber blocks and sulphuric acid will become visible. Valentine and Sons, Ltd., 152 and 154, Perth Road, Dundee; and Alexander Conradt Smith, 95, South Street, St. Andrews, Fife.

**PANORAMIC CAMERAS.**—No. 12,813, 1906. The invention consists of a camera for panoramic photography wherein separate mechanisms are provided for moving (1) the film, and (2) the camera. The main motive power acts to rotate the camera, whilst the other separate spring motor rotates the spool upon which the sensitive material is wound up, thereby obtaining a regular and uniform movement of the camera, and a uniform displacement of the sensitive material before the lens. August Müller and Johann Klein, Rhöndorf, Germany.

**CLOCKWORK RELEASE FOR SHUTTERS.**—No. 27,125, 1905. The invention is to enable a photographer to expose a plate on the lapse of a certain period of time after starting the mechanism. Two methods are employed, the first consisting of a train of clockwork wheels actuated by a spring. As shown in the figure, one end of the spindle of one of the wheels is elongated, and near the end a lever is attached. In the figure, A represents the lever, and B its attachment to the end of the spindle by the thumb screw, the



thumb screw being screwed on to the end of the spindle. This lever may be placed in any position, such as perpendicular, and then fixed in that position by the thumb screw B. The clockwork being then set in motion, the lever A will revolve with the spindle to which it is attached, and will, when so arranged, press upon the lever (2) of the photographic shutter, and so cause the shutter to operate and expose the negative previously placed ready in the camera. The time which will elapse between the moment of setting the clockwork in motion and the moment



when the end of the lever A presses upon the lever (2) or button of the photographic shutter, may be varied by placing the lever A in different positions, and fixing it in any particular desired position by the thumb screw B previously to setting the clock-work in motion. The further the lever A is fixed in a circular direction from lever (2) the longer will be the time which will elapse before the negative is exposed, and vice versa.

The second method consists of a pneumatic cylinder, a lever attached to the piston of which actuates the shutter. Edward Benjamin Hazleton, 103, Fitzwilliam Street, Sheffield.

**PRINTS FOR REPRODUCTION.**—No. 26,369, 1905. The following process is employed to modify the light and shade of prints intended for half-tone and three-colour reproduction.

The print is attached firmly to a drawing board, and with a steel blade, such as an ordinary pocket-knife (by removing the surface of the print) all the detail wanted in the dark parts of the print is carefully "engraved."

Any missing detail is then drawn in the white, blank parts of the print, with an ordinary lead pencil point.

With waterproof ink applied with a camel hair brush certain parts of the print which it is desirable to keep in the original colour are protected.

When the ink is dry the print is placed on a sheet of glass, and put under a tap of running water until the print is quite saturated.

The wet print still on the glass is then placed into a bath composed of two parts of cyanide of potassium to one part of iodine with three times the quantity of water, and left there for sufficient time to obtain the requisite lightening in the colour of parts of the print unprotected by the ink.

If the time of immersion be too long, or the bath very strong, the parts protected will be hard, and far too strong in tone. For large prints with little detail, treatment with a brush is better than bathing in chemicals. The print is then dried in the usual way.

The process of stopping out and bathing to produce further graduations of tone can be repeated as often as desired.

The waterproof ink can be removed by gently sponging with methylated spirit. The print is then dried.

When dry if any of the engraved parts appear too strong for satisfactory reproduction the finger is rubbed on a stick of crayon and rubbed into the engraved parts. Florence Prout Rowse, 18, Chalk Hill, London Road, New Bushey.

**CINEMATOGRAPH-PHONOGRAPH.**—No. 26,440, 1905. The invention is of a device for starting a phonograph or other talking machine at the correct moment to synchronize with a cinematograph film projected on a screen. The drawings in the specification are necessary for its explanation. W. C. Fairweather, for Eward Thormeyer, 3, Grosse Allée, Hamburg, Germany.

**ROLLER-BLIND SHUTTERS.**—No. 16,353, 1906. The invention relates to a shutter consisting of two portions adjusted to each other and operated by toothed wheels mounted on their spindles with an intervening wheel and provided with clutch devices in connection with the gearing to allow the shutter parts to move relatively to produce an exposure slit between them at the termination of the winding-up movement and the closing of same at the last stage of the return movement of the shutter.

The invention aims to improve the construction of the clutch devices, and describes the mechanism in detail. Tudor Travers Hora, 346, York Road, Wandsworth, London.

## New Trade Names.

**PENGUIN BRAND.**—No. 286,353. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Hugh Weir Mackenzie, 261, Gairbraid Street, Maryhill, Glasgow. Wholesale ironmonger and hardware merchant. September 20, 1906.

A new photographic publication has appeared in New York in the shape of the "Journal of the Photographic Trades," a monthly periodical, issued by the "National Photographer," New York. The appearance of the journal is apparently the result of a difference between the proprietors of "The Photographer," and the Eastman Kodak Company.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Impressionism.

"Introduce into your pictures" (says Mr. P. Bale Rider, in "The Photographic News") "as much detail as you like, so long as it does not detract from the leading motive. Look at Turner's pictures. He knew how to draw. There is drawing in some of his broadest work as fine as a hair, but it wants looking for; it never obtrudes, it is subordinated to the breadth of effect. Many artists fail here. They have never properly acquired the skill of handling pencil or brush, and excuse their faulty handling by saying that they go for broad impressionism. But only deft craftsmen can paint impressionism effectively. It is not that they cannot put in detail, but they know just how much to leave out. Let us cultivate the knowledge as to how much to leave out."

### In Praise of Gum.

Workers of other processes (says Mr. F. L. Warner, in "The Amateur Photographer") seem to hold the gum-bichromate process (which I am going to advocate as giving power of control in the fullest degree) either in contempt, or else in such respectful awe that they never attempt it. The first class seems to include a number of the older workers, who, I suggest, instead of trying to take the position in the van of modern pictorial progress, should submit to be graceful adornments of a position midway between the sharp-all-over-and-shiny school, prevalent when the science of the art was all-important, and the modern school of pictorial workers. I am convinced that, willing or not, it is this midway sphere that they will, by general consent, be compelled to occupy, and they will only be listened to on matters of science. Must it not in this connection be admitted that the nicely exact mind necessary to the scientist seldom is combined in the same individual with the other state of mind—I hesitate to define it—necessary to the artist, the man of visions?

### Lantern Illuminants.

The light (writes Mr. J. A. Hodges in "Focus") perhaps exercises artistically an even more important influence for good or ill in a lantern show than the screen. Nowadays, the tendency is to use too much light, the result being that not only are the artistic qualities of the slides either lost—or, at any rate, greatly marred, but the glare produces eye-strain by its effect upon the optic nerve, and the audience goes away with a headache. The electric arc, in fact, is most unsuitable, unless of very moderate power, for anything but the largest-sized discs, and when of great intensity not only exerts a harmful influence on the slides physically, but ruins them artistically. It is destructive of colour, the more delicate shades of brown and warm monochrome being quite indistinguishable. For public exhibitions, even on a large scale, the limelight, skilfully manipulated, is generally to be preferred, whilst for home exhibitions on quite small screens incandescent gas proves an almost ideal illuminant, a recently introduced form called the "Block-light" being particularly suitable. It greatly conduces to the comfort of the audience if the light be completely shut off from the screen when each slide is changed; this may be effected by simply capping the lens, or by using a carrier performing the same function. Finally, let the screen be as nearly on the line of vision of the audience as possible, for nothing is more wearying than having to crane one's neck for upwards of an hour.

**ROYAL Photographic Society.**—The Council have elected the following three members to the Fellowship of the Society:—S. G. Kimber, C. H. Hewitt, and J. Howden Wilkie. Mr. Kimber, of course, is well known as the Secretary of the Southampton Camera Club, and the winner of many medals at the exhibitions. Mr. Hewitt, as chief lecturer on photography at the Regent Street Polytechnic, is known personally to a wide circle of students, and to a still wider one through his writings in the Press. Mr. Wilkie is the photographer in the Solar Physics Laboratory.

## New Books.

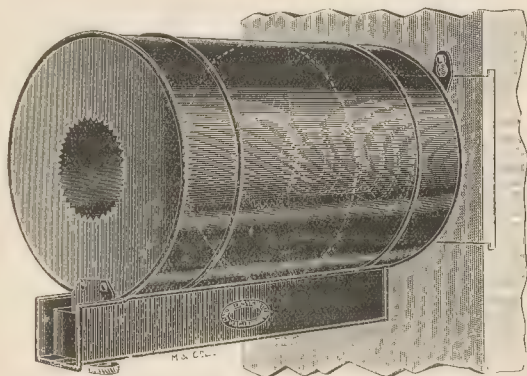
"Photographischer Almanach, 1907." Edited by Hans Sporn. 132 pp., 7½ x 5. Leipzig, M. Eger. 1s.

The above is the twenty-seventh annual issue of the Almanach issued by Messrs. Liesegang, of Düsseldorf. It contains a frontispiece portrait and brief biography of its late editor, Herr Hermann Schnauss, and, as usual, opens its pages with a few contributions on current photographic topics. In one section Herren C. W. Czapek, Hans Schmidt, John Mai, and Drs. Hauberrisser and Namais appear as contributors. A selection of abstracts from the German Press is appended, and is followed by reviews of recent introductions in the way of apparatus and materials. The last pages of the volume are occupied with a list of German photographic societies.

## New Apparatus, &c.

Gardiner's Universal Vignetter. Made by Marion and Co., 22 and 23, Soho Square, London, W.

This apparatus is for the making of vignetted negatives direct at the time of exposure, and apart from the saving of labour which thus results, provides for the production of a number of pleasing vignetted effects by ringing the changes on the "vignetting disc" and the background. The apparatus consists of a circular tube of light metal, dead black inside and japanned on its external surface. The diameter is 8 in., and the length 14 in. The tube is hung to the front of the camera, surrounding the lens, which has not to be altered in any way for use with the vignetter. The tube simply serves as the carrier of the vignetting discs, four of which, two transparent and two opaque, are provided with the apparatus.



As shown in the drawing, the discs travel in the tube from the mouth of the latter to close against the lens hood. The handle of the disc is slipped into the travelling block below the tube, and the distance of the disc from the lens is thus adjusted to a nicety. The semi-transparent discs—matt celluloid with a serrated aperture—are for vignettes against light and medium backgrounds. The opaque discs are for the so-called "dark" or "Egyptian" vignettes. The apparatus calls for little explanation beyond what has been said. In use it may be employed for a variety of effects, and we can imagine that a little experience with it in conjunction with a series of, say, three backgrounds—white, grey, and red—will place the photographer in the position to simplify the means of producing vignetted portraits in number. The price of the vignetter is 25s.

The Combined Portrait and P.O.P. Printing Lamp Apparatus. Made by the Boardman Electrical Patents Company, Limited, 10, Southwark Bridge Road, London, S.E.

Readers of our columns do not need to be reminded of the constantly increasing number of apparatus for portraiture by artificial light which have been brought upon the market within the last

year or two. That a number of firms are catering for the wants of photographers in this respect is sufficient proof that the want is a very real one, and, indeed, the experience of professional photographers, to which our notice is drawn in many ways, convinces us that a steady adoption of artificial light in both the printing room and the studio is taking place among the firms who

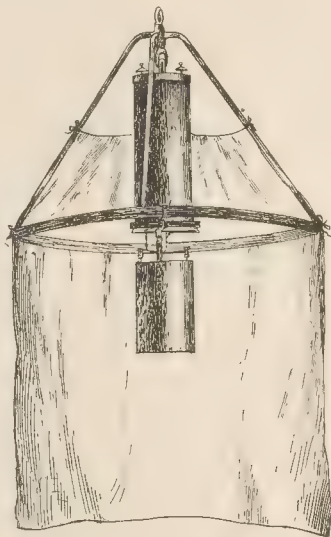


Fig. 1.

cater for the lower and middle class trade as well as among those whose customers are drawn from the higher ranks of society. Any and every new introduction in this department of photographic manufacturing is therefore of interest to those who have before them the comparison of the facilities and cost of the various types of apparatus, and from this point of view we readily accepted an in-

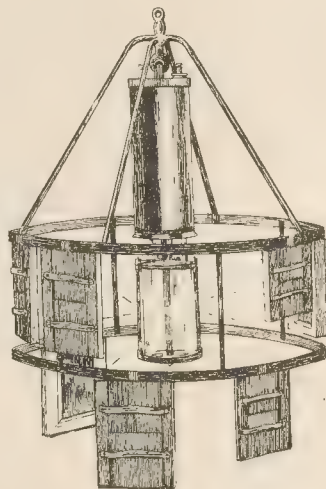


Fig. 2

vention from the Boardman Co. to witness a demonstration of a new enclosed-arc lamp which they have placed upon the market at a price which they believe—and with good reason, we think—is, within the means of a photographer in however a small way of business. The lamp, we would say at once, is designed for both portraiture and printing, and our tests of it extended to both these applications. Like all the lamps which the firm has placed on the



market, it is used (for portraiture) solely by reflection, the arrangement of the new lamp being shown in Fig. 1, where the screened arc is turned away from the sitter and the light derived from the cloth-lined reflector hung from the ring. The lamp was worked at the low amperage of 12, and, with a lens working at  $f/6$  and an Imperial "Special Rapid" plate, a fully exposed negative was obtained in one second. The lamp in question comprises a single arc, and is not advanced, of course, for the most ambitious work, yet is fully capable of small groups in addition to bust and full-length portraiture of single sitters. It is supplied for running on 200 or 250 volt circuit with either direct or alternating current.

Turning now to the use of the lamp for printing, the second drawing shows the arrangement. With the screen removed and a double ring fitted to the apparatus, the lamp accommodates thirty-two half-plate printing frames, all of which print simultaneously. The time of exposure, as we found it with a negative which we should call a fair quick printer, such as is usually made for P.O.P. printing, was five minutes, a time which works out to 380 prints per hour without allowance for refilling. Still, our readers can judge from this of the output of prints which is possible with the lamp.

The price of the complete installation is £10 10s. for a single-arc or £12 12s. for a double-arc, and the circular describing this efficient and inexpensive apparatus should be worth the study of all those contemplating artificial lighting in studio or printing room.

## New Materials.

A SPECIAL paint, sold as "Velure," has been sent to us by the makers, Messrs. C. Chancellor and Co., 13, Clerkenwell Road, London, E.C., who manufacture it for general purposes, but who inform us that its particular qualifications for photographic purposes have been brought to their notice by readers of the *BRITISH JOURNAL OF PHOTOGRAPHY*. The paint, we find, to give a very brilliant white coating eminently fitting it for application to the reflecting hoods of arc lamps, inasmuch as it is not liable to crack or blister. The high covering power of the paint makes it go far in use, and it might well be kept at hand in the dark-room for other purposes, such as repairing dishes, the enamel on which has cracked. It can also be applied to woodwork. The makers claim great resistant properties for "Velure," fitting it for all purposes where it could be exposed to weather and other severe conditions. The paint is not of the quick-drying variety—about twelve to sixteen hours should be allowed for it to harden—but the elasticity of the coating should compensate for the delay in this respect. The paint is sold in pints, quarts, half-gallons, and gallons, and is obtainable also in a number of colours.

**PHOTOGRAPHIC Society of Ceylon.**—In further reference to our note of November 17, as to the establishment of a society at Colombo, it may now be stated that the headquarters are the Ferguson Memorial Hall, where facilities are provided for exhibitions and meetings. Dr. Andreas Neil, Victoria Memorial Eye Hospital, Colombo, is the Secretary of the A.P.S.C., and will gladly welcome visitors in the island to its assemblies.

**THE Decay of Illustration.**—"The hack illustrator of to-day" (the "Academy" thinks) "seems to adopt the camera as his standard of truth, and to endeavour to obtain with his Indian ink an effect resembling as nearly as possible the reproduction of a photograph. Instead of trying to decorate a page, the hack illustrator would persuade us that he has 'snap-shotted' some scene or incident described by his author." Illustrated journalism has been degraded and deprived of all artistic interest by the wholesale employment of photographs instead of drawings, but the evil influence of the camera has not ended here, since the degeneration is spreading from the journals and their readers to the artists who engage in unwise competition against the photograph. The dull uniformity of our sixpenny illustrated monthlies and weeklies, brought about by their publication of similar and often identical photographs, is now matched by the monotonous impersonality of the wash-drawings by the few illustrators for whom employment is still found."

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JANUARY 18.

Sutton Photographic Club. Members' Lantern Slides.  
West London Photographic Society. "After-Treatment of Negative for Pictorial Purposes." J. Brown  
Gloucestershire Photographic Society. "Westminster Abbey." E. W. Harvey  
Piper.  
Cowes (Isle of Wight) Camera Club. "Rotary Photographic Papers."

MONDAY, JANUARY 21.

Lancaster Photographic Society. "The Eye, the Human Camera." Dr. W. H. Coupland.  
Southampton Camera Club. Lecture Competition.  
Preston Camera Club. "Picture Making in Holland." A. W. Cooper.  
Leek Photographic Society. Social Evening.  
Stafford Photographic Society. "The Photographic Lens." Goetz Lecture.  
South London Photographic Society. "Ozobrome." T. Manly.  
Catford and Forest Hill Photographic Society. "A New Pigment Paper." M. A. Buthnot.  
Bowes Park Photographic Society. General Meeting.  
Borlase Camera Club (Car-Isle). "Rotary Photographic Papers."

TUESDAY, JANUARY 22.

Royal Photographic Society. "Daguerreotype." Demonstrated. Thomas Rolas, F.I.C., F.C.S.  
Sheffield Photographic Society. "Ely Cathedral." A. Bailey.  
Manchester Amateur Photographic Society. "Rajar" Specialties." C. F. S. Kothwell.  
Hackney Photographic Society. "Holland Revisited." E. T. Coombes.  
Worthing Camera Club. "Tabloid" Brand Photographic Chemicals.  
Darlington Camera Club. "Notes from the Almanac." H. L. Thomson.  
Blyth and District Camera Club. Federation Prize Lantern Slides.  
Leeds Photographic Society. "Ordinary and Orthochromatic Plates." J. W. (Charles) Worth.  
Wallington Camera Club. "Gaslight and Bromide Papers and Lantern Slides." A. H. Dunning.  
Hove Camera Club. Open Night.  
Burton-on-Trent Natural History and Archaeological Society. "Flower and Fruit Studies." Illustrated. J. Seymour.  
Glasgow Southern Photographic Association. "Enlarged Negatives on 'Rotograph' Negative Paper."

WEDNESDAY, JANUARY 23.

Bristol Photographic Club. "Lantern Slide Making." G. Easonsmith.  
St. Peter's L. and A. Society. "Latest Kodak Productions."  
Evesham Camera Club. "Celverux" Shutter." E. and J. Beck.  
Croydon Camera Club. Annual Meeting.  
Ipswich Camera Club. "Our Chapter Houses." E. W. Harvey Piper.  
Borough Polytechnic Photographic Society. "Bromide Printing and Toning." A. J. Bulloch.  
Hampstead Scientific Society. "Enlarging." Demonstrated. R. W. Wylie, M.A.  
Leicester and Leicestershire Photographic Society. "The English Lake District."  
Birmingham Photographic Society. "Intensification and Reduction of Negatives." Frederic Lewis.  
Central Technical College Photographic Society. "The Theory and Practice of Self-Toning Papers." A. W. G. een.  
North Middlesex Photographic Society. "Platinochrom Paper." O. Sichel & Co.  
Worcestershire Camera Club. "What Can be Done with a Hand Camera." C. P. Goetz.  
Dennistown Amateur Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."

THURSDAY, JANUARY 24.

Liverpool Amateur Photographic Association. "Modern Views on Photo-Chemistry." Prof. T. G. Donnan.  
L.C.C. School of Photo-Engraving. "Ferric and Heliographic Processes" B. J. Hall.  
Handsworth Photographic Society. "Photographic Shutters." E. G. Collins.  
Hull Photographic Society. "Photographic Defects and Failures." W. S. Parrish.  
L.C.C. Staff Camera Club. Royal Photographic Society's Prize Slides.  
Rugby Photographic Society. Members' Night.  
Richmond Camera Club. Affiliation Competition Slides.  
Nottingham Camera Club. "Enlarging Simplified." John J. Griffin & Sons.  
Glasgow Eastern Amateur Association. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Workshop Photographic Society. "Stereoscopic Photography." C. P. Goetz.  
London and Provincial Photographic Association. Open Night.

### ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held January 15, Mr. J. C. S. Mummery in the chair. Mr. Louis J. Steele delivered a lecture on "The Beauties of the Higher Alps," in which he described very graphically a number of ascents made of Mont Blanc and surrounding peaks. The lecturer illustrated his descriptions with a large number of lantern slides showing the incidents of mountaineering, and giving a vivid impression of the beauties of the Alpine glaciers and snow-fields. A crowded audience testified its appreciation of the lecturer's photography by frequent applause, and a hearty vote of thanks to Mr. Steele brought to a conclusion a most enjoyable lantern evening.

**SOUTHAMPTON CAMERA CLUB.** The members of the above enjoyed on Monday evening the annual visit of Mr. S. W. Harvey Piper, and listened with the utmost pleasure to his lecture, "Memories of a Mighty Marshland Minster." Mr. Piper's knowledge of all the

great buildings in the land is simply phenomenal, and his description of Ely and its beauties was a flow of architectural lore and deep-seated feeling and sentiment. The lecturer began with the historical connection of the Saxon Princess Etheldreda, and told how she founded the double monastery which preceded the present Minster. After narrating how the riches and lands came to the monks, the early stages of the evolution of the beautiful building were reached, and the portion of the building which was the work of Abbot Simeon, dating from 1080, was shown on the screen. With the history of the sacred pile the enthusiasm of the lecturer grew upon the audience, and a progress of the exterior of the building was begun in which the labours of the successive giants of the architectural periods were described. Upon two of the wonderful architects the lecturer lavished his enthusiasm, first coming Hugh de Northwold, who, with great boldness, pulled down the Norman church, and replaced it with the magnificent one of nine bays, the lecturer's dictum being that Northwold's work was equal to anything to be seen in England. Following him came Alan de Walsingham, whose mighty genius produced work the beauty and solidity of which was beyond compare. The lecturer related how out of the calamity which befell the building in the fall of the Norman Tower the master hand created the opportunity of rearing the wonderful octagon, and surmounted it with the perfectly constructed lantern, whose oaken, lead-cased structure has stood for 500 years. He pointed out the wonderful artistic result of the lighting produced by this structure, and showed by many fine illustrations the almost fairy-like effect of the sombre shade and brilliant lighting. Mr. Piper's description of the details of the architecture, his familiarity with the legends of the cathedral, and his subtle, yet always reverent, references to the old habitants of the Minster, kept his audience in silent enjoyment for a couple of hours, which were all too short, and at the conclusion of the lecture the hearty acknowledgment of the members was quite unmistakable.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION. On Thursday, last week, the Rev. Father Segreaves, of Stonyhurst, lectured on "The Amateur Photographer and the Professional Astronomer." The lecturer prefaced his remarks by a tribute to the amateur photographer, without whose enthusiasm, he said, the plate-maker would not have improved the sensitiveness of his plates and thus made it possible for the astronomer to obtain records of the more distant stars. Father Segreaves showed a large number of very beautiful celestial photographs, many of them taken by himself, as well as a number of most interesting spectroscopic slides of various stars. The lecture was given in a delightful manner, and was followed with intense interest. The description of the nebula in various constellations was very lucid, and the spectroscopic analysis of the same added much to the knowledge of the audience. A very hearty vote of thanks was accorded, on the motion of Dr. Thurstan Holland, seconded by Mr. J. Petree.

CROYDON CAMERA CLUB.—The theory and practice of self-toning papers, with special reference to "Goldona," the self-toning paper of Messrs. J. J. Griffin and Sons, was dealt with by Mr. Green on the 9th inst. So far as the practice went, the lecturer ably demonstrated its simplicity and ease of working, and proved the paper to be a fine example of its class. Its keeping properties are great, and provided the worker takes care to observe three main points, viz., not to underprint, not to use the hypo bath too weak, and not to allow the prints to remain therein for an unnecessary length of time, satisfactory results will follow as a matter of course. As regards the "theory" advanced by Mr. Green, this, to put it mildly, did not meet with universal acceptance, a fact which did not in the least depreciate from the merits of the paper.

THE death of a photographer named John Dodd, of Pride Street, Dublin, took place on January 7.

THE Charles Urban Trading Company, whose cinematographic entertainment competes with that of the famous Zancigs nightly at the Alhambra Theatre, has just issued circulars of about a dozen new films, among which is one of the sensational mountain climbing of Mr. F. Ormiston Smith in the Dolomites. The circulars may be had from the Company at 48, Rupert Street, Shaftesbury Avenue, London, W.

## News and Notes.

ROYAL PHOTOGRAPHIC SOCIETY.—We regret to learn that General Waterhouse finds it impossible to accept nomination this year for the Presidency of the Society. The following extract from his letter to the Council will be of interest to our readers:—"As I understand that several members of the Society are anxious to know whether I will accept nomination for the presidency of the R.P.S., for a third year, I regret exceedingly that it is quite impossible for me to do so. My health has not been good for the last three or four years, and after my recent breakdown I have been advised that I must give up the work I have been doing in connection with the Society and other institutions, and I feel that I have no alternative. I very highly appreciate the compliment of this desire on the part of the members that I should continue as President, and very heartily thank the members and my colleagues on the Council for the help they have always given me in carrying on the Society's work. I hope, if my health improves, to be able later on to take some small part in the work again, but for the present I am quite unable to." We sincerely hope that a period of rest and change will speedily restore General Waterhouse to his usual health, and that, at no very distant date, we may be able to announce his return to active work.

THE Imperial Dry Plate Company, Cricklewood, asks us to say that their recent booklet, "Faults in Negatives," is sent free on receipt of a postcard. They do not ask applicants to send postage.

H. BOWN, LTD.—Mr. H. Bown, of 100, Evelyn Street, Deptford, S.E., writes stating that he is in no way connected with the above business, the conversion of which into a limited company was announced in our columns on January 4.

THE Photo-Secession.—The little galleries of the Photo-Secession (New York) have been occupied for the past fortnight by a collection of drawings in black and white and colour by Miss Pamela Coleman Smith.

HERR PAUL RUE, who succeeded the late Ludwig Schrank as Editor of the "Photographische Korrespondenz," resigned his post on the 31st ult.

MESSRS. DAWBARN AND WARD ask to be allowed to correct the price of a Handbook of Illustration given by us last week at 1s. It should be 1s. 6d. or 5s.

A CORRECTION.—Mr. W. F. Oliver, whose article in the recent "American Annual" we quoted in a review which appeared in our issue of December 7 last, writes to us from Baldwinville, Mass., U.S.A., accusing us of deliberately misrepresenting him. We fear Mr. Oliver has as low an opinion of our discretion as of our conscience if he thinks that we should go out of our way to insult a man whom we had never heard of and against whom we had not the faintest grudge. It appears that when Mr. Oliver wrote of Hurter and Driffield's work as "high-flown nonsensical theories," he was indulging a vein of fine sarcasm directed against those of the American public who had not appraised Messrs. Hurter and Driffield's work at its true value. Mr. Oliver angrily tells us that his meaning was clear enough for any one but a journalist "mentally deficient by misfortune of birth or the decay of senility to understand." This may or may not be the case, but we will only express our inability—we suppose we must be half-witted or in our dotage, as Mr. Oliver kindly suggests—to comply with the request, which we quote *verbatim* and *literatim* from his letter: "If you do not represent something I never anticipated would be connected with the name of photography, I shall expect you to correct the false representations you have made, in the columns of your journal. I shall further expect to receive a copy containing the same."

DIFFRACTION GRATING REPLICAS.—According to a paper by Professor R. W. Wood, in the "Philosophical Magazine" (No. 12, 1906), imperfectly ruled glass diffraction grating can be much improved by immersion for one or two minutes in a 1 per cent. hydrofluoric acid solution, the back of the glass being covered with paraffin wax to prevent the development of latent scratches.

A PHOTOGRAPH has been the cause of a curious situation in Dulcigno, on the Montenegrin territory. The recent formal and



public engagement between the daughter of the parish priest of Dulcigno and the son of a neighbouring cleric was followed by the suggestion that a photograph of the happy pair should be taken. In all Dulcigno there was no photographic studio, therefore a photographer was summoned to the spot, and, as it commenced to rain, to the interior of the church, where the photograph was taken. The artist placed them in front of the altar, with the old Byzantine pictures of the Saints behind them. The result of his artistic efforts was extraordinary. The bride appeared in the arms of the stern-looking Byzantine Madonna, while the bridegroom had completely concealed the great figure of St. John the Baptist, taking the saint's golden aureole around his own head. The jealous girls of Dulcigno, and the still more jealous young men of that sweet town, however, pronounced it an insult to the saints and a desecration of the church. They succeeded in deciding the authorities to close the church, and asked the Metropolitan of Montenegro to give satisfaction to the Saints by the punishment of both priests and by the annulment of the engagement of the sweet Dulcinea of Dulcigno with the assumer of Saint John's aureole. All Montenegro is now waiting to see how this peculiar church question is to be solved.

**Tin Supply of Platinum.**—The increasing price of platinum is, according to a report by F. W. Horton, in the U.S. "Geological Survey Journal," due to the unsettled state of affairs in Russia, which is the principal platinum-producing country. The chief districts where the metal is found is on the banks of the Iss, Vija, and the Upper Tura, in the Tagil and the valleys of Eastern European Russia, although it appears to be scattered about in different districts in small quantities. Generally, it occurs in a special silicious sand in the form of minute grains or larger lumps, and this sand varies in thickness of layers of from 10 in. to 100 in., and is frequently covered by about 50 ft. of ordinary sand. The method of extraction is comparatively primitive, and consists of washing away the lighter particles, collecting the heavier ones, and then separating the platinum by hand picking. Since the beginning of 1905 the U.S. Geological Survey has examined the so-called black sands from all parts of the United States, and the precious metal seems to be fairly general in occurrence in California and the Western States, and less so in a few of the Eastern. Generally it occurs with gold, and British Columbia is the second largest producer, whilst small quantities are also found in Canada and on the Yukon. Very small traces have been found in Brazil, in Spain, New South Wales, Burmah, Japan, Borneo, New Zealand, Tasmania, Sumatra, Honduras, Ecuador, and French Guiana. Where it occurs with gold it is collected by the usual concentration process, and the concentrates treated with a sodium amalgam to separate the gold, and then treated with a hand magnet or "by blowing in a pan or horn spoon" to remove lighter particles. Researches are in progress to find an economical method for concentrating the ores and extracting the metal, but the outlook so far is not rosy, and as high, if not higher, prices will obtain.

**Royal Photographic Society.**—We are pleased to announce that Mr. E. Sanger Shepherd has been awarded the "Progress" medal for his researches and inventions in connection with the three-colour process.

An international exhibition dealing with printing, photo-mechanical reproduction, and bookbinding is to be held in Paris in the Grand Palais des Champs Elysees from July to October. The exhibition, which is held under Government warrant, is to have the support of the Ministry of Public Instruction and of Commerce and Industry, and we understand that large allocations of space have already been made to exhibitors under one or other of the chief sub-sections of the exhibition. A feature of the exhibits is to be the actual demonstration of processes such as magazine printing, half-tone block-making, and bookbinding. There is a prospect of a daily newspaper being produced in the exhibition instead of in its usual offices, and from the preliminary information available there seems no doubt that every effort has been made to make the collection of the greatest interest to the printing crafts, and that the overtures of the organisers are meeting with a liberal response from the trade. The organising managers in Great Britain are Messrs. Frederick T. Corbett and Frank Colebrook, both well known to our readers as contributors to our columns. The conditions and charges for exhibition are obtainable from these gentlemen on application to Nos. 2, 3, and 4, Cheapside, London, E.C.

## Correspondence.

\*.\* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\*.\* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### PLATES FOR STEREOSCOPIC PHOTOGRAPHY.

To the Editors.

Gentlemen,—The importance of the 15 x 10 cm. size of plate for stereos, and postcards appears to be realised on the Continent, if not in England. Mr. Jahr, of Dresden, writes me:—"You will see that I have listed the size 10 x 15 cm. I have read your pleading for the 10 x 15 size in this year's 'B.J. Almanac,' and (you?) will perhaps be interested that in to-day's 'Photograph' (Bunzlau, Jan. 8, 1907) the same size is warmly recommended as the most practical for pocket cameras, by Mr. J. Christoph." Makers of apparatus would do well to abandon the 5 x 4 size, and in all new work adopt the 15 x 10 cm. (5 1/2 in. x 3 15/16 in.).—I am, yours faithfully,

CHAS. LOUIS HETT.

Springfield, Brigg,

January 14, 1907.

### THE LATE MR. J. T. SANDELL.

To the Editors.

Gentlemen,—We feel sure you will gladly allow us, through the columns of your paper, to tender the most sincere thanks of Mrs. Sandell and her family to yourself and to your readers for the hearty support accorded to our appeal on behalf of the late Mr. J. Sandell. The amount reached was £257 15s. 8d. It was his great desire before he passed away that he should be allowed to express his gratitude to all concerned.

May we add that Mrs. Sandell is left with a family of eight, and that the money in hand, together with any further subscriptions which may be received, will be devoted to the assistance of Mrs. Sandell and her children in such a way that they may make a fresh start.

We ourselves would also like to assure you of our hearty thanks for the great service that you have rendered to the fund by your assistance and support.—We are, dear Sir, yours faithfully,

J. B. B. WELLINGTON,

THOS. K. GRANT

January 10, 1907

### THE PYRO-AMMONIA DEVELOPER.

To the Editors.

Gentlemen,—Though I said I did not want any discussion in regard to pyro-ammonia developer, which would carry us probably very far, allow me please only a few answers to your assertions in answer to my letter.

Firstly.—I do not think I use an ammonia solution of very uncertain strength. I use strongest ammonia solution in a certain quantity of water, and always the same.

Secondly.—I did not compare pyro-ammonia with pyro-soda, and if the first oxidises, when mixed, it does not do so to any perceptible extent before the fourth or fifth plate has been developed in it.

Thirdly.—Of course, any one is at liberty to use a fresh quantity of developer for each plate when using pyro-ammonia, but the same can be toned with any other developer, yet it need not be. This would be specially troublesome if one had as many as 800 plates, 8 x 10 inches, to develop after a trip, as I had.

Fourthly.—For prolonged development (by which I mean slow development) experiences might differ. It proved satisfactory to me.

Fifthly.—As to my experiences with first plates coming up more slowly than subsequent ones, I had eyes to follow development and stopped it when sufficient. Exposures differing somewhat had also something to do with this perhaps, and I never thought to blame the uncertainty of the developer for this.

Sixthly.—My first dose of ammonia was the only one, and I had hardly ever to add additional, and only when I thought of adding a fifth or sixth plate, and then only to finish it, getting impatient if it took over from 5 to 10 minutes for completion.

I wish now to add one more word. I have no interest in praising or

pushing the pyro-ammonia whatever, and I leave every one at liberty to use any developer he chooses, but after many years' experience I think that much better and more uniform results can be obtained when using all along one developer you are familiar with, than changing with every new one put on the market. The same applies to plates.—Yours very truly,

A. LEVY.

[As M. Levy expresses a wish not to enter into further discussion of the subject it is not for us to comment further on the points which have been raised. We hope to refer before long to the pyro-soda developer when it may be convenient to deal with one or two of the points on which we are in disagreement with our correspondent.—Eds. B.J.]

## Commercial & Legal Intelligence.

**A "WANTED" Photographer.**—At St. Helens Police Court, last week, Wm. H. Greenway, a photographer, of Leeds, was committed to the Quarter Sessions on a charge of stealing—as bailee—a camera and other photographic articles, valued £8, and also with embezzling £1 11s. 6d., the property of William H. Campbell, a St. Helens photographer. Evidence was given that prisoner entered the prosecutor's employ in 1905, but he absconded with the money and articles. The police searched for him, but nothing was heard of him until he was committed to prison at the Leeds Quarter Sessions. Prisoner was brought from gaol in company of two warders to attend the court, and the chief constable told the bench that he was wanted by some twenty police forces in the country.

**An Inventor of Metallic Prints.**—At the Salford Bankruptcy Court, on January 8, before Mr. Registrar Forrester Addie, Frederick Ahrie, now living at Moss Side, and previously in London, was examined by the Official Receiver (Mr. J. Grant Gibson) as to the causes of his failure. The debtor, it was said, is a German subject who has been trying for several years to perfect an invention for the manufacture of sensitised papers and plaques for photographic work. Much money has been spent, but he told the court there had been very little return. He was at one time associated with a limited company, and later he had another business, but through a variety of causes he had been unable to make headway, and he is now manager for a local company. The examination was closed.

**EAST END BANKRUPTCY.**—At the London Bankruptcy Court last week the public examination was held of John Edward Reeves, photographer, 50, Hermit Road, Canning Town, E., before Mr. Registrar Brougham. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £786 0s. 8d., of which £197 14s. 6d. was due to unsecured creditors, to fully-secured creditors £588 6s. 2d., the value of the securities being returned at £600. The assets were returned at £54 3s. 10d., thus showing a deficiency of £143 10s. 8d. The whole of his unsecured liabilities were in respect of goods supplied. The fully-secured creditors held mortgages on the freehold of Mersea House, 109, Queen's Road, Lowestoft, and the lease of 48 and 50, Hermit Road, Canning Town, also second charges on those properties to secure an advance of £225, made on May 9, 1906. The household furniture belonged to his wife. He had never kept proper books of account, so that he could not now show how he stood at any particular time, but he always knew how he stood. He admitted that it was usual to keep books in a business like that carried on by him.

We would remind intending exhibitors that January 26 is the latest date for entries for the "Midlands trio" of exhibitions—Sheffield, Nottingham, and Leicester.

A COURSE of twelve lectures and demonstrations in various branches of photography will be given by Mr. Charles W. Coe at the Cripplegate Institute, Golden Lane, E.C., on Friday evenings, at 7.15, beginning January 18. These lectures, which are of a thoroughly practical character, are open to both ladies and gentlemen, the fee for the course being only 12s., and including the free use of dark room, apparatus, and chemicals. Tickets are now ready, which, together with syllabus and full particulars, may be obtained from the clerk's office at the Institute.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

May Bone, Norfolk Studio, Norwich Road, Fakenham. *Photograph of a Royal Motor Mail Van Outside Fakenham Post Office.*  
 W. H. Warburton, Harris Promenade, Douglas, Isle of Man. *Photograph of the Douglas Choral Union in the Opera "Paul Jones" on the Stage of the Gaiety Theatre, Douglas.*  
 H. T. Cave, 3, Church Street, Dereham, Norfolk. *Photograph of Dereham Motor Mail Vans and Post Office.*  
 F. Deakin, 121, Snargate Street, Dover. *Photograph of a Birdseye View of the Old Channell Tunnel Works, Dover.*  
 E. Abrahams, 116, Station Street, Burton-on-Trent. *Two Photographs of the King and Queen in Group with Lord and Lady Burton, &c.*

- S. B.—1. "Practical collotype," by A. W. Fithian C. Iliffe, 2s. 6d.  
 2. The lens is very suitable for groups.
- F. B. (Miss).—We should not advise you to take the responsibilities of a business of your own unless you can do so with an assurance of support from those in your neighbourhood. Without any special reasons for going into the business, we sincerely think you will be exposing yourself to the possibility of losing money. Of course, we know nothing of your business training, but as you make no mention of it we advise you as above.
- NETHERBY.—The print is evidently on one of the collodion papers toned with gold only most probably. As your dealer to supply a collodion paper of the rough surface, or write to one or other of the manufacturing firms whose announcements you will see in our pages.

**SULPRIDE TONING.**—Will you kindly tell me why it is necessary to dry the bromide prints before toning to sepia in the ferricyanide and sulphide baths, as I find I get a much better tone if the prints are treated immediately after the hypo has been eliminated and before drying the prints? I shall be glad to know if I may safely continue to tone without drying prints first.—PERPLEXED.

It is not absolutely necessary to dry the prints prior to toning. **PHOTOGRAPHS ON TUMBLERS.**—I have just returned from the Continent, and whilst there saw a method of photography on glass. It is as follows: A person can have their photograph produced on a drinking glass (an ordinary tumbler) either from a direct sitting (the photograph in this case being taken just in the ordinary way), or it can be obtained from an old photograph, so that the images of present or absent persons can be produced on the drinking glass. An interval of one or two hours elapses between having the finished glass and first going to the photographer. As far as I can see, it is not a film transferred on the glass. It is a true positive negative, and in every way equal to an ordinary photograph. My object in addressing you is to ask you to kindly let me know if you have ever heard of anyone having a process for obtaining photographs of persons on drinking glasses?—GUSTAV DUFT.

Unless we saw one of the drinking glasses, or had fuller particulars than are supplied in your communication, we can give no definite opinion as to how the pictures are made upon them. As you say there is no appearance of a transferred film, we can only surmise that the pictures are photo-enamels—that is, the image is produced in ceramic colours, and then "fired" into the glass. If that is the method employed, and we suspect it may be, we scarcely see how the results are obtained (commercially) in the brief time you mention.



**J. BUSH.**—If the lens is a doublet or rectilinear, as we assume it to be from the drawings, there is no difference in the illumination in the two cases. The only difference is in the distances of the pieces of apparatus from each other, but this will not in any way affect the good working of the enlarger so long as a sharp focus is obtained.

**E. J. K.**—The "Optician" or the "Optical Trade Journal." There is no exact equivalent. The best optical papers are in German.

**INTRODUCING BACKGROUND, ETC.**—1. An amateur negative-portrait, with part of hat cut off, has been brought to me to make another negative with the hat complete. I propose blocking out all the background (as it is a wall), printing on to a large piece of P.O.P., painting in the top part of hat, and then copy. Is this as good a plan as any? If so, what paint for the hat—a neutral tint water colour? Could a sketchy background of trees, etc., be painted in at the same time and with the same colour? 2. A studio just erected faces east, not troubled with sun now, but shall be, so think of putting paper on the glass inside. What is the best paper to use, and how applied, or is there a better material?—**WEEDEE.**

1. The plan you suggest will be quite correct, but instead of making the print on glossy P.O.P., we should recommend you to use a matt paper. You will find that will take the colour much better than the glossy, and show less hand work in the reproduction. A light sketchy background will much improve the effect. For the colour use one that matches that of the print as nearly as possible. 2. White tissue paper, which may be attached to the sash bars with gum or starch. Better than paper would be thin tracing linen stretched on light wooden frames, which may be slid backward or forward as required, or removed altogether when not wanted.

**SPOTS ON C.C. PRINTS.**—Will you kindly inform us as to the cause of the black spots on the enclosed C.C. prints? They are not to be seen after toning, but after the fixing. We keep a tin scoop in the hypo tub. Do you think the rust from same will cause these spots? The prints were toned with—

Chalk .....	1/2 oz.
Gold .....	1 gr.
Water .....	2 oz.

which is made up twenty-four hours before using.—**V. AND P.**

Metallic particles are the most usual cause of these spots, but they are most active on the untuned prints. We do not think particles of rust in the hypo would account for them. The most common cause is the use of zinc shavings for cutting circular and oval prints, minute particles of zinc falling on the paper before toning.

**GUM BICHROMATE PROCESS.**—I have been trying to coat paper for gum-bichromate printing. I do not have very much difficulty in getting an even coating, but I am troubled with innumerable white spots, which appear after the coating is laid on. This seems to be particularly the case with well-sized papers—in fact, I have used several kinds of paper recommended in hand-book on gum-bichromate; and I have tried gelatine, flour paste, and fish glue for sizing, but find the same difficulty. I will be very pleased if you will suggest a remedy for this spotting; and I would also like to know if the trouble is a usual one.—**GUM.**

As the spots occur with various colloids, it is clear that the fault lies in the manipulation, and is probably due to air bells, either in the colloid itself or caused during the coating. They are particularly liable to occur if the coating is applied with a brush, which causes frothing. One remedy is to damp the paper first, and another to apply the pigmented colloid with a roller and then even the coating out by working gently with a badger-hair softener.

**IMOGEN-SULPHITE.**—1. What is the chemical composition of imogen-sulphite? 2. How long will the powder keep in good condition? 3. Will brown tones obtained on a "chloride" paper by development with a diluted solution be permanent? 4. Is washing necessary between development and fixing?—**IMOGEN.**

1. A proprietary article, the composition of which is not stated. 2. We should say a year at least in a dry place and in a sealed tin. 3. Yes. 4. It is not absolutely necessary, but advisable with this as with every other developer.

**W. ROBERTS.**—We cannot say without seeing the negatives.

**STRIPPING P.O.P.**—Could you give us the amount of turpentine and beeswax to make up a solution to put on ferrotype plates for stripping P.O.P. prints?—**L. AND S.**

Beeswax .....	20grs.
Turpentine .....	1 oz.

**COPYRIGHT AND COPYING.**—1. For the purposes of a postcard I want to copy a litho print bearing the date 1840. The print is not stated to be copyright. Should I be running much risk in copying; and if the author is still living, what penalty should I be liable to? 2. The print is in black ink, but has a yellow tinge. What kind of plate would serve best?—**POSTCARD.**

1. Copyright lasts seven years after the death of the author. The penalties may be £10 for each copy made. We should say that more likely than not the copyright has expired. 2. An orthochromatic plate and yellow screen.

**H. J. W.**—There is a list in the "Almanac," p. 555 to 586 of the 1907 volume.

**C. M. AND CO. (Watford).**—**E. W. Foxlee**, 22, Goldsmith Road, Acton, W.

**COPYRIGHT.**—I took a good view with difficulty from a church tower to sell as picture postcards at 2d. each. I now discover a local stationer has had it copied and selling at 1d., without permission or payment. I did not copyright the view. Can I do anything in the matter to prevent him or anyone selling the same?—**A. E. T.**

No, you cannot take any action for infringement before registration. Your best course is to register the copyright now, and you can prevent further sales of the postcard.

**COPYRIGHT.**—Your opinion on the following question of copyright would be esteemed: We have photographed a local clergyman by invitation and without payment, and presented him with copies. The picture was registered in the usual way two years ago. It is now published in a local year-book without our permission and without our name—in fact, another name substituted. When registering, the clergyman was asked and gave his permission verbally that we were to retain the copyright, and if anyone wished to reproduce it they were to be referred to us. We have not a written assignment from the sitter. Have we good cause of action for infringement?—**J. W. D'ANTER.**

Certainly you have. Your sitter cannot prove that you received a good or valuable consideration for the work, and as you have not the copyright is yours.

**WORKING-UP.**—Can you oblige me by advising me how to obtain a knowledge of working-up B. and W.?—I am an assistant photographer, and it is a branch of my work I know nothing about, except enlarging on bromide. Can you advise me of a book which will give me construction on the finishing of B. and W.?—**ASSISTANT.**

The only book on the subject is "Retouching Negatives and Prints," by R. Johnson, published by Marion and Co., Soho Square, London, W.C. Postal lessons, which you will see announced in our advertisement pages, should be of service to you.

**SENSITISED TRACING PAPER.**—Could you kindly inform me of any simple method whereby I could coat and sensitise tracing paper so that I could produce a paper negative from a coarse black and white tracing by contact.—**PHOTO-MECHANIC.**

You require to sensitise with the "sepia" iron formula used for commercial papers, but you will find a difficulty in getting any watery solution to "take" on tracing paper. A more suitable material is Linaura, a semi-transparent fabric sold by Reeves and Co., Farringdon Avenue, E.C. You will find a formula for the sensitiser on p. 992 of the "Almanac."

**STUDIO.**—I should be greatly obliged if you would advise me on the following: 1. I have a studio 20ft. by 10ft., with 10ft. of glass along roof and side, which faces north-east. A high wall stands up 5ft. away from the side glass (a cemented wall). I want to know what colour blinds or curtains to have (most suitable), and whether running along on rings or wire would answer, or not. 2. Is it necessary to stipple or whiten the glass? 3. I have also a 12 by 12 studio camera. I would like your opinion of a lens focus, etc., suitable (or lenses). I want to do cabinet full-lengths and busts. also C.D.V.—**READER.**

1. We should advise you to use buff curtain festooned on a pair of parallel wires along the roof. 2. We judge that you can

dispense with it. 3. For a cabinet full-length you will be able to afford about 15ft. between the camera and the background, which will permit of a 14in. lens. We should say a 12in. or 14in. portrait lens would answer your purpose. It will not allow of full-length carte figures, but this, we take it, you do not require.

**ARTIFICIAL LIGHT.**—I believe there are many photographers who would like to introduce electric light into their studio if they could only be convinced that the results to be obtained will compare favourably with good daylight pictures. I am one of these, and as the introduction of electric light would mean expensive alterations in my studio, before taking the step I ask your advice. 1. Can full-length portraits and groups (that will honestly compare with good daylight pictures) be taken by a single electric lamp? 2. With gas and flash light work I find that dark objects photograph much darker than they would if taken by daylight, and there is always absence of detail in the shadows. Would the results of electric light be the same? 3. If I had my studio altered to the long slant-roof principle, and carried it up to 14ft., would that be of sufficient height? 4. Can you recommend a lamp both for printing and taking which is not much trouble—exposure about 3 seconds,  $f/6$ , alternative current, 100 volts—and approximate cost of same?—R. A.

1. Portraits can be produced by electric light equal to daylight work, provided the light is properly used. Full-length portraits and groups of two or three figures may be taken with a single lamp if of sufficient power, but groups of several figures are more difficult to manage. See our leading article published during December, 1906, on this point. 2. Your heavy shadows with gas and flash light are due to under-exposure and unsuitable distribution of the light. They should not occur with properly-managed electric light. 3. Yes, a lamp could be fitted in a studio altered as you suggest, but, if possible, the height of the roof should be rather more than 14ft. 4. A Westminster should answer your purpose, but you will only get a very short arc on a 100-volt current. When ordering you must specify the voltage and that it is an alternating current, and your wiring should be arranged for 10 to 12 amperes.

**FLAMING ARCS.**—I have just read with great interest the article in the current number of the *BRITISH JOURNAL OF PHOTOGRAPHY* on "The Use of the Flaming Sunlight Arcs in Portraiture," and in connection therewith should be obliged if you would give me the following information. 1. Do professional photographers touch out all the "small-pox" marks in Z and P, p. 20, or how do they get rid of them—touching out on such a large scale would surely be such an arduous task that a photographer would never have finished? 2. Can you tell me the name of a really good book from which to learn something of the art of portraiture, also name of publisher and price?—**PORTRAITURE.**

1. Professionals touch out all the freckle marks in portrait negatives, using a lead pencil for the purpose. With large negatives the work does take a long time, but then soft and broad pencils are employed. The illustrations to which you refer were enlarged about four to five diameters, and the original negatives could be retouched by a smart worker in about twenty minutes. 2. H. P. Robinson's "Studio and What to Do in It," 2s. 6d.; Hewitt's "Practical Professional Photography," 2s. Either may be obtained from Dawbarn and Ward, 6, Farringdon Avenue, E.C.

**NEW STUDIO.**—Do you know of any studio in England built on the "Robinson's studio of the future" plan, and, if so, would you recommend one in accordance with the sketch enclosed? The light is of ground glass 15ft. by 11ft., commences 4ft. from ground, and upright only. No top light from roof, which is slated. The dimensions are 30ft. long by 15ft. wide. The roof slants to back. The studio to face north, there being no buildings nearer than 80ft. Any suggested improvements appreciated, and if you know of any studio erected in this neighbourhood we should be glad to know that we might inspect it.—W. B.

There are a few studios built on the Robinson "Studio of the future" principle, but we cannot say if there are any in your neighbourhood which you could see. We think the design you submit would, if carried out, result in a very suitable building for modern photography. We can suggest no improvement if the vertical light is decided upon, and in this case it appears large

enough to give good illumination even for groups of several figures.

**URANIUM PRINTING.**—On page 7 of B.J. for January 4 you have an article on uranium printing process. In giving formula for sensitising bath, it reads:  $\frac{1}{4}$  oz. nitrate of uranium. Would you mind letting me know if this is correct? It seems such a large amount for such a small bath.—G. V. SIMMONS.

The amount is large, we are aware, but it is correctly quoted from the American paper. The solubility of the uranium nitrate is, however, sufficiently great to enable the bath to be made up. Our own experiments in uranium printing have been made with a 20 per cent. solution as sensitiser, and we suggest that you may find it possible, after trying the full-strength formula, to reduce the proportion of the uranium somewhat.

J. G. T., W. C. T., C. C., and others. In our next.

**A LICENCE FOR PHOTOGRAPHY.**—Will you kindly let me know if it is necessary to have a licence for outdoor photography, as I was stopped by a police-constable last Thursday at Seacombe-cum-Poulton? He asked if I was aware that I required to take out a licence. I have been in the photographic business for about fifteen years, and this is the first time I have been interfered with. My method of working is calling on householders. I ask them if they will stand at the doors, while I take a photograph of them and the house. After that I take round and show them a proof. If they give me an order for any I tell them I will get them ready and finished for the week-end, and they pay on delivery. I do not ask or take any cash down, either at the time I take a photograph of the house or at the time I show them the proofs, but I receive the full amount, or part of it, when they receive the finished pictures. The constable told me it came under the Pedlars' Act; he called it a craft—one travelling from place to place. He said he had a case tried, and the photographer was fined for not having a licence. I wish to state that I do not get a number of pictures finished and take them from door to door asking people to buy them. I only take those round that people give me an order for.—J. WEATHERY

Working on the system you do, we have a very strong opinion that a licence is not required, the assertion of the policeman notwithstanding. The Act 22 and 23 V., c. 36, says. A hawk's licence is not required by the maker or worker of goods who carries them abroad or exposes them for sale. You are the maker of the goods that you afterwards offer for sale. If you are again interfered with, call the attention of the policeman to this clause in the Act. It is the first time such a thing has come under our notice.

**C.C. PAPER.**—How to obtain good blacks on C.C. paper, in place of brown-black.—**PERSEUS.**

Real blacks are only to be obtained on C.C. paper with first toning in gold followed by platinum. Formula for gold bath: Borax 2oz., gold chloride 2gr., water 35 oz. Upon tone obtained in this bath depends resulting colour. Warm chocolate is a rough guide. Wash for ten minutes and tone in: Chloroplatinite of potash 15 gr., phosphoric acid  $\frac{1}{4}$  dr., water 15 oz. Use 3 oz. of this stock diluted to 20 oz. with water. The collodion papers vary with regard to tone obtainable.

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## SUMMARY.

Dr. von Rohr reminds photographers of the past and notable work of Mr. R. H. Bow in photographic optics. Mr. Bow celebrates his eightieth birthday on Sunday next. (P. 62.)

The second chapter of a series on "Aerograph Work" deals with the care of the instrument, the use of eraser, and the treatment of various prints. (P. 60.)

Mr. J. C. Strauss, the famous photographer of St. Louis, a selection of whose works is now being shown at the "B.J." Offices, has stated his belief in the renaissance of photographic portraiture. (P. 65.)

The tendencies towards specialisation in a photographic business lead us to discuss the possible directions in which a photographer may be led to improve his business. (P. 59.)

Professional photographers obtaining permission to photograph certain scenes are advised to secure a written statement by which the copyright is specified as theirs. The recent case of Stackemann v. Paton was of a special character, but is apparently being quoted as of general application. (P. 58.)

Some further notes and suggestions on photography for advertising purposes appear on page 65.

Society proceedings of the week have included Mr. P-las on "Daguerreotype" at the R.P.S., and Mr. Manly at the South London "Ozobrome." (P. 71.)

Under "Photo Mechanical Notes" will be found a visual method for checking the distance of the line screen from the ground glass; also a new grain process of Klimsch and Co., Frankfurt. (P. 67.)

Attention has been drawn to the use which may be made of photography in the duplication of historical documents. (Pages 67 and 66.)

Mr. William Gill advises every photographer to study the examples of American professionals now being shown at the "B.J." Offices. (P. 73.)

## EX CATHEDRA.

### A Year of Celebrations.

The article by Dr. von Rohr on another page, drawing attention to the eightieth birthday of Mr. R. H. Bow, is also a reminder of the other celebrations which should take place in 1907 were we as a nation possessed of the same disposition to hero-worship which is evidenced on the Continent by the statues and "denkmals" at the street corners. January 6 was the centenary of the birth of Josef Petzval, the designer of the portrait lens first made by the house of Voigtländer more than fifty years ago. July 26 will mark also the hundredth anniversary of the birth of Niepce de St. Victor, the nephew of Nicéphore Niepce and the originator of many processes in the early years of photography. Then on May 15 exactly fifty years will have elapsed since the awards of the prizes by the Duc de Luynes for permanent photographic prints, a competition in which prizes were gained by Poitevin and Pouncy, from whose combined labours the all popular gum process owes its existence. So far back in history do the latest foibles of the pictorial photographers go for their solemn origin. Yet still one anniversary of remoter date falls for celebration during the present year in the instance of the publication by the Turinese professor, Beccarius, of his researches on the darkening of "horn silver" (silver chloride) in the light. We are also told by our contemporary, "Die Photographische Industrie," to whom these burrowings into the past are as natural as to our late contributor "Historicus," that it is exactly fifty years ago that the first photographic portraits were made in London by gaslight, though we are unable to identify the occasion to which our contemporary refers.

### Photography in Libraries.

The article which appears elsewhere on this subject is, notwithstanding some erroneous statements, well worth careful perusal, on account of the valuable suggestions it contains. It is not the first time that this subject has been brought forward, and the crying need for cheap reproductions pointed out. It is universally acknowledged, too, that photography alone is satisfactory as the copyist—hand transcription must necessarily be not only slower and dearer, but far less reliable. Besides, in many cases, even the most careful artist is utterly incompetent to impart to a copy those delicate details which impart character to an old MSS., and in some cases actually determine the particular period at which it was written. The statement that owners of valuable originals are loth to send them out of their possession for reproduction, and that "hair-raising" cases of damage can be quoted, may well be met on the photographer's side by the fact that he would rather not be entrusted, even for a day, with delicate, costly originals, which may be worth thousands of pounds, and for damage:

to or loss of which he may be held responsible. We have no doubt that the writer of this article is correct in his statements as to the difficulty of obtaining in Germany the necessary materials. We do things better in England, and there is not the slightest difficulty, as we have proved, by personal experience, in obtaining negative paper in daylight loading cartridges. As regards the orthochromatising of the emulsion, whilst this presents no difficulty to the manufacturer who is in the habit of making orthochromatic emulsion, it is not so advantageous to sensitise the negative paper by bathing at home, on account of the absorption of the dye by the paper fibres, but even this would be discharged by an acid fixing bath and subsequent washing, and should a demand arise the manufacturers might supply a colour-sensitive paper.

### Essentials for the Work.

There is not, as the writer suggests, the slightest need for a specially built cheap apparatus if any existing rear-focussing camera is available. There are also numerous tilting tables on the market which are much superior in stability to the ball and socket. But beyond these there is one essential which apparently has been overlooked, and that is the necessary knowledge to enable one to carry out the work efficiently. Rather more is required than the broad fact that to reproduce yellow and faded MSS. correctly an ortho-plate and yellow screen may be required, for many of the old writings are illuminated, and one has to decide what is and what is not required, whether a reproduction should be in correct luminosity of the colours or contrast. For instance, supposing the subject to be reproduced is a book cover (and we are now quoting a case which has actually been laid before use recently), on which are green, bright red, violet, and gold ornaments. Here the use of an orthochromatic plate and a correct luminosity colour filter would give an absolutely erroneous rendering, and a flat monotonous print be the result, but by duly suppressing one or two colours by a filter of the complementary tint a much more satisfactory result will be obtained. Again, even when dealing with MSS. in black, on what was no doubt originally a white or nearly white ground, it must not be overlooked that to the antiquarian and in many cases to the philologist also the tone and texture of the vellum or paper is as valuable as the text itself. These facts merely point to the advantage of working under the eye and direct guidance of the owner of the article and of an intelligent carrying out of his requirements.

### Photographic Libraries.

In our last issue we expressed our grave doubts as to the feasibility of the scheme suggested by M. Goldschmidt, but there is no reason why the duplication of works should not be undertaken on somewhat similar lines to that suggested in the article elsewhere. This naturally raises the question of glass versus paper as the necessary negative material. The latter certainly has the advantages of want of fragility, less room for storage, and possibly cheapness. But if such a scheme is to be carried out it is obvious that for the original negatives, even if one accepts the dictum that the reversal of black and white is immaterial, glass would certainly possess some advantages, not the least of which is the quicker printing. The idea of utilising machine-printed bromides as the process of printing is excellent—for the paper-maker—but except when only a few copies are required, one would naturally hesitate to adopt a process in which the image is of that admittedly uncertain substance, finely divided silver. Although silver images have been known to keep their pristine freshness for many years, one naturally doubts the wisdom of employing the same for producing books, which are at any moment liable

to contact with fingers that cannot be guaranteed as chemically clean or dry, and therefore to add to the above possibly fugitive substance another of a hygroscopic nature such as gelatine would not appear commendable. If but a few copies are required for interchange with other libraries or antiquarians even, one would think that it would be advisable to use a more permanent process such as platinum printing, which offers not the slightest difficulty in reproduction in line.

### Expedients in Extremis.

The editors of our American contemporaries who live lives of ease by filling their pages with British articles, sometimes give us in exchange some priceless gem to more than compensate for all that they have taken. For example, we read in one of the monthlies the following idea, the beauty of which, as Captain Cuttle used to remark, lies in the application. You are in a crowd with your hand-camera, and cannot get a glimpse of the roadway along which the Royal procession will presently pass. The uninspired mortal would give up the job and go home, unless he has been fortunate enough to see the hint in our contemporary, which is to persuade a tall and strong (and good-natured) man to let you sit on his shoulders whilst you sight your subject and expose the plate. This hint should be invaluable to Mr. Tilney. On the other hand, it will rarely be of service to Mr. J. C. Warburg.

### Enterprising Burglars Beware!

We continue to read in the daily newspapers of the triumphs of the camera in unmasking the thief, who from the office safe purloins the deeds and bonds which, as the trusted servant of the firm, he has placed there for safe keeping. It may be our misfortune, but we have never seen one of the actual photographs which these criminals are reported to take of themselves by the very act of opening the safe door—electric release of shutter in concealed camera is the usual story—but we may state our personal knowledge of the means by which a series of petty thefts from an office drawer in a public institution was detected. The drawer was fitted in such a way that a stop-watch placed at the back of it was arrested on its being opened. It was thus found that the thefts took place regularly every morning between 8.30 and 9.15, that is to say, about half an hour before the regular time for the staff to assemble. A morning was then selected for the visit of the thief to be signalled to two persons in the adjoining room, and for this purpose a small alarm clock—we hope Mr. Welborne Piper will find this hint of service—was placed in the drawer, and set to go off on the latter being opened. Events turned out as expected, and the thief was caught red-handed. The comic side of the incident came when he was brought before the principal, from whom the culprit received the following useful hint:—"Young man, you ought to have thought that it would be easy to detect you in this way." We suppose this narrative, every detail of which occurred, is too flat for the newspapers that serve up the marvels of modern photography in paragraphs which have the one great merit that the feats astonish photographers more than anyone else.

### Valuable Consideration.

A case in which the important question as to whether a photographer had or had not received valuable consideration has recently been brought before us by a firm of photographers who have studied the reports of copyright cases in our columns and had approached us to confirm the conclusion to which they had themselves arrived. They had recently approached a gentleman for permission to photograph some scenes illustrating an organisation of which he was



director. The permission had been at once granted, and the photographs forthwith taken. The latter were obviously intended for reproduction in the press, and as proof of the understanding which existed as to the ownership of the copyright, the photographers had an agreement with the director that any articles on his organisation which he might write could be illustrated with their photographs. This agreement the director subsequently sought to annul by claiming the copyright in the photographs, on the ground that the permission given by him was a good consideration, and that therefore the copyrights were his. In support of this view he quoted the case of *Stackemann v. Paton*, reported in our issue of May 4, 1906, the circumstances of which are doubtless in our readers' minds, or if they are not, will be found on page 689 of the current "Almanac."

#### The Lesson of the Stackemann Case.

It may be well, however, to remind those photographers whose business brings them into similar contingencies of the peculiar circumstances of the *Stackemann* case, because the judgment of Mr. Justice Farwell in that suit is evidently being construed into meanings which it does not rightly possess. Mr. *Stackemann*, it will be remembered, was in the habit of calling on schools and obtaining permission to take photographs of the premises and groups of the students, in regard to which there was a reasonable certainty of sale (of prints) to the proprietors of the school as well as to the scholars. It was this admission to a certain amount of business which Mr. Justice Farwell went so far as to regard as a "good" consideration—he did not call it a "valuable" consideration—and therefore conferred the ownership of the copyrights upon the school proprietors. It does not therefore follow, in every case in which permission is given to a photographer to obtain certain photographs, that the permission amounts to a good consideration. Far from it. The connection between the photographer and the school proprietor in the *Stackemann* case was very nearly the ordinary one of photographer and customer. The school proprietor wanted the photographs, and the photographer wanted to supply them. Assuming that the photographs were suitable, there was no doubt of their sale to the proprietor, and further, there could be no reasonable supposition that the school proprietors expected the photographs to be used in other quarters. In a case such as our correspondent brings before us the photography is done without a reasonable certainty of its being profitable, and if any profit does accrue, it does not come from the person granting the permission, the relation of whom to the photographer is not at all on a par with that of the school proprietor to Mr. *Stackemann*. It should be clear, we think, that the *Stackemann* decision cannot be applied without a very precise consideration of the facts of a disputed case, and yet—and yet—such is the uncertainty of the law, our advice to photographers whose dealings involve them in such relations, is to come to an understanding in black and white as to the retention of the copyright by themselves. A letter of twenty words, if a dispute comes into court, is worth a hundred rulings of learned judges as to what is and is not "good" or "valuable" consideration.

#### The Hire of Apparatus.

The recommendations which have occasionally been put forward in the German press that the photographic dealer should turn an honest penny by the hire of the more expensive pieces of apparatus used by the amateur photographer come in for a thorough-going discouragement at the hands of a correspondent of "Die Photographische Industrie."

The writer records his disappointment at the returns from the temporary transference of expensive enlarging lanterns and 12 by 10 cameras to his amateur customers, from whose operations the charges for depreciation soon reached a figure which left the dealer nothing for the labour of delivering and collecting the instruments. The only apparatus in which a profitable hiring business could be carried on was, in the writer's experience, a portable flashlight installation, for the use of which for a single evening there was always a brisk demand, and for which the enthusiastic "liebhaber" gladly paid his one mark fifty or two marks when he returned it in the morning on his way to business.

\* \* \*

#### A Suggested Circle Trimmer.

Probably everyone has experienced the liability of the circle and oval trimming shapes to slip while the trimmer is being run round them, especially in the use of glossy prints. This tendency may be easily overcome by the following simple device, which a correspondent sends us:—Around the aperture about three-sixteenth of an inch from the edge bore a few holes with a small fretwork drill and leave the "burr" on. These slight but sharp projections will dig into the waste portion of the print and prevent the shape slipping. The need for a clamp is thus entirely overcome. The process may be carried out with a fine-pointed punch, but this is likely to buckle thin shapes. Manufacturers might take the hint and produce a novelty which would be of practical value to every professional house, viz., a "non-slipping" trimming shape.

#### UNDER WHICH KING, BEZONTIAN?

WE suppose that at the present time there is no more common topic of conversation in professional photographic circles than the entrance of cheap competition into the businesses which cater for the lower middle classes. In various directions the photographer, who has found his customers among the smaller tradesman classes, among well-to-do mechanics, clerks, and other families in the community with incomes ranging from a hundred to three or four hundred a year, sees his business attacked in many directions. First there has been the natural and legitimate competition of his rivals in the shape of lowering prices all round, or of offering a single form of portrait at a very cut price as a bait for further custom. Competition of this kind, which is to be expected in every description of trade, has never been resented by the professional photographer, or feared as a danger for which there was no effective remedy. But of late years the studios catering for the lower-priced photograph have been exposed to attacks from those outside their own ranks in a species of competition for which they could provide no equivalent in the way of counterblast. The last few years have seen the regular portrait business encroached upon by the travelling "sticky back" firms, or other purveyors of cheap bromide prints; they have witnessed the diversion of part of the business to a type of photographer who calls himself an "amateur professional," and of whose methods of doing business the following extract from a letter which we have recently received will give a graphic account:—

I have a little difficulty to contend with, for which I wish to ask your advice. In the first place I am an amateur-professional photographer, first commencing with taking a few photographs, till I have got a little more than I can comfortably manage with devoting the whole of my time to it, and unfortunately I have to take the majority of my clients on Sundays, and on an average I have to take fifty or sixty between the hours of 11.30 and 3.30, and I have only a few slides (six in all) to work with; therefore it means constant changing of plates. I only use half-plates (for I have no use for any other),

from which I get cabinets, panels, ovals, circles, and postcards. I may say that I have no knowledge whatever of the methods of professionals used to a quick trade.

Lastly there have been the cheap copyists and the canvassing firms, whose illegitimate business has been based on profiting by the work of other photographers, or has been fraudulent from first to last, and therefore doubly injurious to the photographic profession by casting the stigma of misrepresentation over all its members. Yet the exposures which the Press in various parts of the country have made of this business has, we hope and believe, checked the evil for a time, if not permanently.

The main fact, however, stands out, that from a variety of causes the price which the cheaper class of photographer gets for his work has gone down, while the cost of production has increased, and as a result of the competition to which we have alluded it is necessary for him to offer a much cheaper article still if he wishes to retain the custom of his poorer patrons.

Turning now to the other side of the shield, the prospect is much more encouraging. In the case of the high-class businesses in the country, by which we mean the one or two in towns of fair size which sustain their reputation for turning out good work and charging a good price for it, the prospect has none of the elements of depression which are suggested by a diagnosis of the smaller and cheaper business. There is proof that the public is willing to come to a studio which can give them good photography and good portraiture, and that it is willing to pay a good price for work which is to its taste, and there is also evidence of the growing disposition on the part of the patrons of such high-class photographic businesses to pay a still more enhanced price for work of a specially individual type.

We are perfectly convinced that the possibilities of offering to a high-class circle of customers portraiture of a type which is a step in advance of the present professional standard constitutes an unexplored field in which should be found money enough to sustain businesses run largely on these lines. However, our present object is simply to emphasise the existence of a market for the better class of work, in doing which we would caution the professional man against the fallacy that he has only to commence turn-

ing out such work to be able to advance prices accordingly. He must not forget that there is the additional task before him of impressing upon the mind of the public the value of his newly-displayed powers.

To glance back over this review of the present position of widely differing classes of business, the present tendency, as we discern it, is for the cheaper to become cheaper, and for the "high-class" to become more "high-class" still. It seems to us that in many instances a photographer will be called upon to decide whether he shall make a bold bid for the cheaper order of patronage, or whether he shall elevate the productions of his studio to a level which, while it assuredly will dissociate him from his cheaper clients, will permit him to do less, and possibly make as much. It is possible that a process of introspection applied by a photographer to his own affairs will indicate to him that in one or other of these directions his business position is susceptible of improvement. Whichever direction he adopts as that in which the movement is to be made it will be inevitable that a portion of his patronage leaves him for his rivals. The gain which he can expect from such a step as we have been considering is in the more perfect adjustment of his business machinery to the production of a commercial article, which is only another way of saying that the step is towards specialisation. We should be sorry to see any greater movement towards the cheaper class of business than has been made of late, yet we are not in the pessimistic mood of those who would see in the multiplication of such establishments a universal degradation of photography in the eyes of the more cultured classes in the community. The distribution of businesses, like other changes in the social cosmos, follow the laws of supply and demand, and unless we are mistaken the growth in numbers of the places where a person who sees fit to do so may get a dozen photographs of himself for sixpence is not a greater departure from established notions of a legitimate price and a standard type of article than has been experienced in other businesses. *En masse* the sources of supply of photographs to the public will adjust themselves, but the fact is no safeguard to any individual photographer that in the process of adjustment he will not suffer extinction. All the more are his energies needed to adapt himself to the changing conditions.

## WORKING - UP AND COLOURING WITH THE AEROGRAPH.

The second of a series of articles on the finishing of prints or enlargements in monochrome and colour by the air-brush. The first article dealt with the general principles of "aerograph" work and the acquirement of strokes, etc. Succeeding ones will treat of the special treatment of the various subjects which professional artists are called upon to work up in black and white and colours.

AND now a little regarding the care of the instrument. That the "aerograph" is a delicate tool can hardly be denied—probably if it were not so it would not do the nicely-conditioned work which the artist requires of it. While the artist who works with brushes may not trouble himself much about keeping his colours scrupulously clean, the worker with the "aerograph" must use constant care not to get dirt or any coarse substance into the colours, and so introduce it into the instrument, as it is liable to choke up the small passage through which the colour comes.

### Cleaning the Instrument.

The accumulation of lint and colour may be prevented by blow-

ing a quantity of water through the instrument each day after using it; the point of the instrument may be dipped in a cup of water, filling the colour receptacle, and then with a high air pressure blown out, working the lever backwards and forwards; the finger may also be placed on the point of the instrument and the air turned in through the water, in this way breaking up any tendency to an accumulation of dirt in the point. Plenty of clean water is a cure for most of the ills to which the instrument is subject. It is also desirable at times to clean the colour from the cap, which may be removed and cleaned inside (with a pointed match or splint), and around the guard with the point of a wet brush.

If more serious disorders exist it is generally best to send it



to the makers, as sometimes more harm than good results from trying to put it right in unskilled hands.

### Colours for Aerograph Work.

Colour should be kept in a closed box or in closed bottles. It is not necessary in working with the "aerograph" to prepare the colours on a palette, as it is possible to modify the tints by adding to them in the colour receptacle of the instrument, and both time and colour are saved. With the "aerograph" great care is not necessary as to the exact thickness or depth of colour to be used, as is necessary with brushes; with a colour of full strength the most delicate tints can be made with the "aerograph," so delicate, indeed, that they may be quite invisible and only become visible by repeating the wash of colour. In this respect the "aerograph" possesses a delicacy which can in no wise be equalled by a stick with a bunch of hair on the end of it.

Moist colours are preferable to dry, as undissolved pieces of colour do not get put into the instrument. If moist colours (in pans) are used they may be taken direct from the pan and put into the "aerograph," adding more or less water as required. For this purpose a No. 4 round hog's-hair brush is the best, and this brush will be found serviceable in washing out the colour receptacle of the "aerograph." When changes of colour are required, have two glasses of water at hand, one in which to clean your brush, and the other with cleaner water to use in preparing colour.

Keep your air pressure high, especially when doing small work; the higher the pressure the finer the grain.

### The Use of the Eraser.

The use of the eraser is very important in "aerograph" work—the colour is not absorbed so deeply in the paper as when applied by a brush, and is to that extent more amenable to treatment with the eraser; the extreme high-lights must be either put on in opaque colour or must be erased; they cannot be left in the working, as they would not have the proper character. The writer is of the opinion that they should be erased. For this you want an ink eraser of the right consistency; a lead pencil eraser will not remove the colour, nor can one use an eraser which is too hard. The writer uses a Hardmuth's typewriter eraser: it is about  $2\frac{1}{2}$  inches long and  $\frac{1}{2}$  inch wide by  $\frac{1}{4}$  inch thick; it is slightly wedge shape, but must be cut with a longer wedge-shape taper on it to give it more flexibility, and the end rubbed to a sharp wedge-point on glass-paper. With this you can soften a shadow, using it broad side on, or can clean up a line or the edge of a tint by rubbing in line with the sharpened edge. It is very important that you have a proper eraser and know how to use it.

In working with a brush you must take infinite pains to soften the hard effects of line and wash. In "aerograph" work you must be put to a little trouble to secure sharpness and definition, and the eraser plays an important part. You need no other implements for erasing except a sharp scraper. The writer has a small flat file ground to a two-edged point. You can buy scrapers, but the difficulty is to get one which will hold an edge, and if the edge is not very keen you make the surface of the paper ragged. There is an art in using a scraper; it should be held with the shaft between the second and third finger and the point between the thumb and first finger, and the hand moved from the wrist in a way to shave the paper, not to dig it up.

Having considered the tools, perhaps the next in order is the question of the enlargement; the question of colours must remain over to a later chapter.

### The Kind of Print for Aerograph Working-up

If the enlargement or photograph were to be finished with a brush throughout, you would ask your printer for a picture with as perfect gradations of shadow as possible; but if the enlargement is to be finished with the "aerograph," you require a chalky print—that is, one in which the more delicate tints of the high-lights are merged in white, the shadows being strong and clean. The reason of this is that with the "aerograph" you can in a very few moments put in all the delicate modelling of the lighter parts of the picture, whereas if the picture is low-toned the small markings caused by the retouching pencil and the defects of the negative will have to be worked out slowly and painfully by stippling, or erasing, or both; your result will not be as smooth or satisfactory when finished as the delicate modelling which you can do in a few moments over the lighter parts of the picture with the "aerograph."

This difference is inherent in the character of the tools, and should not be ignored by the worker; only by taking advantage of such points will success with the "aerograph" method result. A slightly chalky print can be finished as well in one hour as a dark one can be in a day's work.

If the print is being made for colouring, the lights must still be chalky, but the shadow portions must not be made quite so dark or strong as for black and white work.

The texture of the paper on which the photograph is made is important only as affecting the finished result. The "aerograph" will work on either matt or glossy surface, but the non-absorbent surface must be worked slower to permit the colours to dry. We will only say that in our opinion a matt surface is much more artistic than a smooth one, and a moderately coarse grain than a fine-grained matt. The size and character of the picture should determine to a large extent the character of the grain. Prints should be well washed. The writer has seen enlargements turn yellow in parts where the eraser had disturbed the surface, showing that the chemicals had only been washed from the surface of the paper.

### The Best Colour for Black and White.

For finishing black and white portrait enlargements in bromide, the most satisfactory colour is moist water-colour lamp-black, as it is as near as possible the colour of bromide both in the light tint and at full strength. Indian ink is troublesome to prepare, and cannot be obtained in a black the colour of bromide, and must be tinted to match. The lamp-black has also an advantage in erasing more easily—it is absolutely permanent. The quality of this colour varies somewhat with different makers; the writer uses that prepared by Messrs. George Rowney and Co.

For sepia-toned bromides and brown carbons sepia is the most satisfactory colour; it may be obtained in two tints—warm and ordinary—and other colour may be added to match any colour of print. Sepia is a beautiful colour, strong in shadow and clear in its thin tints, works well, and is permanent; it may be best to qualify by saying "practically" permanent.

In the next article we propose dealing with the finishing in monochrome of portraits of various kinds, backgrounds, vignettes, etc.

"CRITERION" Competition.—The following are the prize winners in the Birmingham Photographic Company's recent competition for prints on "Celerio" gaslight and "Criterion" bromide papers, which was open to amateurs only:—First prize (2 guineas), Mr. T. J. Holt, of Manchester; second prize (1 guinea), Mr. H. E. Hall, of Wigan, third prize (10s. 6d.), Master W. T. H. Sampson (aged eleven years), of Tonbridge. The general character of the prints,

however, was of such high excellence that the Company have awarded twelve consolation prizes to the following competitors:—Misses W. and S. K. Jackson, Hyde Park; Miss Keasley, Eastbourne; Messrs. G. H. Thomas, Cornwall; E. C. Ker, Sidcup; A. E. Manning, Birmingham; Adshead, London; J. E. Bradley, Epsom; O. R. Dodd, London; Mr. Freeby, Liverpool; Mr. Budd, Watford; Mr. Dennison, Kendal; and Mr. Parslow, Thetford.

## A PIONEER OF PHOTOGRAPHIC OPTICS.

NEXT Sunday we can celebrate the 80th birthday of Mr. R. H. Bow, C.E., of Edinburgh, who is one of the oldest scientific opticians and photographers living.

There are probably not many readers of this journal who can associate with his name a definite idea of his achievements in this world. His principal work was certainly done in engineering, but he has contributed also enough to our art-science for us to be grateful to him. It may be well to give an outline of the principal points of his work, in which task I hope my readers will make a benevolent allowance for my shortcomings as an exponent of my friend's work.

I think we may speak of his articles and papers under two headings, discussing (1) papers principally of scientific interest, and (2) papers principally of educational value.

Turning to the first of these divisions, our friend's name will always remain associated with correct ideas of distortion. It was he, in conjunction with Thomas Sutton, who pointed out the great importance of the aberrations with which the image of the central spot of a symmetrical objective is rendered by its components, and that in consequence of their presence, a symmetrical objective is really orthoscopic for one scale of reduction only. I have called this Bow-Sutton's law.

I must further mention here his work on equalisation of illumination over a great angle of view. As in collective lenses the thickness of substance steadily decreases towards the margin, he conceived the idea to compensate for the loss from obliquity of incidence by tinging the substance of the crown glass. By those means he took away the greater part of the light in the axial direction, and gradually less towards the margin, thus more equally distributing the remainder over the whole plate. He further advanced our knowledge of this difficult subject by accurate and difficult calculations, which he undertook to illustrate the idea of Geo. H. Slight. In this case the equalisation was very perfectly effected by means of a suitably formed brass plate, mounted a little in front of the diaphragm. As far as my knowledge goes, his two papers furnish to the calculating optician not only a very valuable, but the only source of information as regards the difficult branch of equalisation.

His calculations and experiments on astigmatism are also of great value, however little they may be known at the present day. I may mention here, especially his splendid calculation of the curves of the primary and secondary foci for a thin plano-convex lens in close proximity with the stop. He was able to give these curves for finite angles, and so partially antedated the important result found independently, and verified 37 years later by B. Wanach, of Potsdam, for thin lenses

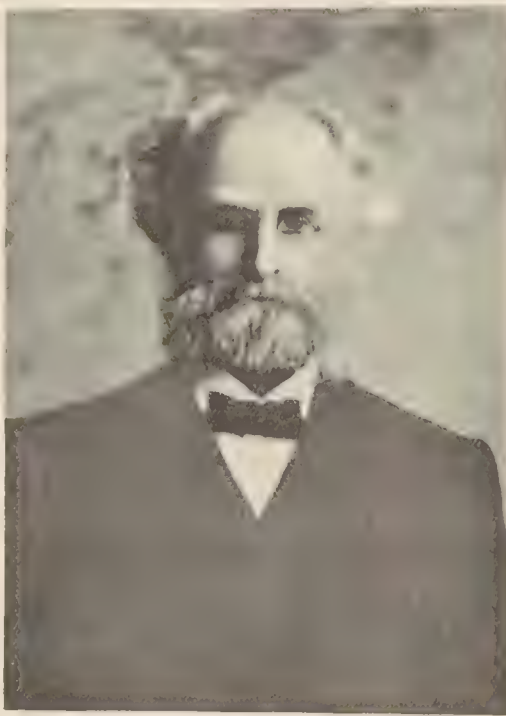
of any form. We must also remember that he then (1863) published the first plan of correctly registering the results of astigmatic calculations. It was only due to want of space that I dismissed this oldest plan of registration, when I published in 1899, the 48 astigmatic curves in my book, "Theorie und Geschichte des photographischen Objekts."

Concluding now under this heading, we must affirm that we see in his work the features of a scientist well versed in mathematical methods, and of a photographer who had love for our art-science, an eye for its wants, and the patience to supply them.

His achievements in the educational line are not less, although they also are entirely forgotten. Personally, I am inclined to see his principal merit in his endeavour to emphasize the fact of an orthoscopic photograph's being essentially a correct perspective. In consequence thereof he represented the photograph often, not at the place of the ground glass, but between the objects and the lens. He even went so far as to devise a special instrument, with the object of viewing transparencies made with short focus lenses as from the correct standpoint, i.e. under the same angle which the object themselves presented to the photographic lens. The way in which the lesson taught by him was received by the public, was in a certain manner prophetic; all his endeavour could not induce his fellow-workers—even at that time of high standing—to see with his eyes and to understand his well-developed and important ideas, and the absolute want of interest seems to have had the effect of slackening his zeal as a teacher.

He took a great deal of trouble in his earnest endeavour to re-

suscitate stereoscopic photography in the beginning of the sixties of the last century. We know now that this task was hopeless for anybody, however gifted; it was simply impossible then to stem the tide of an universal disgust, swelled by an injudicious overfeeding of the curiosity of an imitating public. But the manner in which he tried his hopeless task is worthy of record. He approached his subject scientifically, and tried in two masterly papers to give a theory of this instrument, based on the supposition that the degree of convergence of the axes of the eyes has little or no effect upon the apparent *absolute* distance of the object observed. Not even at that period, the beginning of the sixties, when scientific men of acknowledged position still took an active interest in the stereoscope, are—as far as my knowledge goes—many papers extant which could be very well compared with his two series. He seems to have stood alone when he pointed out a remarkable error into which Sir David Brewster had fallen: a remarkable error, as three scientists of note, A. Claudet, Sir David Brewster, and H. Helmholtz, had independently altered



ROBERT HENRY BOW, born at Alnwick, January 27, 1827.



their originally correct opinions as to the same (erroneous) conclusion.

When, towards the end of the sixties, the general interest in photographic subjects slackened, R. H. Bow also turned to different topics, but he was easily brought back to photographic questions. An instance is given by the active interest he had in, and the new ideas he worked out for anamorphic photographs, where length and breadth of the original are reproduced on different scales.

His last work, done a little more than a year ago, was on an astronomical subject; he devised a very practical and useful star chart to enable the amateur astronomer to immediately point out the place of a planet with reference to the different well-known groups of fixed stars.

The authorship of the present article shows that in R. H. Bow's case, too, the old saying holds good, no man is a prophet in his own country. It is certainly a pity for both parties, and I for one should heartily wish to give up my place of biographer to a countryman of his. But as it is, these poor words ought to stand as a small token of my gratitude for much kindness I have received during the nine years of our acquaintance. By a

happy chance, it is nine years to a day on his birthday that—having discovered his address—I wrote to him and sent him an historical article of mine on distortion, the principal contents of which were an exposition of Bow-Sutton's law. As his paper had been written in 1861, I had, in composing my article, not the slightest doubt that the author had long since been called to his fathers. From that time we have kept up a steady correspondence, principally on optical subjects, and it has been my good fortune to enjoy his hospitality, to see him in his hale and hearty old age, to discuss different topics of scientific, political, and literary interest. If anything was wanting to crown our connection, it was Mr. Bow's personal acquaintance with the late lamented Ernst Abbe, with whom I have sometimes discussed my friend's merits. But Mr. Bow's great age was naturally an obstacle to a meeting between the two.

I have nothing more. We will all wish that many years more may be his lot, with the strength of mind and body to enjoy them, and will do our utmost to impress his name and a knowledge of his work on our friends and pupils.

MORITZ VON ROHR.

## ADVERTISEMENT PHOTOGRAPHS AND CHILD MODELS.

THE photographs reproduced in our issue of January 4, by courtesy of the S. S. McClure Company have brought us an extract from a recent issue of the *American Printer*, in which is an account of the photographer, Mr. A. B. Phelan, to whom was entrusted the task of producing them in response to the request of McClures to provide a graphic representation of *McClure's Magazine* as "The Market-place of the World." The photographs, as our readers will not need to be told, are made up by pasting together prints of a large number of detached scenes. Mr. Phelan claims no originality as to "composite" photography, except that he has harnessed the idea and directed intelligently towards useful ends. It may be interesting to quote what the *American Printer* and the McClure advertising management think of the photographs. Our contemporary, which may be regarded as an authority in illustrative advertising, says:—

"Doubtless this is but the initiation of a new art feature in the illustrative world, at least in the advertising field, and the writer looks confidently forward to many elaborate and skilfully executed designs of this peculiar kind in the early future, from the office of McClure's, where this idea has been so fully developed.

"The advertising manager of McClure's himself is enthusiastic on the subject, and holds a decidedly favourable opinion as to the power of the composite, elaborated as it is and is to be, in firmly fixing in the mind of the public the fact that *McClure's Magazine* is 'The Market-place of the World.' This statement is not used merely as a catch phrase, but thoughtfully, and after due consideration. He says: 'That Mr. Phelan has been able to visualise an ideal by that most realistic of all arts—photography—so that the picture conveys the unreal by photographing the real, and at the same time conveys an actual truth, is his great "feat."'

"The advertising pages of *McClure's* treated as a great market-place is a fantasy, and yet in its broadest sense it is "The Market-place of the World." Now Mr. Phelan has visualised the fantasy so as to convey the reality more strongly and in such a way as to fix it more firmly in the minds of our readers than could possibly be done in words. This is his 'feat.'"

The professional advertisement photograph is more often

seen in the American magazines than in those in this country, and it may be of interest if we reproduce two, which we find



A Photographic Advertisement of Jaenicke's Inks.

in the current issue of a leading printing journal, the *American Printer*. The "Street Scene" is one of a series of advertise

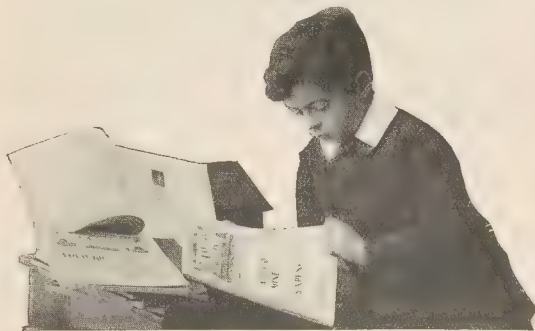
ments of Jaenicke's inks, each representing an incident in the travels of the big man in search of information about Jaenicke's inks. The first of the series had shown him en route to New York by railway, but no railroad car serving to accommodate him, he is stretched full length on the top of the train.

The other advertisement (of the necktie) is a selected example of similar work, though the reproduction on this page, which is from a half-tone, falls a good deal short of the original.



'A Striking Necktie Advertisement

In reference to the same subject of photographic advertising, Mr. Hamilton Smith, of Devizes, sends us an example of a photographic cover design made by him for the *Caxton Magazine*, to which was awarded a gold medal in a competition for designs recently held by our contemporary. The design, which, by Mr. Hamilton Smith's kind permission, we reproduce herewith, has no special reference to the printing craft, and in this respect



An Advertisement Photograph by Hamilton Smith. Awarded First Prize in the Caxton Magazine Competition.

is all the better from the photographer's point of view, inasmuch as the same subject can be offered to different firms in various distinct trades. Mr. Hamilton Smith sends us a circular showing his design being very effectively used to advertise boys' clothing. Mr. Hamilton Smith also allows us to reproduce a photograph, by himself, which may have caught the eye of some of our readers, as a showcard of the Kodak Co., by whom

it has been used for this purpose. The photograph is a good example of the effective use which can be made of very simple accessories and models, and is an answer to the objection which is made to advertisement photography, that the cost of models



Advertisement Photograph by Hamilton Smith.

runs away with the profits. Still, the objection does apply in many cases, and the professional advertisement photographer finds it pay to secure the services of practised models, among which, children, as well as adults, are to be found. In this connection the experience of a New York photographer, published in *Wilson's Magazine*, may interest those whose intentions are in the direction of this special branch of photography: "Beauty is, of course, the primal requisite. While the infantile type is preferred by many, the piquant child has many admirers.

"Girls, particularly blue-eyed tots with curly golden hair, snub noses, dimples and round chubby faces, are eagerly sought, as they make pretty angel heads and are particularly adapted for ideal pictures for art and commercial purposes. They must be plump.

"Little girls with straight locks haven't the same chance of getting employment as those with ringlets. To some children posing is as natural as breathing. They fall into graceful postures very easily. Others are naturally awkward, despite their pretty faces and winning ways.

"As to the remuneration which these little artists receive, it varies to no great extent from that received by their older sisters in the business. An hour's posing generally brings from \$1.50 to \$3, and after an hour's work the average child is generally too tired to sit longer.

"It is understood that the children shall furnish their own costumes, unless it is a character costume, in which case, perhaps, the professional costumer will be called in. Most of these children have good wardrobes of simple, dainty gowns, used expressly for professional engagements. But the other day a dirty, but undeniably pretty Italian child, was brought in here by someone who picked her up in the street.



"A very soiled and ragged cotton dress barely covered the little one's nakedness, but there was a charm about the kid that was simply irresistible, and so I took her just as she was. The picture will be used for a dyeing and cleaning establishment, and it will be a winner, if I mistake not. But that is the exception that proves the rule, of course.

"I am besieged with applications from mothers who wish me to use their children as models, and while some of the children, nearly all of them I might say, are pretty in their own childish fashion, few of them are sufficiently artistic or picturesque to be made use of. If a child possesses those qualities, and in addition can take poses naturally and prettily, there isn't a doubt that she can find plenty of work.

"If a mother has a child of whom she wants to make a model and the little one is of a nervous temperament, I should first advise that the child be put through a course of gymnastics or

physical culture until she gets hold of herself, and is able to control her muscles and nerves. Exercise of this sort is an aid to grace, and makes posing less tiresome.

"Most children love to pose, and I have frequently seen children cry when it was time for them to leave. Others sometimes have tantrums when asked to sit before the camera, and it is only after all sorts of promises of candy, toys, and the like, that they will consent to pose.

"Child models reach the awkward age the same as other children, and one of the most pathetic sights I have ever witnessed was when one of these children, after having posed successfully for half a dozen years, finally reached the hobbledehoy stage, when to assume a graceful attitude was manifestly impossible, and poses that once were simple and pretty were difficult to assume and ugly to reproduce, because of the consciousness of the child."

## RENAISSANCE OF PORTRAITURE BY PHOTOGRAPHY.

[The following article by Mr. J. C. Strauss of St. Louis, a collection of whose photographs is now being exhibited, with those by other American professionals, in the "little gallery" at the BRITISH JOURNAL Offices, will doubtless be read with interest by all who have followed the career of the talented writer, or are taking the opportunity which is now offered of seeing some examples of his current work. The article is from a recent issue of "Wilson's."]

SINCE the earliest times the visible object of greatest interest to humanity has been the human face and form. Attempts at picturing man were among the first efforts towards reproducing the images most deeply impressed upon the mind. These crude representations not only excited interest, but by degrees became the object of admiration and veneration. Man often could find nothing worthier of his worship than images of himself. This worship developed to such an extent that one of the first and most important laws, at the very base of our present civilisation, forbade idolatry—the ascribing superhuman and supernatural powers by man to images or pictures of himself. The Greeks had no brighter laurels or higher honours than for the sculptor and painter, who most beautifully portrayed, in canvas or in marble, the features and form of man and woman.

This condition could not have existed had not the great masses been peculiarly and deeply interested in and attracted by reproductions of the human face and body. While the masses, from the dawn of history onward, have always admired pictures of people, and taken advantage of opportunities to view them, it was not until the advent of photography that personal possession of portraits came within the possibilities of others than the wealthy and powerful.

### The Obsolete Album.

The family album full of cabinet "photos" was, for a number of years, one of the favourite themes for jests by the paragraphers of the papers. They forgot, or probably never knew that an interest in the pictures of people is almost as historical, as universal and as natural as breathing.

With all the other attractions and diversions of a metropolis, a recent exhibition of photographs at the Chicago Art Institute was visited by over 55,000 persons, "the highest attendance for the same period of time in the history of the institution," says a Chicago periodical.

Aside from electricity, no other development of the last six decades has become such an important factor in the daily life of the masses, as is applied in so many and to such widely diversified uses, as photography. It enters by numerous channels of greater or less importance into almost every phase or aspect of human endeavour. It is essentially an element to be considered whether one's activities are in any of the paths of art or of science, of mechanics or of commerce, of literature or of recreation.

Photography has become practically an omnipresent element in our civilisation.

As applied to portraiture: Photography may now be said to be in its renaissance. Its earliest development, that of the daguerreotype, had a distinctive art element because of the individuality of the pictures. There were no duplications. The then known processes required a degree of skill on the part of the maker and

a length of time to secure results which of necessity made the portrait one free from faults of the mechanical prints which followed as the processes were made simpler. As, year after year, the manipulation of plates and papers became more easy, the photograph departed from the higher qualities of the daguerreotype and the evidences of machinery and the tendency towards commercialism increased. The descent was rapid and deep. The first downward step was taken when quantity became the important factor, and instead of individual pictures, repetition and duplication set in.

### The Baneful "Dozen Price."

He who first proposed that photographs should be sold by the dozen, just as eggs or socks, pointed out the path which led to the discrediting of camera portraiture, inviting the scorn of the artist.

Canvases painted over with impossible landscapes for backgrounds, and papier maché moulded into ungainly accessories, followed. Certain stilted, conscious posings of subjects became the rule, and naturally pictures made by any one photographer were such a close resemblance to the work of all others that it made but little difference which "artist" was patronised, the finished product was just about what would have been obtained had some other "studio" been visited.

Pictures by some of the best-known photographers, even those of New York City, could be recognised by the scenery and furniture because of the constant recurrence of the same pieces in their work. The standard conception of art was a face modelled like a cheap china doll. Each was smooth, puffed, and rounded without a line of character, and the skin as white as a new paper collar.

### A Revolution in Methods.

One of the first changes of infinite relief to sitters was the abolition of that instrument of torture, misnamed a "head rest," but in truth a vice which chilled the marrow of the subject. Next the papier maché settees, balustrades, and fences were converted into kindling wood. The snow-capped mountains, the unending meadows, and the tremendous waterfall were thrown into the ash heap. The little card stuck on a pole, towards which the victim must look pleasantly, was "fired." The constrained, affected poses were abandoned. The relative difference in various shades of colour were considered. The over-retouching which left faces blank, putty-like lumps was rejected. The stupid method of making pictures of different persons, or of the same person in different poses, accommodated themselves to a predetermined size or shape of mount, was abandoned. This revolution of method, this endeavour to educate out the wrong conception and to teach correct principles has taken years to reach its present status, where connoisseurs and critics admit the art element and value in camera portraiture. Necessarily much

misconception remains, and the enlightening movement advances but slowly.

The repetition of backgrounds, the conventional, theatrical poses, the harsh contrast of black and white, the removal of lines of character, the uniformity of size, governed by mounts—these are some of the well-known features of the photograph which are still too prevalent.

#### The Study of Subtle Tones.

The photographer who really has an earnest desire to make his work something more than a mechanical impression or map of the subject, gives to each print leaving his hands the stamp of individuality. The materials selected are such as will lend themselves to the desired colour tones and yet possess absolute permanence. Each impression receives individual chemical treatment—this in sharp contrast with the ordinary photograph of which hundreds may be treated in a mass. The background in each plate is essentially different from that on any other, being sketched by hands skilled in artistry—thus the background harmonises with the subject and is in accord with the lights and shades of the portrait,

making a pleasing general effect or ensemble. The size and shape of the portrait is also a matter of considerable study, no two poses being treated identically. The form and dimension are made to adjust themselves harmoniously to the picture—so also with the colour; instead of harsh contrast of light and shade there is a gentle gradation with truthful regard to their relation in life. Where the white lace falls upon the wrist of a lady there is a difference of many shades between the flesh tone and that of the lace. In the photograph it would be false to make both appear alike, or nearly so.

And so on in each and every distinct detail of true portraiture by photography, the one trait ever present is individuality. Just as no two persons or faces are identical, the portraits should vary.

To secure this individuality of treatment requires trained assistants, having an artistic temperament, in all the departments of a photographic establishment. Such a portrait as is here contemplated evidencing the artist touch throughout can be obtained at a cost but little greater than that of the stereotype description. But when it is received it measures up to the highest standard—"a thing of beauty, a joy forever."

J. C. STRAUSS.

## PHOTOGRAPHY FOR HISTORICAL PURPOSES.

[In continuation of the article which appeared last week on the emanated from Brussels, we publish a paper from our Berlin contemporary, "Die Photographische Industrie," which deals, as we think, with a more possible solution of the problem of placing at public and private

suggested scheme of photo-micrographic reproduction, which has been suggested by the German photographic industry, which deals, as we think, with a more possible solution of the problem of placing at public and private collections.—EDS.]

A PHILOLOGIST has just written a book on the value of photography to science; that it is a good book will be at once obvious from the author's name, Dr. Karl Krumbacher, Professor at the University of Munich. The lessons, which are the results of the author's many years' experience, appears to us to be so important for the manufacturer and dealer, that we must consider them more closely.

The problem set is a triple one: the manuscript and book treasures ranging from a period of over two thousand years, and scattered throughout innumerable libraries, are constantly exposed to the danger of destruction. Turin and San Francisco are two examples. Transcripts of the most important of all writings are, in the case of destruction of the original, of but little value;—photography only can supply the substitute; the most important works must, therefore, be reproduced as faithfully to the original as possible and the originals kept in other places. Comprehensive philological and historical work are only possible after the collection and sifting of innumerable materials. Countless transcripts of works, which are distributed all over the world, must be made for this. The work will thus extend over years and decades, if the searcher wishes himself to take all available transcripts. Old philological information, the introduction of historical research, is only to be advantageously gained first hand from the old works themselves, or from faithful reproductions. A draughtsman's copy can never be absolutely satisfactory.

In all these cases photography, and only photography, can be of actual assistance; and then only if it can be cheaply worked, for it means in all cases a very large number of exposures. The professional photographer can never satisfy this requirement; to entrust priceless originals to him is not advisable—Krumbacher reports some hair-raising cases. If he is to make the exposures away from his studio, he must charge so much that his help would be worthless. The investigator is, therefore, forced to do his own work, and requires, to be able to do it, the support of the manufacturer and dealer.

An enumeration of the requirements of the investigator will make this clear.

Generally a copy is required of a great number of pages; it is therefore desirable, on account of quickness and cheapness, to work so that the negative can be used as the final image; that it is reversed as regards light and shade is of no moment, for one can frequently read the letters more easily if it is so; only the negative must be on paper, and ought not to be laterally reversed. The arrangement which was suggested by Grafflin in 1900 would answer these requirements; the book or manuscript to be reproduced is laid flat on a stool or low table, and, if necessary, a sheet of glass

laid thereon to keep it flat, and now photographed with an ordinary bellows camera with a reversing prism in front of the lens. For the negative a kind of film magazine<sup>1</sup> provided with rolls of bromide paper should be used; with this arrangement from one hundred to three hundred negatives can be made in a day.

Up to the present, however, manufacturers have not entered upon this branch. The existing arrangements are defective and too dear, and quite a simple bellows camera is wanted, which when set up on a firm stand will not alter its position when a full dark slide is inserted. A magazine roller slide, which can take sufficient paper for twenty 7 x 5 or 9 x 7 exposures or more, an outside and easily read recorder, and a sharp marker to differentiate between the various exposures, should be fitted. Another requirement is that the rolling up should be effected without any great strain on the paper, and that everything should be firmly constructed.

No particularly great stress need be laid upon the lens; this would always be used with small stops, so that a good applanatic lens, preferably an anastigmat, working at  $f/8$ , would suffice.

The most ticklish point is the reversing prism. Must this be actually as dear as it is, considering that it is not to be used for delicate industrial reproduction work, but only for the special work herein outlined? Reversing with mirrors should be taken instead of prisms.<sup>2</sup>

The way in which the negative material is supplied is very unsatisfactory. The paper must be wound on the rollers by the operator himself. It would be necessary for the paper to be supplied already rolled and packed so that it can be used like the daylight loading film cartridges.

The taking of manuscripts on a yellow or brownish ground gives no satisfactory results according to Grafflin's process, as the bromide paper used is not sensitive to yellow. Krumbacher says "the trouble may be overcome either by using orthochromatic plates or yellow screens," and bewails the fact that "an important difference between negatives taken without the yellow screen and with the longer exposures could not be recognised." This is however easily explained, as prolongation of the exposure and the use of yellow screen does not give an orthochromatic rendering on monochrome sensitive films. It would be necessary to prepare yellow

<sup>1</sup> The old roller slide, as was first used for negative paper, and later for cellulose films, would of course be the best thing to use.—EDS. B.J.

<sup>2</sup> An arrangement of this kind is figured on page 729 of the ALMANAC, 1907. It suggests that the reproduction of old MSS., palm-leaf MSS., etc. is not as delicate as ordinary industrial reproduction can hardly be endorsed. Certainly, in some cases such as in old Arabic, Persian, Hebrew, and written characters of like nature, the work is more delicate.—EDS. B.J.



sensitive bromide paper. That this is possible is proved by the publications of Andresen and Ruzicka ("Eder's Handbuck," fifth edition, p. 764, et seq.), who sensitised bromide paper with rhodamine, so that it possessed a maximum of sensitiveness in yellow near the D line.<sup>3</sup> This, again would be a thankworthy matter for the maker.

One possibility Krumbacher did not see, and that was the use of negative paper instead of the ordinary bromide paper. The advantages of this are in the greater sensitiveness of this paper and the possibility of taking contact prints from the negatives if required, as the specially thin paper permits of easy printing, which is not the case with bromide paper.

For specially difficult cases one would naturally use ortho or panchromatic plates with a colour filter and without a reversing prism, and the camera could be arranged with its axis vertical by means of one of the cheap ball-and-socket arrangements.

The exposure of the paper must be so estimated that the development can be pushed to its end, and not be stopped prematurely; absolute pure whites and deep blacks will be obtained rather by too short than too long exposure. Of all developers ferrous oxalate will alone give perfectly satisfactory results in all cases. Thorough fixation to avoid subsequent trouble will obviously be necessary.

Krumbacher has some valuable notes as to the advantages of the various photomechanical processes for the preparation of charts for paleographic works. Photogravure and photolithography are not capable of competing. If the test without the ground is to be reproduced, then the simple zincography is the cheapest and gives extremely clear results. Collotype reproduces all the details of the original; but, assuming that a thousand pulls (10½ x 7 inches) are required, it is about four times as dear. The half-tone and the new Spitzertype processes are about the same in price—that is, about double that of zincos; they are neither free from faults, however; the half-tone screen destroys the finest details. Spitzertypes give brilliant and sharp pictures, which are, however, false in the middle tones, so that they are hard and scratchy. In every case, to select the process which shall be satisfactory requires much consideration.

Rapid machine printing of bromides does not appear to have been taken into account by Krumbacher; if this cannot compete with the three cheaper processes, it certainly can with the dearer collotype, which it surpasses as regards clearness and richness in the finest details.

Is any clearer enunciation required of what is wanted for photo-historical work? There is no apparatus, no negative material, and no slides for this work. There exist only the innumerable manuscripts, which should be cheaply reproduced, and the experts who sadly need such reproductions, and who, by their absence, must lavish enormous amounts of time and money.

To make—and make cheaply—such apparatus and material should be the task of the manufacturer.

To introduce these with corresponding urgency everywhere that the need of them may be expected, to the superintendents or administrators of every library and museum, should be the remunerative task of the dealer. For this class of work he could hire out the necessary apparatus, and develop the rolls of paper. Above all things he may be sure that where there is continued need of such work, and the apparatus has been proved to be efficient, it will be bought; for it belongs undoubtedly to the collection of every teaching chair of paleography, diplomacy, archaeology, and history, as well as every public library.

The Manchester Amateur Photographic Society has just issued its annual report, which discloses a very satisfactory state of affairs. The membership has increased, there is a substantial balance in hand at the bank, and the year's work in general indicates a high standard of efficiency and continued progress.

<sup>3</sup> The author is completely at fault here. Andresen's suggestion, which was made at the Congress for Applied Chemistry, held in Vienna in 1893, was for preparing a colour-sensitive and print-out bromide paper for the photometric or actinetric purposes, and had nothing whatever to do with developed bromide paper. Andresen's suggestion was to bathe raw paper in potassium bromide solution, dry, float on silver nitrate solution, wash, and immerse in sodium nitrate solution to which some rhodamine B was added. Ruzicka ("Wiener Kilnische Wochenschrift," 1902, p. 637) used Andresen's paper, but coated it with auramine dissolved in collodion, and thus estimated the visual luminosity of the light. For negative work, precisely the same methods, either by bathing or adding the dye to the emulsion, must be followed, as in the manufacture of films or plates.—FHS.B.J.

## Photo-Mechanical Notes.

### How to Correct Screen Distance Scales.

MM. H. CALMELS and L. P. Clerc described in a recent communication to the Société Française the following method for checking the graduated scales engraved on process cameras. A stop is cut (as shown in Fig. 1) with two small holes which are on a diameter parallel to one of the lines of the screen and at equal distances from the lens axis. The distance from centre to centre of these holes should



Fig. 1.

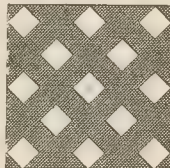


Fig. 2.

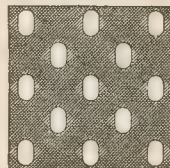


Fig. 3.

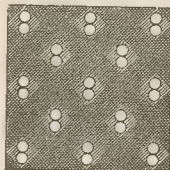


Fig. 4.

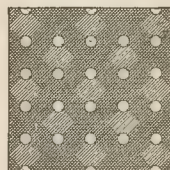


Fig. 5.

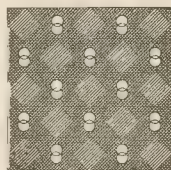


Fig. 6.

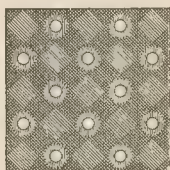


Fig. 7.



Fig. 8.

be about one-sixteenth of the focus of the lens. The screen should be placed at the maximum distance, the camera focussed sharply on some document placed on the copy board, and then a sheet of white paper, illuminated as strongly as possible, should replace the document. The special stop described above should then be inserted, and the screen racked back as far as possible. If there was contact

between the plane of squares and the focal plane, the ground glass would have the appearance of a series of squares (fig. 2). As a matter of fact, in consequence of the separation by the thickness of the glass between the engraved surface and that of the screen supports, the ground glass presents a series of oblong luminous spots (fig. 3).

If the screen is very slowly separated from the ground glass there will be seen two luminous spots (fig. 4) corresponding to the transparent parts of the screen, which become progressively separated one from another (fig. 5) in proportion to the increase in the distance of the screen, till two spots corresponding to two neighbouring clear spaces begin to coincide (fig. 6). We will call this position of the screen the first position of coincidence.

Continuing to increase the distance of the screen, the two spots corresponding to each screen space get farther and farther apart. The coincidence thus ceases until for a given distance a new coincidence is established between the spots corresponding to two screen spaces separated one from the other by a clear screen space: this is the second position of coincidence (fig. 7).

It is easy to calculate that the distance which separates the two positions of coincidence is equal to that which at the time of the first coincidence separated the actual screen plane from the focal plane.

Considering fig. 8, in which the distance of separation of the screen are considerably exaggerated for the sake of clearness, there are represented:—

$d$ , the distance from centre to centre of the two apertures of the diaphragm;

$t$ , the extension of the camera, measured from the diaphragm or its image;

$l$ , the sum of an opaque and transparent space of the screen;

$e$ ,  $e^1$ , the distances between the actual screen plane and the focal plane in the first and second positions of coincidence.

From elementary geometrical considerations based on the similarity of triangles we have for the two positions of coincidence, the ratios.

$$(1) \quad \frac{t}{d} = \frac{e}{l}$$

whence

$$(2) \quad \frac{t}{d} = \frac{e^1}{2l}$$

$$e^1 = 2e$$

Supposing, for example, that the index of the screen gear had marked on the divided scale 2 mm. for the first coincidence, and 7 mm. for the second, the distance between the two positions of coincidence being 5 mm., this number also measures, in the first position, the effective distance between the screen planes, and we know consequently that all the distances read upon the scale ought to be increased by 3 mm. every time that the screen tested is used, and that the same slide should be next the dark slide, the two faces being easily distinguished by the maker's mark engraved on one of them.

#### Resin-Gr in Half Tones.

A process in which a selective grain is distributed over a print metal intended for the production of a photo-engraving has been patented in this country by Messrs. Klimsch and Co., of Frankfurt. The process, as described in the specification, No. 27,158, 1905, consists in applying to the printed, but undeveloped plate, a solution of resin in a volatile solvent, and it is of the highest importance that the temperature of the plate and the humidity of the atmosphere in which the application of the volatilisation take place shall remain perfectly constant. These operations are, therefore, done in a box, which is maintained under standard conditions in these respects.

The box must be made rather large, as otherwise the vapours emanating from the resinous solution during evaporation would have a harmful effect on the formation of the grain. The production of the grain when volatilising the solution on the sensitised plate is dependent upon a series of conditions such as the degree of exposure, the quality and quantity of the resin, the quickness of the evaporation, etc. Variations of these conditions would change the character and arrangement of the dots, so that it is of utmost importance to keep the conditions perfectly constant.

Immediately after the grain is produced the plate may be etched by means of dilute nitric acid or other suitable etch, and the plate then gummed and treated in the usual manner. Instead of etching the

plate directly after the grain has been produced, the chromate salts may first of all be washed out of the coating. To sensitise the plate there may be used besides the chromated albumen other sensitised organic substances such as gelatine, glue, fish-glue, gum, etc.

The coating producing the grain may be composed of other substances besides common resin, such as mastic, elemi, sandarac, amber, gum damar, gum copal, asphaltum, dragon's blood, shellac, fir-resin and sundry balsams; also greases, oils, etc. These substances can be used according to the circumstances, pure or mixed suitable dissolving mediums being used.

Instead of the alcoholic solution of resin there may be used with good results a mixture of petroleum, ether, and alcohol; it is advisable, however, to subject the former to a partial distillation and use always the same proportions. Nearly all the ingredients added to the sensitised coating or to the resinous solution have a certain influence on the formation, even if the substances added can be considered as neutral or of having little effect. It is impossible therefore to enumerate here all the ingredients which may be added and the effect they will have on the sensitised plate. Special attention is drawn, however, to the following points:—Calcium chloride added to the resinous solution produces the eliminated dots in the light parts of round shape and spaced at large distances apart. Turpentine, according to the quantity used, results in a close shading being obtained in the formation of the grain, and a round grain in the light parts.

Alkalies, especially ammonia, cause a better adaptation of the grain to the tints of the copy. An increase of the concentration of the resinous solution gives a coarser grain, which result can also be obtained by varying the speed of the whirler upon which the plate is placed during the evaporation of the resinous solution. It is obvious, therefore, that by varying the concentration of the solution, the ingredients used and the speed of the whirler, the operator is able to obtain any fineness of grain desired. The process is applicable to every method of printing, and is of special advantage in colour printing owing to the fact that the grain is not arranged according to a system of lines and all production of "moiré" being entirely excluded.

## Exhibitions.

### LIZARS' £200 EXHIBITION.

THE exhibition now open in the Royal Institute of Fine Arts, Glasgow will undoubtedly do much to attract attention to photography, and as such will no doubt act for the betterment of photography as a profession and as a hobby.

The eighty-seven prizes offered have drawn forth 800 prints, and these are arranged as well as can be expected, considering their varied quality. There is undoubtedly some very beautiful work, though some of the entries make one wonder if their perpetrators ever saw an exhibition; but even if they had not done so, one would have imagined that the educative influence of the photographic Press, illustrative as much of it is, would have taught them the main necessities of a picture, but evidently there must be some who—terrible thought—read not photographic papers.

The judges—Sir Francis Powell, President of the Royal Society of Painters in Water Colours; Sir John Ure Primrose, Bart., President of the Scottish Photographic Federation; and Mr. C. F. Inston, F.R.P.S. have, in the words of one of the evening papers, made their awards "on the principle that the photographs must be 'straight photographs,' without fake." Then the erudite pressman adds: "A highly satisfactory principle, when it is to be remembered that in the past, first award gold medals have been known to be won by prints taken from the back of a negative." The above critique shows a sadly debased conception—the back of a negative, forsooth!—of the high and lofty aims of the impressionist school.

Mr. W. S. Crockett, hon. president of the Glasgow Eastern, a well-known worker, gains the premier award, £20, with a picture of Sterling Bridge, while hard behind comes Mr. Dan Dunlop, Motherwell, gaining second prize (£8) with one of his birch pictures. 'Twere tedious to endeavour to detail the eighty winners, but one could not but be struck by the fact that many winners of the past had been backseated—pictures that had gained sheaves of awards were "sent empty away."



The only professional to take advantage of the opportunity and draw the attention of the many visitors to his work was Mr. Warneke, who had a strong display which ought to result in an acceleration of business. The business man always takes advantage of these advertising changes.

As is natural, Lizars' Challenge camera in a many forms occupies a prominent place in the show—as it is the cause of the pictures, it is only meet that it should receive an honoured position.

The advertising scheme is a big one, but the firm of Lizars has tried the same before, and no doubt the results on that occasion were satisfactory, or the project would not have been repeated.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between January 7 and 12:—

**COLOUR PRINTS ON WOOD.**—No. 394. Process or means for obtaining single-colour or polychromic direct impressions on wood. Ernest Jozs, 37, Essex Street, Strand, London.

**CHANGING BOXES.**—No. 480. Improvements in photographic change boxes. George Russell Nicholls, 48, Crescent Road, South Norwood Park, London.

**COLOUR SCREENS.**—No. 495. Improved method of producing three-colour screens for colour photography. Robert Krayn, 33, Cannon Street, London.

**FILMS.**—No. 524. Improvements in or relating to apparatus for the development of photographic films. Kodak, Ltd., Chancery Lane Station Chambers, London. (Robert Kroedel, United States.)

**CAMERAS.**—No. 561. Improvements in photographic cameras. Henry Hartley and William Henry Bayliss, 11, Burlington Chambers, New Street, Birmingham.

**CINEMATOGRAPHS.**—No. 623. Improvements in transmission mechanism for apparatus used in taking or reproducing animated and other pictures. Henri-Louis Huet, 53, Chancery Lane, London.

**DISHES.**—No. 638. Developing and washing dish (photographic). Charles Davis, 117, Warwick Street, Leamington Spa.

**FRAMES.**—No. 747. Photographic printing, vignetting, and speed-testing frame. Robert William Wilson, The Stead, Windy Nook, via Gateshead-on-Tyne.

### COMPLETE SPECIFICATIONS ACCEPTED.

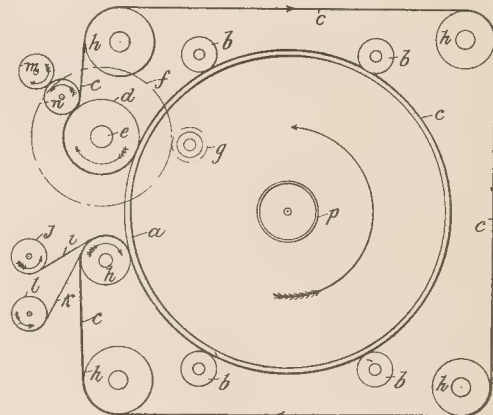
*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**PRINTING MACHINE.**—No. 26,740, 1905. The invention consists of a cylinder machine for copying tracings. It consists of a glass cylinder open at the ends, inside which are mounted the electric lamps, mercury vapour tubes, or other suitable artificial light. The cylinder is surrounded almost completely by an endless band, such as the travelling blanket arrangement commonly employed in calico printing. The tracings to be reproduced are fed with the sensitised material between the endless band and the cylinder, so that all three travel together round the surface of the cylinder, which they rotate by contact, and the printing sensitised material and tracings are then led from the endless band preferably on to separate batch rollers.

In the figure—*a* designates the glass cylinder which may be of any suitable length and diameter.

The cylinder *a* is mounted upon any suitable number of anti-friction bowls or rollers *b* so as to be free to rotate thereon. The endless band *c* of blanket cloth or other suitable material is driven by a roller *d* fixed on a shaft *e* driven in any convenient manner, as, for example, by a spur wheel *f* and a pinion *g* on a shaft which may be actuated either by hand or power. The endless band *c* passes almost entirely round the surface of the cylinder *a* and is supported on guide rollers *h*, all or any of which may be adjustable so as to regulate and maintain the tension on the endless band *c*.

The tracing *i* to be reproduced is led from a batch roller *j* and the sensitised material *k* from a batch roller *l* and passed round the surface of the transparent cylinder *a* between it and the endless band *c* with the tracing next the cylinder, and are taken finally to two separate batch rollers *m n* upon which they are wound respectively as they leave the cylinder. The pivots of the rollers *m n* are supported upon inclined arms, not shown, one at either end of the rollers, so that the roller *n* on which the tracing *i* is batched lies in frictional contact with and is rotated by the endless travelling band *c* and the roller *m* on which the printed sensitised material is batched lies in frictional



contact with and is rotated by the tracing on the roller *n*. The lamp *p* is placed inside the transparent cylinder *a*. When the endless band *c* is set in motion by the rotation of the roller *d* the tracing *i*, the sensitised material *k*, and the transparent cylinder *a* all move together at the same surface speed, and the material *k* is printed with the impression of the tracing by the action of the rays of the light within the cylinder. After printing the material *k* is wound upon the roller *m* and the tracing *i* upon the roller *n* as they leave the cylinder, while the endless band *c* continues to travel over and under its guide rollers *h*.

Instead of driving the cylinder *a* by frictional contact with the endless band *c* only, it may be geared so as to drive it at the same surface speed as the endless band. William Mycock, Worsley Street Engineering Works, Salford, Manchester.

The following complete specification is open to public inspection before acceptance:—

**COLOUR PHOTOGRAPHY.**—No. 194, 1907. Manufacture of screens for use in colour-photography. Du Hauron and De Bercegol.

## New Trade Names.

**ORTHOCHROME.**—No. 288,475. Plates included in Class 1, prepared for photographic purposes. The Imperial Dry Plate Co., Ltd., Ashford Road, Cricklewood, London, N.W. Manufacturers of photographic materials. December 3, 1906.

**HAZEET.**—No. 288,534. Chemical substances used in photography. Cyril Thurland Thonger, 14, Cape Hill, Birmingham. Manufacturer. December 5, 1906.

**THE ILFORD RAPID ISOCHROM PLATES** (including design of label).—No. 288,397. Photographic dry plates. Ilford Ltd., Britannia Works, Roden Street, Ilford, London, E. Manufacturers of photographic plates, papers, and films. November 29, 1906.

**ISOSTIGMAR.**—No. 288,362. Photographic lenses included in Class 8. R. and J. Beck, Limited, 68, Cornhill, London, E.C. Manufacturing opticians and photographic dealers. November 28, 1906.

**PEARLOTYPE.**—No. 288,468. Photographs. Thirlwell and Co., 21, Bridge Road, Stockton-on-Tees. Photographers. December 1, 1906.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Drapery in Portraiture.

Not every sitter (says Mr. S. Elwin Neame in "The Photographic News") is suitable for this style of work. The features must be good, the eyes large and expressive. The hair should be dressed in a simple style or allowed to hang loosely over the shoulders. The advantages obtained when the sitter possesses shapely shoulders and arms is very great, and the photographer should give as much consideration to the pose of these members as he gives to the pose of the head. Do not attempt to arrange any drapery until the pose of the sitter gives thorough satisfaction; at the same time remember that every possible rest for the head, body, and arms should be accorded to her. Let us sum up with regard to the principal points of this method of portraiture. They are as follows:—

- (1) The accessories required are so few.
- (2) The long sweeping lines so useful in giving strength and simplicity to a picture are easily obtained.
- (3) By using one long length of drapery continuity of line is assured.
- (4) Repetition of line can be introduced by the folds of the drapery.
- (5) The entire composition being under the control of the operator, the scope for originality is unlimited.

Can any other branch of photography claim to have so many points in its favour and yet suffer such neglect?

### The Straight and the Modified Print.

You will say (says M. Robert Demachy, writing in "The Amateur Photographer") that the practice of intervention is dangerous. Not more so than the use of straight photography for pictorial aims. This may sound paradoxical, but I believe it is just as useless for a man to attempt art through purely mechanical means, as it would be foolish for an astronomer to choose gum-bichromate for printing the chart of the Milky Way. Do not say that Nature being beautiful, and photography being able to reproduce its beauty, therefore photography in Art. This is unsound. Nature is often beautiful, of course, but never artistic *per se*, for there can be no art without the intervention of the artist in the making of the picture. Nature is but a theme for the artist to play upon. Straight photography registers the theme, that is all—and, between ourselves, it registers it indifferently.

### Green Tones on Bromides.

Mr. H. T. Munkman, writing in "Focus," gives the following instructions for obtaining green tones on bromide papers:—

Solution A.	
Potassium ferricyanide .....	6 gms.
Lead nitrate .....	4 gms.
Water .....	up to 100 cc.
Solution B.	
Cobalt chloride .....	10 gms.
Hydrochloric acid .....	30 cc.
Water .....	up to 100 cc.

Immerse the print in Solution A until the image is completely acted upon. This takes a considerable time. The print should next be washed thoroughly, and then treated with Solution B. A bright green image is the result.

ENTRE forms for the annual exhibition of the Worthing Camera Club are now ready, and may be obtained on application to the Hon. Sec., Mr. E. F. H. Crouch, 11, South Street, Worthing. The exhibition will be open from February 25 to 28, the latest date for entries being February 16.

THE Scottish Salon.—The following German and Austrian workers have signified their intention of being represented in the Invitation Section, namely, Messrs. Lützenberg, of Osnabrück; Weingartner, of Leipsic; Müller, of Dresden; Dührkoop, of Hamburg; Erdmann, of Munich; Ehrhardt, of Dresden; and Quedenfeld, of Düsseldorf. We would remind intending exhibitors that January 31 is the latest date for entries for the above exhibition, and that entry forms and full particulars may be obtained from Mr. Robert Milns, Linndate, Potterhill, Paisley.

## New Books.

"The Business Life; or, Straight Talks on Business." By William Gamble. 202 pages; 6½ by 4. London: Sir Isaac Pitman and Sons. 1s.

To-day Messrs. Pitman add to their extensive series of volumes on business topics the above collection of short "talks" by Mr. W. Gamble, the genial manager of the well-known photo-engravers' supply house, Messrs. A. W. Penrose and Co. Many of the chapters have appeared in Messrs. Penrose's monthly, "Process Work," not a few readers of which may have to confess to having skipped them in their eagerness to peruse the more technical pages of that publication. Brought together in a single volume, they are infinitely more fitted for reading, and one can well believe that the publishers are not mistaken in the pressure they put upon Mr. Gamble before he consented to their appearance in book form. Ethics and policy are two large ingredients of the subject matter of these talks. Mr. Gamble preaches as well as advises. We doubt if the sermons are as valuable as the instructions, but there are enough of the latter in the volume to make it of profit to anyone desiring to run "straight" in business on modern lines. We ought to add that the talks are without exception general in character. They are not specially addressed to photo-engravers, otherwise the sermons would have been—but there is no need to say.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JANUARY 25.

Sutton Photographic Club. "Lantern Slide Making." J. W. S. Burmester.  
Loughton Photographic Society. "Crystal Plates." Mr. Goodwin.  
Cardiff Photographic Society. "An Itching Romance." A Member.  
Photographic Society of Ireland. "Auto-Pastel Papers." Rev. R. E. Vernon Hanson.  
Lyceum Photo. and Art Society. "Rotary Papers."

SATURDAY, JANUARY 26.

Aberdeen Photo. Art Club. "Gum Bichromate."

MONDAY, JANUARY 28.

South London Photographic Society. "Enlarging." R. W. Jeffery.  
Southampton Camera Club. "A Dive into Belgium." Illustrated. W. F. L. Wastell, F.R.P.S.  
Blackburn Camera Club. "Up the Rhine with a Camera." G. Butterworth.  
Oxford Camera Club. "Royal Photographic Society Prize Slides."  
Preston Camera Club. "Collection of Slides."  
Derby Photographic Society. Photographs by R. Dührkoop, by permission of the Proprietors of the B.J. "Print Making."  
Bedford Camera Club. "The Photographic Lens." C. P. Goerz.

TUESDAY, JANUARY 29.

Royal Photographic Society. Technical Meeting. "Animated Photography and the Principles of Duplex Projection." Robert T. Haines. "Some Extensions of Van Helmholtz's Work on Stereo-Photography." T. C. Porter, M.A., D.Sc., F.R.P.S.  
Keighley and District Photographic Association. "Mounts and Mounting." Dickinson.  
Hackney Photographic Society. "Ozobrome." Mr. Manly.  
Holmfirth Photographic Society. "Enlarged Negatives and Colour Photography." Rotary Company.  
Stafford Photographic Society. "Copying by Artificial Light." G. E. Hann.  
Birmingham Photographic Society. "A Tyrolean Valley." James Shaw.  
Darlington Camera Club. "Preparing the Exhibition Print." C. J. Barthorpe.  
Holmfirth Photo. Society. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Acton and Chiswick Polytechnic Photographic Club. "Stereoscopic Photography." C. P. Goerz.  
Hove Camera Club. "Ozobrome." F. J. Phillips.

WEDNESDAY, JANUARY 30.

North Middlesex Photographic Society. Technical Meeting.  
Everton Camera Club. "Irish Art." J. M. Dullehan.  
Borough Polytechnic Photographic Society. "The Principles and Practice of Orthochromatic Photography." A. J. Bull.  
Leicester and Leicestershire Photographic Society. "Development of Negative by the Time Method." Harry Quilter.  
Coventry Photographic Club. "Theory and Practice of Self-Toning Papers." John J. Griffin & Sons.  
Southsea Photographic Society. "Theory and Practice of Self-Toning Papers." John J. Griffin & Sons.  
Croydon Camera Club. "Flower and Fruit Studies." Mr. Seymour.  
Woodford Photographic Society. Auction Sale of Members' Apparatus.  
Edmonton and District Photographic Society. "Home Portraiture." W. Deley.  
Batley and District Photo. Society. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Cowes Camera Club. "What Can be Done with a Hand Camera." C. P. Goerz.



THURSDAY, JANUARY 31.

Richmond Camera Club. "Brittany" J. D. Gibson.  
 Liverpool Amateur Photographic Association. "To Venice and Back with a Hand Camera." R. Child Bayley  
 Hull Photographic Society. "Y.P.U. Slides."  
 Leek Photographic Society. Annual General Meeting.  
 Leedsworth Photographic Society. "Printing by the Ozobrome Process" A. E. Teague.  
 L.C.C. School of Photo-Engraving. "Recent Improvements in Collotype." Alfred Coe.  
 London and Provincial Photographic Association. "Wellington Plates and Papers." A. H. Dunning.  
 Brighton Photo. Society. "Enlarged Negatives on 'Rotograph' Negative Paper"

## PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of members was held on Friday last at the Royal Photographic Society, Russell Square. The full report of the proceedings will appear in our next issue.

## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, January 22, Mr. J. C. S. Mumery in the chair. Mr. Thomas Bolas, assisted by his son, Master Bernard Bolas, gave the first of a series of demonstrations on early photographic printing processes, commencing with the daguerreotype. He demonstrated the complete production of a picture, commencing with the cleaning of the plate by rubbing over a mixture of rouge and potassium cyanide solution, and afterwards "buffing" the plate with a piece of cotton velvet polishing cloth, such as was obtainable in Clerkenwell. The iodising process then followed, the plate being exposed to the attenuated vapours of iodine in a special box. Mr. Bolas explained that iodine alone imparted the minimum sensitiveness to the plate, and that it was the custom of the old daguerreotypists to afterwards pass the plate through chambers containing mixtures of iodine and bromine and of iodine and chlorine. In this way the highest sensitiveness was obtained, just as in gelatine emulsion the mixture of silver haloids gave the highest speed. The demonstrator explained that the latent image on a daguerreotype plate was instantly destroyed by exposure to the iodine vapour, and that fact was used by the old workers in order to make successive exposures on the same plate if the first was not satisfactory. The latent image was developed by exposing the plate to the vapour of mercury in the mercurial box, although, as the demonstrator pointed out, the exposed daguerreotype could be developed in any of the alkaline developers employed for gelatine plates at the present time. The image obtained in either case was a negative and a positive at the same time, the particles of silver constituting a white mask to the highly polished surface of the daguerreotype plate. On this account a daguerreotype, when held in front of a black surface, appears as an extremely beautiful positive, but when held against a white reflecting surface appears as a negative. Mr. Bolas showed the reversing mirror used by the old daguerreotypists for obtaining a picture without lateral reversal, and he also demonstrated the use of the mirror first employed by Beard for obtaining rapid exposures by daguerreotype, and he instanced the advantages of a mirror over a lens for general photography. He also showed catalogues of the early supply houses for daguerreotype workers, including one of Messrs. Griffin of the year 1852. The early art, he said, of the daguerreotype owed more to Claudet than to anyone else. The latter had an establishment on the site now occupied by the Adelaide Gallery of Messrs. Gatti, and it was he who brought the art of daguerreotype portraiture to its perfection. M. Claudet founded the firm of Claudet and Houghton, now the well-known house of Houghtons, Ltd. An interested audience followed every stage in the demonstration, and a number of questions were asked, and answered by Mr. Bolas, a hearty vote of thanks to whom concluded the proceedings.

CROYDON CAMERA CLUB.—A series of short "chats" on divers photographic matters, by members of the club, resulted in an interesting evening on the 16th inst. Mr. F. J. Terry narrated how, at a pinch, sensitive ortho plates, even rapid panchromatic, might be developed by fire-light. A screen was placed in front of the grate, the diffused light being sufficient to work by. Provided ordinary precautions were observed, he had found, no appreciable "fogging" took place. Mr. J. M. Sellors exhibited a capital home-made enlarging easel, and then drew attention to the recently discussed method of preserving solutions of sodium sulphite from

deterioration by the addition of an acid salt. The formula given by Mr. Welborne Piper in the current B.J. ALMANAC—viz., the addition of one part of potassium metabisulphite to every four parts of the sulphite, had answered well in his hands. It was here pointed out by others that other substances would also, in varying degrees, retard the oxidation of a sulphite solution, notably a group of sugars, hydroquinone, quinine, and mannitol. The last named was the most effective, and a strength of one-tenth per cent. was sufficient. Mr. Sellors then referred to a new ammonium persulphate formula evolved by Mr. H. W. Bennett for reducing negatives. He had found it far more regular and harmonious in its action than the plain solution usually adopted. In the original formula the ounce of 480 grains was given, a most inconvenient basis. Reduced to the "avoir" ounce it would read as follows:—Ammonium persulphate 1 oz., soda sulphite 86 grains, sulphuric acid 43 grains, water to 9 ozs. 1 dr. One part of the stock solution to be taken to 10 parts of water. Mr. S. H. Wratten was next in the list with a new piece of apparatus for dry-binding lantern slides, and a particularly handy contrivance it proved to be. In answer to a query as to who were the makers, Mr. Wratten said he would not unnecessarily occupy the time of the meeting by giving their name. They hailed from the Fatherland. Mr. F. Stokes showed an ingenious method of printing in borders; Mr. Bawcombe, the beautiful and scientific Zeiss "Verant"; and Mr. H. P. C. Harpur, a cleverly thought-out contrivance for making test and other exposures on lantern plates. Dr. Mees, among other things, exhibited several good three-colour prints (Rotary carbon) from negatives taken by him, an excellent "pinatype" by Mr. André Callier of Ghent, and a most graphic method of illustrating the sensitiveness of different types of ortho. plates to spectral colours.

GLOUCESTERSHIRE PHOTOGRAPHIC SOCIETY.—A special meeting of this Society was held on Friday last, January 18, at the Victoria Hall, Bell Lane, Gloucester, when a lantern lecture illustrated by 120 views was delivered by Mr. E. W. Harvey Piper, of London, entitled "An Evening in Westminster Abbey." The story of the Abbey was unfolded, comparison being made with the Cathedral of Gloucester, also a Benedictine foundation dedicated to St. Peter and the two-fold character of the building as monastic church and chapel royal was emphasised. A eulogium of the Abbey's interest to every Englishman was followed by a survey of the entire fabric, its monuments and brasses being criticised or eulogised, and anecdotes or brief biographical summaries given of the personages memorialised. Thus, Queen Elizabeth was described in the sentence: "Intellectual, intelligent, imperious, glorious, vain, vindictive, and vainglorious." The two hours' address, given without the aid of even a half-sheet of notepaper, closed with a visit to the Chapel of the Kings, a glance at the many State ceremonies that had taken place in the Abbey, and a suggestion of the time-long future that yet lay before the venerable edifice. A hearty vote of thanks, proposed by the President, closed the proceedings.

THE PHOTOGRAPHIC CLUB.—Mr. Rogers, of Fuerst Bros., gave a demonstration of the "pinatype" three-colour process on the 16th inst. He first gave a brief description of the theory of the three-colour process in general, and explained recent developments as due to the introduction of the new isocyanine sensitisers, "pinachrome" and "pinacyanol." While allowing that at present the process was not automatically perfect on account of the want of the theoretically perfect printing colours, he claimed that the "pinatype" dyes came nearer than any others to the theoretical standard. In the discussion that followed, Mr. Bridge said he would strongly recommend the beginner to purchase the light-filters necessary rather than attempt to make them himself in the manner described by the lecturer. It was most difficult work, and might discourage him from attempting the process. Some beautiful results done by "pinatype" were passed round by Mr. Beckett, Jun., and were much admired by those present.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—On Monday last Mr. T. Manly gave a demonstration of his new process of carbon printing, by which a large number of carbon prints may be made from an ordinary bromide print. Among the points which Mr. Manly wished to emphasise was the proper hardening of the original bromide print, either by a separate bath of formalin or by a fixing bath containing chrome alum. He did not recommend common alum, as tending to deposit sulphur. He also advised thorough washing of the bro-

mide, as any hypo left in the print was detrimental to subsequent operations, and for the worker to guard against the inclusion of air bells between plate and print when squeezeing. During the evening a number of Ozobromes were made, and passed round for inspection, some being made by transfer to another support, and some made directly on the original bromide, the results in every case being equal to ordinary carbons, without the attendant printing troubles. Mr. Manly showed the great intensification given by re-developing the underlying silver image. In concluding, Mr. Manly said the process had bridged the chasm between silver printing and ordinary carbon printing, the use of large negatives being done away with, and owing to its great simplicity he hoped it would be taken up by every photographer who wished to make permanent prints.

### CATALOGUES AND TRADE NOTICES

Messrs. Reinemann and Co., 7, New Zealand Avenue, Barbican, E.C., inform us that they have secured the sole rights for the United Kingdom of materials for the decorative "Email painting" (imitation of Japanese cloisonné). The list of materials and brushes, etc., will be sent free.

Messrs. Butcher and Sons, Camera House, Farringdon Avenue, E.C., have issued a list supplementary to their general catalogue of 1906. It brings their latest introductions before the customer, and contains particulars of certain revisions of prices. The list is sent free to dealers.

## News and Notes.

THE wall calendar for 1907, which reaches us from Mr. S. H. Fry, the trade enlarger and photographer, this year bears a photograph of the new works, at 5, Highbury Grove, London, N., where the firm's staff recently took up its quarters. The calendar, which Mr. Fry will no doubt send to any genuine professional photographer should be a reminder of the excellent equipment installed at the Frisian establishment, the whole organisation, as we were able to see in the course of a visit paid on its completion, being able to respond to the most exacting demands for trade printing and enlarging.

CHEMISTS' Exhibition.—The thirteenth Chemists' Exhibition, organised by "The British and Colonial Druggist," will be held in the Horticultural Hall, Vincent Square, Westminster, London, S.W., from May 6 to 10, inclusive, and will be open daily from 11 a.m. till 10 p.m. Full particulars can be obtained on application to Mr. A. Norman Flack, Secretary and Manager, "British and Colonial Druggist" Offices, 44, Bishopsgate Without, London, E.C.

A FRENCH Minister's Photograph.—General Picquart (writes the "Telegraph's" Paris correspondent) has been having a mild row with a Parisian photographer, who, by the way, claims to have been a friend of his in evil days, and is now badly repaid. When the general was only a colonel, and was, moreover, in prison, the photographer in question obtained his photograph and exhibited it in his shop. The adversaries of the then colonel promptly smashed the shop windows, and perpetrated other damages. Having suffered with the colonel, the photographer thought it only just that he should rejoice with the general, and when the latter became Minister of War he had several thousand beautiful photographs made and sold in Paris. What was his surprise to receive a letter from General Picquart a few days ago, peremptorily ordering him to stop the sale of these photographs, which the Minister, moreover, qualified as "faked," since he had never posed for them, either before or after he was a general. The photographer admits that General Picquart had never posed for the photographs. They were taken from a carefully made drawing, and their resemblance is perfect. What the photographer laments, however, is not so much the loss of the photographs as the apparent severity towards him of the Minister of War, who, he thinks, is forgetting his friends of former days.

COMBINED Fixing and Hardening Bath.—The Lumière N.A. Co., 4, Bloomsbury Street, London, W.C., write us: "We find the

interest evinced in MM. Lumière's experiments in regard to the composition of a fixing and hardening bath has resulted in a large inquiry for materials necessary for the composition of such a bath. We should be glad if you would make it known that we supply the bath in powder form, under the title of 'Fixolene,' in 1 lb. packets, at 10d., and in boxes containing 176 cartridges, each sufficient for 10 ozs. of solution, at 1s. In addition to this, soda bisulphite lye, which is increasing in demand for addition to fixing baths, and for many other uses, is sold by us in bottles containing 10 ozs. saturated solution, at 8d., or 34 ozs. 1s. 3d.—all these prices, of course, being subject to the usual discount to the trade.

MR. ROBERT T. HAINES, who is on a visit to this country, will, on Tuesday evening next, bring before the Royal Photographic Society a new type of Cinematograph, which he has devised for the purpose of entirely obviating flicker. He is the originator of a good many more instruments and processes than emanate from most inventors. An Irishman by birth, he has lived all his life in New Zealand and Australia, and from the age of thirteen, when he made his own camera and nitrate of silver for the wet collodion process, has



Mr. Robert T. Haines.

studied and practised photography. At an early age he conceived the idea of composite pictures, and suggested experiments which led to good results. One of his earliest inventions is a counting attachment for typewriters by which the number of words and folios is registered as folio after folio is typed. Mr. Haines is also the inventor of a speed indicator for vehicles, a continuous rotary type writer, a potato digger, a selenium photometer, and, among other mechanical appliances, a vacuum washing machine for household use which dispenses with manual labour. In addition to the

duplex cinematograph, which he will discourse upon at Russell Square, his photographic inventions include a new system of cinematograph projection, in which the vocal accompaniment of the pictures are produced by the identical mechanism which actuates the film; and, lastly, a means of transmitting photographs by wire, and even of seeing by wire, the discovery which M. Belin recently announced in our pages.

PHOTO-JEWELLERY.—Messrs. Dorrett and Martin, of 16, Belle Vue Road, Upper Tooting, S.W., are offering a large stock of pendants and other forms of these specialties in dozen lots, assorted according to remittance, which may be from 5d. to £1. The firm offers to refund or exchange any parcel not approved by the purchaser.

DARK-ROOM Safe Lights.—In the current number of "Le Procédé" the liquid cell lamp introduced by Dr. Stenger (E.J. Almanac, p. 693, 1907) is highly recommended, and in addition to the solutions first recommended, the following are given:—

Tartrazine .....	0.5 gms.
Violet dahlia BO, B.A.S.F. ....	0.2 gms.
Water .....	1,000 ccs

filter. This absorbs all light up to  $\lambda$  650, and is suitable for yellow-green ortho plates. For extra rapid and panchromatic plates double the above quantities of dyes should be used, then the light absorbed is up to  $\lambda$  690, and with a 10-c.p. incandescent lamp at a distance of one metre no fog is caused even on panchromatic plates with prolonged development. By replacing the larger quantity of tartrazine by naphthol yellow S (Bayer) 1 gramme, the light is absorbed up to  $\lambda$  685-690. The thickness of the liquid should be 1 in.



## Correspondence.

- \*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### ADVERTISING.

To the Editors.

Gentlemen,—As very old advertisers we do not as a rule take any notice of competitive advertising. The public knows, and we all know, that everybody naturally says his productions are superior to all others, but we have always gladly noticed a certain amount of courtesy shown to one another by rival houses in the photographic trade in their competitive trade announcements, and we have attributed this to the connection of photography with those liberal arts which are supposed to soften manners.

It is therefore with some surprise that we notice an advertisement on page 1 of THE BRITISH JOURNAL OF PHOTOGRAPHY SUPPLEMENT of the 18th inst., which warns the public that the "only Genuine Portrait Gaslight Paper" is the particular paper mentioned in the advertisement. The public is also asked to "refuse all papers sold to them as Portrait" except the particular paper referred to.

If this advertisement means anything, it means that Ilford Portrait Gaslight Paper is not Portrait Gaslight Paper, and any such statement is deliberately untrue.

Ilford Portrait Gaslight Paper is specially manufactured with great care for portrait work, and it answers the purpose for which it is manufactured admirably. It need not fear comparison with the paper referred to in the advertisement, or any other, and if the advertisers mean to suggest that they have a particular interest in the word "Portrait," as connected with the photographic trade, we feel sure that the public generally will agree with us that such a claim is altogether preposterous. It would be as reasonable to claim the word "Paper," or the word "Plates."

We are sorry to trouble you with this letter, but we feel that this particular advertisement is so discourteous to us that we think it only right to make an exception to our rule and take some notice of it.—We are, Gentlemen, yours faithfully,  
ILFORD LIMITED.  
Ilford, E., January 18, 1907.

### PORTRAITS BY AMERICAN PROFESSIONALS.

To the Editors.

Gentlemen,—May I be allowed to say that I think all photographers, but specially those who are professionals, are deeply in our debt for the pains you have taken in arranging for the exhibition now on view at your rooms. We should be grateful for its rededersors, which were all interesting and profitable in their way; but none of them could compare in these respects with the present one. And it is much to be hoped that every photographer who possibly can will visit the exhibition, and give it careful study.

Some of the portraits, no doubt, present features hardly worthy of imitation; but, taken as a whole, the show is a most admirable and eminently stimulating one. This, at all events, is the very humble opinion of very gratefully yours,  
WILLIAM GILL.  
Colchester.

### THE USE OF FLAMING SUNLIGHT ARCS IN PORTRAITURE.

To the Editors.

Gentlemen,—I was very interested in finding that my suggestion had been of some service, and also in the valuable experiments which are described under the above heading on page 19, and as I have been making a few experiments in this direction I thought you might be interested in the results.

In the first place it may be advisable to state that I have no interest, commercial or otherwise, in the "Excello" arc lamps. My reason for mentioning this make of lamp was on account of the small quantity of current it used when compared with other enclosed arc lamps. I presume that you will admit that whether the current is used in the resistance, or in the lamp, that it has to be paid for. Therefore, the problem becomes one of 2s. d., and I can assure you that in my district it costs me about 1s. 1d. (say 1s.) to run two 12 amp. enclosed arc lamps for one hour, whilst the same company are running four 6 amp. "Excello" arc lamps for 4d. per hour on a time meter. Whether the light from the "Excello" arc lamps excels or is equal to the light from two ordinary enclosed arc lamps remains to be proved, and I think that the test could only

be conclusive when four "Excello" lamps are hung together in the studio and tested against two ordinary enclosed arc lamps under similar conditions. I can say nothing with regard to the photographic or mechanical efficiency of the "Excello" arc lights, though I am inclined towards the opinion that the light from the four "Excello" lamps will be photographically equal to that from two ordinary enclosed arc lamps from my experiments made on photographing moving figures in the street at night by the light from the lamps.

In your article you state that you used "cored carbons of a similar kind to those used in the 'Excello' lamp, but employed in an ordinary arc lamp," and, further on, you say that the current consumed was "practically equal to ordinary arc." I have, unfortunately, been unable to procure "Excello" carbons of a size suitable for my lamps. The largest I have been able to obtain are similar to the sample I enclose, and though I have attempted to use these carbons in my enclosed arc lamps their low resistance made it impossible for me to make any tests, so that I had to fall back upon the use of the ordinary soft-cored flame carbons for my experiments. May I ask you where such carbons as you used may be obtained?

As you are aware, the quality of the light obtained from the ordinary soft-cored flame carbon varies, even with the same pair of carbons, so that it is practically impossible to obtain uniform conditions for making, or repeating, a set of experiments, and as the light itself fluctuates I have not been able to do more than to arrive at an approximate indication of the speed and colour rendering obtained when comparing ordinary carbons against yellow-flame carbons.

The conditions under which my experiments were made are as follows. The easel of the copying camera was covered with white blotting paper, which was illuminated by two 12 amp. enclosed arc lamps. A Chapman-Jones plate-tester, or sensitometer, was placed in the screen-holder of the camera, so that when the dark-slide shutter was down the sensitometer was placed nearly in contact with the plate. The extension of the camera and the lens stop was adjusted until an exposure of one minute produced a suitable result. The plates were developed for three minutes with the H. and D. pyro soda developer, and they all received the same exposure of one minute under identical conditions, so far as this could be arranged. The length of arc was adjusted to be as nearly as possible the same when using either ordinary, or yellow-flame carbons.

Working under these conditions, a couple of Mawson's Felix plates, bathed with orthochrome T., and exposed whilst wet to the light from ordinary and yellow-flame carbons, respectively, were about the same speed to both violet and yellow light, though the colour rendering is most pronounced when the yellow light was used. Curiously the plates appear to be more sensitive to the red than to yellow, judging from the sensitometer readings, which means that there is apparently more active red light than yellow light in the yellow-flame carbons. I repeated this experiment three times, and whilst I found the speed reading to vary, sometimes the violet light being more rapid than the yellow, the colour sensitiveness remained fairly constant. But it must not be forgotten that the colour rendering may vary, because, speaking from my own experience, I have obtained fairly correct colour rendering, so far as the blue, green, and yellow, are concerned, upon a collodio-bromide plate bathed with silver eoside solution, when working under exceptionally favourable conditions.

As it seems to be quite possible to obtain good results upon bathed plates when used wet, there is no apparent necessity to dry the bathed plates for studio work, for they can be prepared as required for use, and I find that such plates may be conveniently manipulated by the aid of a faint green safe light. After the plates are bathed and washed they are wiped surface dry with a pad of damp cotton wool, or damp wash leather, and placed in the dark slide.

As the light from an "Excello" arc lamp appears to be much yellower in character than that which I obtain from the use of yellow-flame carbons in my arc lamps, it should give, with orthochrome T. bathed plates, a very fair degree of correct colour rendering at a minimum cost for current.—Yours truly,  
Gateshead-on-Tyne.

ARTHUR PAYNE.

[The experiments we described were a comparison of flaming sun-

light carbons and ordinary carbons in the same enclosed arc lamp, approximately the same amount of power being absorbed in each case. The "Excello" lamp was not used in the tests. Power absorbed by the resistance naturally has to be paid for. We pointed out that the meter would register 6 units, though the lamp only took 2½ units. We also mentioned, what is really the important point as regards £ s. d., that with lamps run in series the loss in resistance is very small. Thus two enclosed lamps might have been run in series, the unit only being then absorbed by the resistance.

We do not think wired carbons can be obtained thicker than the sample sent. The carbons employed in our tests were of similar composition. The wire running through the carbon slightly lessens the resistance, and also diminishes the risk of breakage.

If our correspondent will make some actual comparative studio tests, using the "Excello" lamps, we shall be glad to publish the results.—Eds.]

## Commercial & Legal Intelligence.

**WARNING.**—"Since 1903 the prisoner has carried on continuously a system of defrauding advertisers in photographic journals of their goods. His wife is at present doing a term of imprisonment for larceny." This was the record which Inspector Dunn, of the St. Helens police force, presented against William Henry Greenway, at the Quarter Sessions, held at Liverpool, when Greenway pleaded guilty to having stolen a camera and other goods from William Henry Campbell. "Six months' imprisonment" was the verdict.

**SALE of Mercuric Chloride.**—An inquest was held at Southwark, on January 10, by Mr. T. Danford Thomas on the body of Elizabeth Harriett Hardy (35), an inmate of the Bethlehem Royal Asylum. From the evidence it appears that the woman had so far recovered that she was permitted to go out on January 12 to see her relatives. While out she visited the shop of Mr. William Howel, pharmaceutical chemist, 81, High Street, Peckham, and purchased some bichloride of mercury, with which she subsequently poisoned herself in the asylum. In his evidence Mr. Howel said he remembered the deceased coming to his shop, and she appeared to be quite rational. She asked for some bichloride of mercury, saying she required it for photographic purposes. She assured him she only required a small quantity, and that there was no risk, as she thoroughly understood the nature of the poison, having used it before. In answer to the coroner, the witness said that it is not an uncommon poison to sell for the purpose of photography, and he supposed he was asked for it about once a month or oftener. He did not know the deceased, and did not inquire who she was, as he accepted her word that she knew the nature of the poison and had used it before. He made an entry in the customary way, which she signed. Witness was quite aware that bichloride of mercury is in the first part of the Poison Schedule, which was the reason that induced him to get her to sign the poison register. The coroner asked the witness why he served the deceased, as he did not know her, and witness replied that he knew of no reason why he should not. The coroner pointed out that it is set out in the first part of the schedule to the Sale of Poisons Act that it should not be sold unless the seller knows to whom it is being sold and for what purpose it is required. In reply the witness said that he had no knowledge that it is necessary for him to know the buyer. He sold the deceased lady half an ounce, and there was about a quarter of an ounce left in the packet. The admission by the witness that he was not aware that he ought to know the buyer was commented upon by the coroner, who pointed out that Mr. Howel, according to his own account, had infringed the law. The jury returned a verdict of "Suicide while insane."

### NEW COMPANIES.

**BRITISH SOLAR PRINTING CO., LTD.**—Capital £2,000, in £1 shares. Objects: To acquire the business carried on at 66, Pentonville Road, N., by G. B. Kingsley and L. A. Graham, and to carry on the business of printers of bromide and photographic enlargements, etc. The first directors are G. B. Kingsley and L. A. Graham. Registered office, 66, Pentonville Road, N.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- J. G. Gask, 119, High Street, Deal, Kent. Three Photographs of the Walmer Lifeboat and Crew.
- E. H. Seward, 13, Turton Street, Weymouth. Photograph of Swans and Ciguetas, "The Sweeney, Abbotsbury, Dorset." Photograph of Weymouth Pier with ss. Premier.
- H. W. Hale, 5, Lynn Street, West Hartlepool. Photograph of Combined Teams of the West Hartlepool and Stade Français Rugby Football Clubs.

**ARISTO PAPER.**—I would be pleased if you would inform me (1) what kind of paper is Aristo. Is it only a trade name given to a self-toning paper, and is it difficult to work, and where can it be obtained? (2) Where can I obtain "The Book of Photography," and what is the price of same? What do you think of same as an instruction book of photography?—BROWN.

(1) A collodion P.O.P., largely used by professionals, and made by Kodak, Ltd., Clerkenwell Road, London, E.C. (2) Cassell and Co., La Belle Sauvage, London, E.C. Price 10s. 6d. A very comprehensive text book of modern photography.

**BATHED PLATES.**—Would you please give me particulars of the "bathed plate" mentioned in your paper a few weeks ago with regard to the announcement made by the "Daily Mirror," re stage pictures, etc., as I have to take similar pictures, if I can?—BATHING.

The formula given by Mr. Payne (to whose article we referred in the paragraph) was:—

Water (distilled) .....	400 parts.
Ammonia .....	6 parts.
Orthochrome T. (stock sol. 1:1000) ...	8 parts.

You will see Mr. Payne's article in the B.J. for July 6 last, p. 529, and an abstract of it in the 1907 "Almanac," p. 725.

**INTENSIFICATION STAINS.**—Would you kindly tell me how to remove stains caused by mercurial intensification? I have enclosed the print, and it shows on lady's dress more plainly. I should be very glad if you would help me out of this difficulty.—R. DOIDGE, JR.

It would be easier for us to say, if we saw the negative, but we are afraid there is no remedy for the stains. We should advise you to take as good a print as possible, and after touching out the defects, make a new negative in the camera.

**COPYRIGHT.**—A local firm of photographic dealers are making a feature of enlargements, and I see they have copied one of my photographs. This photograph I have had registered. Should I now demand the withdrawal of the enlargement from show and get a written apology? This photograph has been registered since the large one was made. Still, I presume I have power to act.—AJAX.

You can demand the withdrawal of the enlargement from exhibition.

**BACKING PLATES.**—Can you tell me (1) where backing-paper for preventing halation can be obtained? (2) If it is as effective as ready-backed plates? (3) I am about to expose some very rapid plates by flashlight. Will you give me your opinion on the following developer for such work: (a) Pyro, 1 oz.; citric acid, 1 oz.; soda sulphite, 5 ozs.; water, 50 ozs. (b) Soda carb., 12½ ozs.; water, 50 ozs. Equal parts. This is given in the 1905 "Almanac."—ALBERT MARSHALL.

(1) Any large dealer, such as Fallowfield, Houghton, or Butcher. (2) Not equal to the best backing, in our opinion. (3) The pyro-soda developer contains too much pyro we think.



For flashlight work we should advise a rodinal developer or pyro-metol, as given on page 960 of the 1907 "Almanac."

W. C. T.—(1) We cannot say. (2) Try the Tress Company or Halifax Photographic Company, Halifax. (3) They are quite different. We prefer a hand-fed machine, such as the "Reynaud" or "Hana." (4) Without knowing your circumstances, we may suggest that you mount a dozen negatives together and equalise with tissue paper, then print all at one exposure. This, however, will save time and labour only on very large orders. A machine (see above) will help you much.

A. H.—There are several machines—e.g., the "Reynaud" and the "Hana," which are superior. See the descriptions in the "Almanac." We should advise you not to patent.

COPYRIGHT.—We would take it as a favour if you would give us your opinion on a matter re copyright. The facts are: A gentleman, by invitation, sat to us as a complimentary sitter. We presented him with proofs of his photograph free. Some time afterwards he gave us an order for one dozen cabinets, which we let him have at reduced price. Since then another person has had an enlargement done from the cabinets we supplied. We would like to know your opinion as to whom the copyright really belonged. We may state that these prints were registered by you two or three weeks ago, and the enlargement was done from one of the positions registered.—N.

If the registration was subsequent to the infringement complained of you can only restrain the party from making others. The copyright is yours, but it is wise in such cases where sales are made to persons who did not pay for their sitting in the first instance to obtain an assignment of the copyright to you in writing. It is usual to make this the rule in invitation sittings.

COPYRIGHT.—(1) Am I entitled to sell copies of photographs, the negatives of which have been taken and paid for in the usual way, to anyone who asks for them? (2) By doing so, should I not infringe copyright? (3) A local picture framer has asked me to sell him copies of photographs in place of those he has lost, these copies to be made from negatives used to produce them. He knows I took them. I should have no objection to doing so as he suggests, if I were within my legal rights. But I believe I am not, and awkward questions might be raised if lost photographs were found and returned to my clients, so I have refused. Am I right or wrong?—L. T. J. H.

(1) No. (2) Certainly, you will be infringing the copyright owned by your customer. (3) Right.

C. K.—(1) We do not know it. (2) See an article to appear next week.

PRINTS ON LINEN.—We should esteem it a great favour if you could furnish us, through your paper, with the name of a good firm who print photographs from films on line for d'oyleys, etc.—WEISS AND FOWKE.

We know of no leading firm that quotes for such work. We believe some of the smaller people who do home work for the trade have advertised the printing of d'oyleys. Probably a brief advertisement in our columns would bring you into touch with them. If any address you, care of the Editors, we will send on the letters.

CLEANING ENGRAVINGS.—We shall be obliged if you will kindly inform us how to remove spots on engravings, probably caused by damp or age.—ENGRAVINGS.

This is scarcely a photographic query. However, this may be of use to you. Place the print in a shallow tray and pour cold water over it, and allow it to soak till thoroughly saturated. Pour off the water, and then pour on a solution of chloride of lime (one part liquor calci chlorata of the druggist to forty of water), in this the stains will probably disappear. If not, add a little lemon juice, or increase the proportion of chloride of lime. When the stains have been removed wash well to get rid of all traces of the chlorine. If the engraving is a valuable one we should advise you to place it in the hands of a practical print restorer, as many valuable engravings have been ruined by being tampered with by novices.

GLAZING P.O.P.—I should be glad if you can give me a good cheap recipe for glazing P.O.P., self-toning, or bromide postcards on glass, one that you can be sure of getting off the prints;

also, can they be squeegeed down to glass directly after their final wash?—IGNORAMUS.

Beeswax 20 grains, turpentine 1 oz.

F. P.—1. Pyro-soda is a very unsuitable developer. It is possible that the black spots were caused by pyro dust falling on the paper before exposure. Try metol hydroquinone, and let us know if you have the same trouble. 2. No.

DRY MOUNTANT.—Some time ago I made up a quantity of dry mountant and found it was very good, but I have lost the formula. I can remember there was shellac in it. I am in great trouble, because I use a large quantity of it, and could not afford to buy it ready made.—R. L.

The usual formula is shellac dissolved in methylated spirit, or, better, rectified spirit. Let the spirit dissolve as much as it will by stirring the shellac up at intervals, while the mixture stands in a warm place at a temperature of 70 deg. or 80 deg. Fahr. Then allow to settle, and use the strong solution.

TRANSPARENCY.—The phenomenon is a well-known one, and is known as reversal of the image. It is generally caused by small traces of hypo in the developer, or it can be caused by a gleam of actinic light affecting the plate while developing. Extreme under-exposure and forcing in development is a predisposing cause, so, also, is great over-exposure.

VOLATILE SOLVENT FOR GELATINE.—Is there any volatile solvent that will dissolve gelatine (like water) without altering its general properties? My idea is to secure more rapid drying of a plate after coating with gelatine, than is possible when the ordinary aqueous solution is used.—HANOVERIAN.

The only possible thing to do is to dissolve the gelatine in glacial acetic acid and then gradually add alcohol. A perfectly clear solution can be obtained which will sometimes dry bright, but not always, this depending upon the gelatine used. Whether the acid would act on any substance which is to be used with the gelatine, we cannot, of course, say, as our querist gives us no idea of what the plate is required for.

CELLULOID SURFACE FOR PENDANTS.—How is celluloid affixed to the coloured midgets for pendants?—C. CARR.

The print is painted freely with, or dipped for a moment in, methylated spirit, the celluloid applied, and the two pressed together, preferably with a hot iron.

REDUCING AND INTENSIFYING PLATINOTYPES.—Can you give me a reducer and intensifier for platinotype paper?—C. CARR.

It is not possible to reduce platinotypes without destroying the paper. The best intensifier is—

A.

Sodium formate .....	45 grs.
Water .....	1 oz.

B.

Platinum perchloride .....	10 grs.
Water .....	1 oz.

Add 15 minims of each to 2 oz. of water, and immerse the platinotype till sufficiently intensified, then wash well.

WRATTEN'S FORMULA.—I should be glad if you would kindly put me right re following. In the makers' formulae section of B.J. Almanac, Wratten and Wainwright's is given as follows:—

Metol .....	10 parts	10 grs.
Hydroquinone ...	5 "	5 "
Soda sulphite ...	100 "	100 "
Soda carbonate...	100 "	100 "
Water .....	6,000 "	6,000 minims or 12½ oz.

I work this out as in brackets above, taking 1 grain = 1 minim, but you, in the Almanac, give—

¼ oz. Metol.
55 grs. Hydroquinone.
2½ oz. Soda carbonate.
2½ oz. Soda sulphite.
15 oz. Water.

I should be glad if you would kindly inform me how the difference is made out, as to me it seems that 11 grs. to the ounce of developing agent—and that is what your formula works out at—to be excessive; and yet in my way of working it out it seems rather weak—viz., just over 1 gr. to the ounce, not to mention the enormous amount of sod. carb. and sulphite your formula gives.—V. SERIN.

Our correspondent is perfectly correct in his calculation. Un-

fortunately, a cipher dropped out of our Almanac formula, which should read 150 oz.

**ENLARGING.**—I am thinking of making an enlarging-room of a low shed, the window end of which will face within about 18 ft. of the gable wall of a three-story house. Of course, this would make direct light an impossibility, but would like your opinion whether a reflector would give sufficient light. I have no experience of reflectors, having worked from a window in attic with a sheet of ground glass, but I found the light always strongest at the top (or sky portion), which made enlargements uneven. 1. Would a reflector (on ground floor) give as good illumination as a window in attic? 2. A friend says that as all light would be reflected from sky immediately above, the close proximity of this gable would make no difference to the light. Is this so? 3. What angle should reflector be placed? 4. What size would it need to be to cover up to 15 x 12 negatives? 5. Would not opal glass reflect as much light as a mirror; if the latter, will cheap silvered glass answer? 6. Will a reflector of this kind give even illumination, or is a sheet of ground glass necessary next to negative? There are no high buildings near the sides, only the high gable in front, but the position I want faces north. I should be bothered with sun if either of the other aspects. Thanking you for reply.—**REFLECTOR.**

1. Yes. 2. Certainly. 3. The reflector should be at an angle of 45 deg. 4. The size can be most easily determined by rigging up the apparatus, removing the lens that projects the image, and placing the eye at the aperture. Nothing but the reflector should then be seen. 5. Certainly not; opal would reduce the light considerably, but a silvered mirror should not be used, as it would reflect the clouds, and thus cause patchy illumination. Opal is the best, or else a metal reflector painted with dead white paint. 6. When properly arranged, a reflector of this kind will give even illumination without a ground glass.

A. B. CARR.—The reference was to our contemporary, the "Photo-Beacon," Security Building, Chicago, U.S.A., but you can get similar materials from The Library Bureau, Bloomsbury Street, W.C.

**RETOUCHER.**—It is difficult for us to say, as we know nothing of your work. Your salary is low at present, if you are up to your work. You can judge of wages offered from the advertisements in our pages.

**CARBON TISSUE.**—Could you oblige me by letting me know if there is any process to dry carbon tissues so as to print them at once after they have been sensitised?—**NELSON.**

A fair proportion of alcohol may be used instead of water in making up the sensitising bath.

E. H.—The lamp you have purchased is a satisfactory lamp if you do not object to the peculiar colour it gives to the sitter. We have not had the least difficulty in working the lamp. Have you adhered exactly to the instructions?

**ENLARGEMENT.**—I have to enlarge a plan twice the size. It is now 9 in. square. What size should it be when finished? If I make it 18 in. both ways it will be four times as large.—**GEO WHITFIELD.**

If you require twice the area, the length of each side must be  $\sqrt{18}$ , or 4.15 inches.

**TONING P.O.P.**—For toning postcards (P.O.P. glossy) I have been using bath composed as follows:—

Sulphocyanide of ammonia .....	20 grs.
Chloride of gold .....	2 grs.
Water .....	50 oz.

With this bath I tone from sixty to seventy postcards, according to depth of shadows, etc., and my employer seems to think that I am using too much gold. Before I came to him he had been using an acetate of soda bath, and he seems a little prejudiced against my method of toning, although I am able to produce far superior tones than were possible with the old method. What I want to know is: whether, if I reduce the quantity of sulphocyanide in my bath, I shall be able to tone more postcards, and so save gold? I should have experimented towards this end if I had been sure that altering the proportion of sulphocyanide to gold in my bath would not produce any detrimental effect in the prints. If it has no bad effects, I feel sure that by doing as I suggest I can save the gold considerably.—**CHROMO.**

The tone is likely to be somewhat affected. At present you are getting a very good return for 2 grains of gold. We doubt if you can improve it.

**SODIUM SULPHITE SOLUTION.**—1. On page 751 of the ALMANAC Weissenberger suggests 5 per cent. glycerine as a preservative. Is it 5 per cent. of weight of sulphite, 5 per cent. of weight of water, or 5 per cent. of bulk of water? And what effect would the addition have on development of plates and paper generally, and especially on the time of pyro-soda developer as compared with normal fresh solution?—**Q. S.**

1. 5 grs. of glycerine per 1,000 ccs. of solution. See the full article in our issue of October 19 last. 2. It would retard development.

**THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.**—Will you be good enough to furnish me, through the medium of your journal, the address of the P.P.A.; also, is that the best society to join?—**E. H. LONGKEY.**

89, Albany Street, London, N.W. You cannot do better. It is to your interest in every way.

**AMATEUR PROFESSIONAL.**—The best thing you can do is, as you suggest, to get one of the envelope changers, such as are made by Lizards, of Glasgow, Houghtons, London, Carl Zeiss, London, and Mackenzie-Wishart, Glasgow.

H. G. G. (Leeds).—Will you kindly oblige me with the names of gelatine enamellers to the postcard trade?

Messrs. McCaw, Stevenson, and Orr, Ltd., 32, Shoe Lane, London, E.C.; and Messrs. Strane and Son, of Belfast.

A. G.—We should have liked to have seen a print with the defect you complain of, but in its absence suggest that the articles are lighted too largely from the front. We think a narrow side-lighting will give a better rendering of the bevel.

C. C.—We do not think you would get a paper of the kind you name without a certain amount of gloss. We should say the prints are most likely bromide or gaslight, with a sepia tone obtained by direct development or "sulphide" toning.

A. R. (Tenterden).—Copyright in America can only be secured by photographers making the negatives in the United States or having an establishment there.

**NAVAL MOUNTED HORSE.**—Out of our province. It is a question for your solicitor.

**GLAZING COLLOTTYPES.**—In your issue of December 14, page 999, there is a reply to an inquiry respecting the glazing of collotype prints. As it stands it reads as though the glass was to be first waxed and then coated with gelatine, and the dry print then squeegeed on it. Could you oblige by giving the process more in detail in your next issue?—**J. P. (Scarborough).**

We do not see what further details are necessary. You do not say if you have tried the method given. If you have, we do not see, and you do not say, how you have failed to glaze the prints.

**HOW TO EXHIBIT.**—I have some very good negatives, taken recently (by myself professionally). I should much like to exhibit prints of same. What is the best course for me to take?—**B. B.**

Enter them for the various exhibitions, listed in our issue of the 18th inst., page 47.

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## SUMMARY.

The policy which photographers should follow in obtaining payment at the time of sitting was the subject of much debate at the recent meeting of the Professional Photographers' Association. (P. 83.)

The rights of the public and the liabilities of photographers and their making use of the portraits of private individuals are dealt with in an article on the "Law of the Portrait." (P. 80.)

Copyright in works of art has now been made legal in the Isle of Man. (P. 78.)

Treatment of the hair, eyes, and eyelashes is discussed in the article on "Working-up with the Aerograph." (P. 80.)

Platinum residues should be recovered by those employing platinum paper on any reasonable scale. Some notes on the practical methods appear on page 78.

In reference to the divergent views of Mr. Bernard Shaw and Demachy on pictorial photography we publish open letters to these two writers by Mr. F. C. Tilney. (P. 84.)

A review of the "modern photographs" now on view at the New English Art Galleries appears on page 85.

It is proposed to establish a theatre of popular science in London similar to the "Uranias" of Berlin and Vienna. (P. 78.)

## "COLOUR-PHOTOGRAPHY" SUPPLEMENT.

Mr. E. J. Wall contributes some notes on the sensitising of carbon films for three-colour prints, and on the method of cementing the three components. (P. 9.)

The method of reproducing Lippmann interference colour photographs by the three-colour process recently announced by Mr. Herbert E. Ives is given in full on page 10.

Dr. E. König contributes a note on a new method of preparing autotype transparencies. (P. 13.)

The alleged new one-plate process of M. du Hauron leads us to new methods of this kind for direct colour photography. (P. 13.)

## EX CATHEDRA.

### Photography as an Aid to Music.

In a recent lecture to the Photographic Society of Philadelphia, Professor R. Zeckwer gave some interesting details of his experiments on the above subject. His first essay was photographing with the aid of flashlight the correct positions of the fingers and notes in playing particularly difficult runs and passages, both on the piano and organ. The next was to photograph the bodies of singers at the finish of an exhalation and inhalation, and it was thus possible to prove that whereas men usually adopted diaphragmatic or abdominal breathing, women, mainly on account of the non-expansion of their stays, adopted clavicular or chest breathing. There has been, as doubtless many of our readers know, considerable discussion as to the correct manner of breathing in singing, and certain schools adopt one and others another method, some adhering to the natural method, which is so well seen in a baby, that breathes both with the diaphragm and chest. Another important point is, of course, the use of the vocal chords, and some remarkable photographs have been obtained, by the aid of a laryngoscope, of the same in the act of singing.

### The Photography of Sound Waves.

The current theory of sound waves has been accepted by scientists generally for many centuries, but a work has been published in the United States which attempted to prove that the whole theory was fallacious. These views were somewhat generally accepted, with the result that, whilst the old theory was demolished, no new one was advanced in its place. Fortunately the matter was conclusively settled by Professor R. W. Wood, who, by means of an electric spark and a telescope lens, was able to obtain a cinematograph film of the actual sound waves. Later work by the same experimenter has, however, been done by means of the spark of an induction coil which starts the sound wave, and the spark of a Leyden jar passing between two pieces of magnesium ribbon, which illuminates the waves before they pass out of the field of the lens, which was of 5 in. focus. No camera was used, but the plate was merely held in the hand and rapidly moved up and down whilst advancing from left to right, so as to prevent overlapping of the wave images. The results thus obtained have conclusively proved the correctness of the old and universally accepted theory.

### Language by Photography.

Some years ago examination of sound vibrations and the figures produced thereby was considerably facilitated by photography, but the most striking proposal was that of a well-known French philologist, who suggested that photographs in the form of lantern studies should form an essential feature of every lesson in a foreign language, as by this means the pupils

would be able to grasp more readily the correct position of the lips and teeth, which is so important in some sounds. Some excellent results were shown at the time, but so far as we are aware nothing further has been done in the matter. If it were possible to combine these photographic illustrations with the languophone—that is, the phonograph with records of languages—it might be possible to do away with human teachers altogether.

### Business Topics

The report of the meeting of the Professional Photographers' Association, which appears on another page, merits attention for the discussion of one of the most important questions which can enter into a photographer's calculations, namely, the manner in which he obtains from a sitter the charges made for his work. The general tenour of the discussion, initiated by the President of the P.P.A., Mr. Martin Jacolette, shows that the men whose business ability is generally acknowledged, bring to this factor in the success of their affairs all the tact and discretion at their command, and evolve the method which they decide to follow from a strict investigation of the conditions of their establishment. A method which will serve in Regent Street will not necessarily work smoothly in Birmingham, but the essential point which needs to be emphasised is to have a method and stick to it. By doing so, as was pointed out by more than one speaker, the custom of the studio becomes known, and sitters coming for the first time expect to pay at the time of sitting for the simple reason that Mrs. —, who advised them to come, has told them so. What proportion is to be paid and how an outlet is to be left for further business are matters for the photographer to arrange as most expedient for him. Certain it is that a system which, with few exceptions, is rigidly applied will make for a healthy state of business, and will obviate the trouble and uncertainty of collecting accounts.

### Copyright in the Isle of Man.

The Isle of Man, though one of the British Isles, makes its own laws, and hitherto there has been practically no law with regard to copyright. However, on Tuesday of last week, the Legislative Council considered a Bill by which engravings, prints, etc., are given copyright for twenty-eight years, with a penalty of 5s. for every copy infringing the Act. Sculpture, models, and the like, received protection for fourteen years, with a further renewal for fourteen years provided the holder of the copyright be still alive. Paintings, drawings, and photographs are given copyright for the life of the author and for seven years after his death. Musical compositions are also protected, both as to performances and sale, and power is also given for the seizure of pirated music. The Bill received consideration on Tuesday, and on Thursday was passed through all its stages. It will from this be seen that the law with regard to copyright in photographs is generally the same in the Isle of Man as it is in all other parts of the British Empire.

### A Science Theatre for London.

A meeting was held at the Hotel Cecil last week to listen to a statement in recommendation of the organisation of a lecture theatre such as the well-known Berlin "Urania," where a regular programme of illustrated popular science is offered. Sir William Ramsay, who presided, expressed his admiration of the patronage accorded the Berlin institution, and expressed his approval of the scheme on the grounds of the interest in scientific matters which it should create, and of the work it should accomplish in drawing into scientific pursuits persons with a natural aptitude in such directions. It is to be sincerely hoped that the project will not fall to the ground. It already has

reasonable assurance of support from scientific men and scientific bodies, although its sphere of activity will not be limited to science alone. On the occasions when we have visited the Berlin "Urania" the fixtures have been devoted to travel illustrated by photographic transparencies, but the theatre has been the scene of notable demonstrations of colour-photography by Dr. Miethe, for which purposes a complete electric equipment of the projection platform has been most valuable. A similar theatre in London is bound to utilise photography largely, and on this account, if on no other, it is to be hoped that the scheme, which is under the charge of Mr. Albert Wollheim, of 169, Piccadilly, will be brought to a successful issue.

### THE RECOVERY OF PLATINUM RESIDUES.

THE increased price of platinum, and consequently of platinotype paper has one mildly compensating advantage. It should lead the photographer to collect the precious metal which finds its way into the developing solution employed in the platinotype process, and that which is also recoverable from trimmings of undeveloped prints and even from waste prints. The return for the attention to this point of economy is more than it was a year or two ago, before the rise in the price of platinum. We have in our possession a platinum crucible weighing thirty-six grammes, or considerably over one ounce, for which in our student days we paid the sum of two guineas, yet we now see every week in "The Chemical News" the advertisement of a firm of refiners of precious metals who will purchase scrap platinum at the rate of £6 10s. per ounce, and refined platinum, we are told, has to be bought at the rate of £8 10s. per ounce. Hence the value recoverable from old developing solutions becomes much greater for a given bulk than has hitherto been the case, and the return which the careful photographer can obtain in this way may be placed as a small set off against the enhanced price which he has to pay for his sensitive platinum paper. The methods, therefore, which should be followed in depositing the precious metal and bringing it into the state for the refiner to deal with are of considerable interest, and it may be advisable for us to recapitulate the routine which may be employed, although it is, of course, familiar to those who have made a practice of platinum recovery.

The impedimenta required are not numerous:—A two-gallon glass or earthenware jar—a good-sized pickle-jar will do—some zinc, and some spirits of salt, i.e., commercial hydrochloric acid. The manipulation needed for the deposition of the metal is not beyond the powers of those entirely ignorant of chemical operations. Some strips of zinc are placed in the jar and covered with water. A little spirits of salt is then added until the zinc throws off bubbles of gas. The exhausted developer is now thrown in and allowed to stand for about twenty-four hours, in the course of which time a dirty, chalk-like deposit will accumulate at the bottom of the jar, leaving the liquid above it clear and colourless. We will refer to the cause of this change directly, but will now confine ourselves to the practical execution of the process. The clear liquid is poured off—it contains no platinum—and a fresh lot of developer thrown in on the next occasion that an exhausted solution is ready. The whitish mud will not come to any harm in the meantime. The process of reduction goes on while the zinc is being acted upon by the acid, and therefore if the bubbles cease after a fresh batch of developer has been added some further acid should be poured into the mixture. If this does not cause the desired effervescence it will probably be found that the zinc has been entirely exhausted, and needs replenishment in the jar.

The essential part of this process is the reduction of the



platinum salt by the nascent hydrogen, which is produced as a result of the action of the acid upon the zinc. At the same time a good deal of the iron salt in the developer is reduced to the ferrous state and precipitated as ferrous oxalate. The acid only plays the part of a supply of this nascent hydrogen, and therefore any commercial acid such as sulphuric will answer the purpose. Spirits of salt is as cheap and satisfactory as any. Nitric acid, on account of its different character and oxidizing properties, cannot be used. When a sufficient amount of the residue has accumulated the sludge is drawn off, drained from as much water as possible on a linen cloth, and packed for the refiners.

The process of recovering the metal from the clippings of the paper or from trimmings of finished prints is quite different, and the two different kinds of residue should not be mixed, inasmuch as the method employed by the refiner to extract the platinum is different in the two cases, and the mixture of the two would add to the expense of the extraction. The clippings of undeveloped and waste prints are burnt to an ash by setting fire to them in a chamber where there is no great draught, a precaution which is necessary to prevent loss of the particles of reduced metal. A good

receptacle for the prints is an old biscuit-tin in which a row of holes has been made about half-way up. The clippings are placed loosely in the tin and allowed to burn to an ash as completely as possible. The residue obtained in this way is then transferred to a bottle and added to from time to time as fresh batches of paper are treated. There is no objection to the accumulation of the paper and clippings themselves, if room can be spared, and the refiner will as soon treat the latter as the ash obtained in the way above described, but the bulk of the paper is usually an objection, especially if the residues have to be sent by post to the refiner.

The above hints, it may be mentioned, apply equally to the sepia variety of platinotype, and also to prints of any age. It is best to send the residues once a year to the refiner in the case of a large user, and once every two years in the case of a small consumption of the paper. Much of the disappointment which is expressed as to the return in money from residues sent to be extracted might be prevented by bearing in mind the fact that the cost of treating a small batch is very little less than that for a large one.

## WORKING - UP AND COLOURING WITH THE AEROGRAPH.

In the following article is continued a course of instruction in "aerograph" work, two previous instalments of which, dealing chiefly with the acquirement of manipulative skill, have already appeared. The directions for finishing in monochrome which are here given will be followed by similar instruction in "aerograph" work for colouring.

At the risk of repeating much that is trite regarding photograph finishing, the writer will go through the details of finishing in monochrome first, and then the colouring of prints.

It may be desirable in some instances to begin a picture by putting in the background, or some portion of it, to secure the proper conditions for finishing the portrait, but I think a better rule is to do the portrait and finish the background afterwards, in a manner to bring the best effects to the setting off of the figure—the more important part.

### The Average Portrait.

So we will begin with the figure, say, a bust portrait, in black and white. First do a portion of the blackest part of the work; do the collar of the coat, or a portion of the hair, or any full-strength shadow, to get your key, and also get your hand in on a portion of the easier part of the work; then begin strengthening the shadows generally. A good way is to begin at the top of the head and work down; of course, not abruptly, but gradually, as the "aerograph" allows you to do. If you work about in one place a little, and in another place a little, you will not be able to keep your picture so well together.

### Working-up Hair in Portraits.

In doing the hair remember that the camera usually makes the hair look like wire. Keep it soft and in masses—as much as possible—a little sharpness in the high-lights is all that is permissible. Remember also that the reflected lights run through the hair as much as any other part of the picture. Some photograph-finishers work as though they did not know that reflected lights existed; but please remember that they are everywhere in your picture, and if you will accentuate them a little, instead of suppressing them, you will secure better representation of form and more beautiful results.

If you will observe any painting by an old master, or any good reproduction of such a picture, you will notice that the shadows are never brought to a hard edge anywhere, and the

reflected light always accentuated; and if the student will take a little trouble to study nature he will see these reflected lights everywhere.

If you close the fingers of the hand together you will see running along the point of contact, on either side, the reflected light; and the darkest shadow in the crevice between the fingers is bordered by these two lights, the shadow which shows the modelling of the finger being a little distance away from the dark crevice.

Do not shade the hair in any part to a hard edge; look for the reflected lights, and preserve or accentuate them. The "aerograph," from the character of the shadow which it makes, enables you to do this easily. Do not use your darkest colour too freely; keep it for a few points or touches. The low notes, like the highest notes, should not be too prolonged.

You will need to erase some sharp touches in the high-lights of the hair, but leave this until later, when the paper is drier. Now, if your print is a chalk one, you can model the forehead more quickly than it takes to describe it, following the guide print. Remember the reflected lights along the hair and at the disappearing part of the outline if the forehead comes against the background; you can model the cheeks and face generally, or proceed at once to finish the eyes.

### The Eyes.

The eye is such an important part of the portrait that I wish to treat it at some length. First of all it is necessary to understand at least a little of the anatomy of the eye, and a diagram will be useful. The figure is intended to show a vertical section of the eye. I represents the iris, or coloured screen. P the pupil or dark centre. The other parts will be at once recognised. In practically all pictures the illumination, or direct light, comes from above the sitter, and the line L will show in this instance the path of the direct light to the eye; this is seldom directly above; it is usually a little to one side, but the diagram will not permit of showing it otherwise. S is the point

of view of the spectator; in the case of the photograph *S* is the camera. In the normal lighting of an eye, then, there will be a high-light or extremely bright point. If the direct illumination is from a window, this spot will be a small image of the window; it would in that case have a more or less rectangular shape, and would be sharp. The surface of

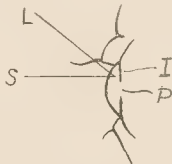


Fig. 3.

the eyeball is of a highly-polished character, and the reflection will therefore be very bright, unless, as is often the case, it is screened by the eyelashes. Sometimes the sitter is so lighted that the direct light does not fall upon the eye, when the high-light (reflected from some bright object) will be duller.

A portion of this direct light penetrates the outer lens of the eye and illuminates the curtain or iris—the portion of the eye which is blue in a blue eye, or brown in a brown eye. Now, if you want to keep the eye clear and transparent, you must remember to put the greatest illumination of the iris directly opposite the high-light, shading it away strongly to the shadow of the upper lid. The pupil of the eye is always more or less contracted in a photograph, owing to the necessity the photographer is under of placing his sitter in a strong light. It is desirable, therefore, in most portraits, to increase the size of the pupil a little, as would be the case if they were not exposed at the moment of sitting to a strong light—it adds a certain beauty to the eye to enlarge this pupil. This pupil should be dark: give it the full strength of your lamp-black, unless it should be a light blue eye, when it may be softened a little.

### Eyelids and Eyelashes.

Dealing next with the eyelids, the modelling must be carefully done so that the eye will appear round and not flat. The shadow under the upper lid which falls across the pupil is accentuated and made darker by the eyelashes, which in full front, or three-quarter, view of the face are not drawn in, but are represented by this shadow. You will see from the diagram that the upper eyelashes stand out pointing almost directly to the spectator. An additional charm is added to the eye if this shadow be slightly strengthened, and is permissible in the faces of women and children. The top of the lower eyelid will be illuminated, and the drawing must be very slight indeed, the difference in the colour of the flesh and the eyeball constituting the principal difference which will show in the photograph. A little shadow, however, will show under the eyeball beneath the edge of the lid. The eyelashes on the lower lid—turning down—the drawing of them may be indicated slightly. Do not try to make the eye almond shape. The inner corner is lower and more prolonged than the outer corner, and will show a little gland or tissue which catches the light in the corner. This should be drawn true to nature.

Having strengthened the shadows of the eye and eyebrows, the nose and mouth will come in for general treatment. Great care should be used to follow the guide print in drawing the delicate shadows about the mouth and nose, as a little variation in the strength of these shadows will change the expression. Remember that the little reflected lights about the wings of the nose, and on the lips, should be preserved; remember also the larger reflected lights while modelling the chin and the neck.

In finishing the drapery so many conditions prevail which are pre-determined by the photograph, that very little general direction can be given.

[Some hints on vignettes, backgrounds, and one or two other portrait items must remain over until next week.]

## THE LAW OF THE PORTRAIT.

THE following article, by John E. Brady, on "How, When, and Where it is Safe to Print a Portrait without Consent," is from the American journal, "Profitable Advertising," and therefore treats its subject in the light of the law in America, where the legislation as to libel is less rigorous than here. Nevertheless, the cases cited are of the greatest interest to all photographers, as indicating the limits which are justly set to the use of a person's photograph.

At least one doctrine of law, not to mention a considerable number of statutes, may be laid at the door of advertisers who were too aggressive in their methods of bringing their product to the public notice: the doctrine that every individual has a right to enjoy privacy and to be let alone. An examination of the authorities down to the year 1890 would not disclose the mention of such a right. Since that date the argument of its existence has frequently been advanced, but it has remained for the Supreme Court of the State of Georgia (in a case decided recently, which will be referred to later) to declare that such a right does exist.

Prior to that decision it would seem that anyone might, for advertising or other legitimate purposes, make use of the photograph of any individual, whether living or dead, provided that the photograph was not protected by copyright and that its use did not constitute a libel, or involve an invasion of some property or contract right.

### The Use of a Name.

A case which aptly illustrates this proposition was brought up in Michigan, in 1899, and involved the use of the picture and name of Col. John Atkinson, a well-known lawyer and politician of Detroit. Immediately after his death a manufac-

turer of cigars brought out an article which was named the "John Atkinson Cigar," and sought to place it upon the market under a label bearing the name and likeness of Colonel Atkinson. The widow filed a bill in equity to restrain what she deemed an unwarranted and wanton invasion of her rights. While the Court sympathised deeply with the annoyance felt by the complainant, and appreciated "the indelicacy of the man who should join the funeral procession of Col. John Atkinson in a carriage bearing the legend 'The Col. John Atkinson Cigar,'" nevertheless, the injunction asked for was denied on the ground that there had been no actionable wrong, and that there was no good reason for limiting the right to apply a name. The Court argued that names, as a rule, are received at the hands of parents, surnames by inheritance, and Christian names at their will; but that the rule was not invariable for the reason that many names are adopted or assumed by those who bear them; and that the right to apply a name is not exclusive, for the reason that a disreputable person may select the name of the most exemplary for his child, or for his horse, or his dog, or monkey. As for the unauthorised use of the picture, that was held to be one of the ills that, under the law, is without redress.



### The Right of Personal Immunity.

A more recent and familiar case is that of *Roberson v. The Rochester Folding Box Company*. It there appeared that the plaintiff was a young girl, and that one of the defendants, engaged in the general milling business, and in the manufacture and sale of flour, had used her picture without authority, for the purpose of advertising the flour. Over the plaintiff's likeness, in the advertisement complained of, were the words, "Flour of the Family," and below was the name of the manufacturer and the brand of flour making, it must be admitted, a rather noticeable and attractive advertisement. The complaint set forth that 25,000 of these posters were conspicuously displayed in stores, warehouses, and saloons throughout the United States, and that those which had been placed in the vicinity of the plaintiff's residence were recognised by her friends and others who knew her, resulting in her great humiliation and in an illness which confined her to her bed, and compelled her to employ a physician.

The case was decided in favour of the plaintiff by the Appellate Division of the Supreme Court of New York, on the ground that the defendants had violated her right of personal immunity, the right not to be interfered with, to her damage, danger, or discomfort. The Court recognised the fact that the plaintiff had a property right in her features, a right which has been referred to in other cases as the prerogative to control the market of one's own beauty. The defendants carried the case up to the Court of Appeals, where a reversal was obtained and the injunction and damages asked for denied. Hon. Alton B. Parker, who was at that time Chief Justice of the Court of Appeals, delivered the opinion of the Court, and the decision stands for the proposition that in the jurisprudence of the State of New York, the "so-called right of privacy" has found no abiding-place. It is to be noted, however, that the decision was reached by a divided Court, only four of the seven judges voting in favour of the defendants. This decision was heartily condemned by the press, abroad, as well as at home. One prominent journal in New York, spoke of "the amazing opinion of Judge Parker"; while another, by its editorial censure, provoked from one of the judges who coincided with Judge Parker the contribution of an article to a law review in defence of the decision.

### The Position of "Celebrities."

In the case of *Corliss v. Walker*, a widow and her children brought an action in the United States Courts, to enjoin the publication of a biographical sketch of her deceased husband, accompanied by his picture. Relief was eventually denied on ground that Mr. Corliss, who had been an inventor, had become a public character, and had thereby surrendered his right to prevent the reproduction of his photograph. The Court distinctly held that a private individual may prohibit the reproduction of his picture in any form, and recited statesmen, artists, authors, and inventors, who asked for, and desire public recognition, as persons who have waived their right to enjoy privacy.

### The Photographer and Portraits of his Sitters.

While it may or may not be the law, according to the jurisdiction in which the question arises, that an individual has no remedy for, or legal means of preventing the publication of his photographic likeness for trade or other purposes, it is universally held that one is not without redress where he is able to show a property or a contract right in the pictures used. What is meant by a property or contract right may best be illustrated by the cases in which those rights have been adjudicated. The facts of an English case show that a woman had applied to a photographer to have her picture taken, she ordering a certain number, as is usual in such cases. The photographer, after filling the order, made a few copies for his own use. It later came to the knowledge of the woman and her husband that

her pictures were on display in the photographer's shop window, in the form of decorated Christmas cards, bearing the conventional holiday greetings. The matter was placed in the hands of solicitors, and their clerk subsequently purchased one of the cards, which was introduced in evidence at the trial which followed. It was held that, although the plaintiff had no property right in the copies of her picture which the photographer struck off for himself, the right to grant an injunction restraining the further sale of the cards did not depend upon the existence of property, but could be invoked for the purpose of restraining a breach of the implied contract which existed between the parties.

### The Right to Privacy.

The recent Georgia case, of which mention has been made, wherein the right of privacy was upheld, presents a startling example of the extent to which it is possible for an advertiser, piratically inclined, to go. From the report of that case, it appears that the plaintiff's picture was published in an issue of a daily newspaper, printed in Atlanta, in which city the plaintiff resided. Above the picture were the words, "Do it now. The man who did." Placed beside the picture of the plaintiff was the representation of a sickly looking individual, with the inscription, "Do it while you can. The man who didn't." Below the pictures was written, "These two pictures tell their own story," and under the plaintiff's likeness, was a statement to the effect that in his healthy period of life he had been fortunate enough to buy insurance in the company whose name appeared in the advertisement, and that he and his family were enjoying the benefits of an annual dividend upon his paid-up policy. The other person was represented as saying that he had neglected to insure, and had realised his error only when it was too late. The plaintiff's likeness was excellent, and, being easily recognisable by his friends and acquaintances, to say nothing of his enemies, brought him into contempt and ridicule before the world in general. The picture had been used without authority, and the statements in connection with it were absolutely false. The plaintiff, being an artist by profession, claimed that the publication was, therefore, peculiarly offensive to him, and demanded an injunction and a balm of \$25,000. It was accordingly held that the plaintiff's right of privacy had been invaded; that the mere fact that he had become what is known as a public character by the exercise of a profession, which placed him before the public, did not give to everyone the right to print and circulate his picture; and that he was entitled to maintain his action. This decision was also reached on the ground that the publication constituted a libel.

Judge Parker, in his opinion in the *Roberson* case, made the suggestion that the legislature had the power to prohibit the use of pictures and names, and shortly afterward, the legislature of the State of New York passed an Act with that purpose in view. The enactment went into effect in September, 1903, and reads, in part, as follows: "A person, firm, or corporation that uses for advertising purposes, or for the purposes of trade, the name, portrait, or picture of any living person without the written consent of such person first obtained is guilty of misdemeanor." The statute provides further that, where a picture or name is knowingly used for the purposes mentioned, a jury may, in its discretion, award exemplary damages. This statute, it will be noticed, is intended to apply particularly to advertisers.

In an article of this length it is impossible to refer to all the legislative enactments that have been passed concerning advertisers, but it should be observed that such laws do exist in many jurisdictions, notably in California and New York, and that the advertiser is bound at his peril to acquaint himself with the law of the jurisdiction in which he acts.

JOHN E. BRADY.

## HOME - MADE BACKGROUNDS.

THE necessity which at times arises of renovating a background or preparing a new one for a special purpose is one which most photographers have experienced at one time or another, or have possibly regretted their want of experience in such emergencies. It cannot be imagined that any photographer in a fair way of business would find it profitable to make his own backgrounds regularly, but the information conveyed in the following article may nevertheless be of great value to him on occasions:—

Not a few who have essayed to make a plain background, for the first time simple as it seems, have failed in applying the colour in such a way as to obtain an even surface when the work is finished. Now, there is really no great difficulty in the matter if one goes the right way to work, and the few practical hints I shall give should enable anyone to successfully make his own plain backgrounds. There are two or three methods of producing backgrounds, but those in distemper and flaking colour are the most general. The former may be termed a water colour process and the latter an oil colour one. The distemper is the easier of application, and can be done by one person, but is the less durable of the two. The latter, unless the worker is somewhat expert, requires the services of two people in order to obtain a perfectly even coating. By both methods I have made scores of new backgrounds and re-coloured old ones. I shall here assume that a new one is to be made by the distemper method.

### How to Prepare the Material.

At all the large drapers and upholsterers a suitable fabric for our purpose is sold under the name of unbleached sheeting up to eight feet wide, and of any length. It is of different qualities, and prices. The highest quality is unnecessary, but it is advisable not to have a very common one. A frame, of course, is required upon which to strain and fix it. It will be well to have a pretty substantial one. If it be made of inch and quarter or inch and half stuff, and morticed at the corners, it will be very suitable, and a background can be put on both sides of different degrees of darkness. The canvas should be fastened by turning it over the edge of the frame and securing it by tinned tacks. In fastening the canvas to the frame it should not be strained too tightly, as the sizing and colouring causes it to shrink, and much shrinkage would cause the frame to cast, unless it be a very substantial one, so that it would no longer be flat. Before the colour is applied the canvas must be sized in order to keep it on the surface. Two coatings may be necessary unless the fabric is very thin.

Obtain from the oilshop some "double size," and melt it in a saucepan. For the first coat a little water may be added to dilute it. This is applied to the canvas with a whitewash brush. After the first coating is dry the second is applied, undiluted, in the same way as the first. When this is dry all is ready for the colour. This, of course, may be of any tint; grey is the most usual colour, but it is much improved in appearance if a little red be introduced to give it a warm and more cheerful tint.

### Mixing the Distemper.

The pigments usually employed are the common whiting of the oilshops and lamp black. The ordinary lampblack, by reason of its lightness, is difficult to mix with water, therefore it is more convenient to use what is known as "drop black," which mixes easily. In a bucket put a block or two, according to the size of the background, of the whiting and sufficient water to make a thin paste, then add the black, little by little, until the mixture, when intimately mixed, is of a dark grey colour. When this is done rub a little on a piece of brown paper and allow it to dry, to show the colour, for it cannot be judged of from the mixture, as it always dries much lighter than it appears while wet. If it proves too light, more black

must be added, and if two dark more whiting must be mixed in. No definite proportions of white and black can be given as they, necessarily, must depend upon the tint desired. When this is arrived at, a little Venetian red of the oilshop, in powder, if a warm tint is required, is added. This will not materially affect the photographic value of the colour. Water is now added to make the mixture about the consistence of a thick cream. It goes without saying that unless the colours be intimately mixed that streaks of black or red will show when the work is finished.

Next add to the mixture, melted a *hot*, double size in sufficient quantity to produce, when quite cold, a thin tremulous jelly. Here again no definite proportions can be given, inasmuch as the size of the oilshops is so very variable. The actual proportions can only be arrived at by experiment. The best way is to prepare the mixture over night and let it stand till the next morning, then if it is firmer than the condition just mentioned—a thin tremulous jelly—some hot water must be added and the whole allowed to get cold again, when it will be ready for use, as it must be laid on cold. A mistake that some have made in attempting to produce distemper backgrounds is in using the colour warm. Another is in adding too much size. Only just sufficient should be employed to make the colour adhere when dry, and no more. Anything beyond this amount only increases the difficulty of application and the production of satisfactory surface.

### How to Apply the Colour.

For the applications of the colour a large whitewash brush, in good condition, is required. If the worker does not possess such a thing one may sometimes be hired from the oilshop, or from a local house decorator. With a bad or small brush an even coating is next to an impossibility. To get evenness some little knack is necessary, but it is easily acquired. Thoroughly saturate the brush with the colour and lay on thickly, commencing at the top of the background and going right across and working regularly downwards till all is quickly covered. The quicker the work is done when once commenced the better. It is not necessary to be too particular in smoothing the work off as it will, if thickly laid on, dry more even than it looks while wet, but thick ridges must obviously be avoided, so must too thin a coating. In no case must the coating be gone over a second time or marks are certain to show. The chief thing is, to get the whole surface coated before any portion begins to dry.

It has been recommended by some to add a pound or less of treacle (molasses) to the colour in order to retard its drying while being applied, but I have never found it necessary except, perhaps, in summer time, or when the air is unusually dry. At this season the addition is not desirable as in damp weather the coating, if an excess be used, will have a tendency to absorb moisture. If a background has to be done over again, owing to its proving to be too dark or too light, it should be re-sized before the second coating is applied. Should an old background have to be dealt with, which is already thick with colour, it may require two coats of size, in which case the first should be somewhat diluted so as to penetrate the thick colour and render it less abortive of the second coating.

WILLIAM MICHELL.

A SOUTH Suburban Camera Club.—A meeting of amateur photographers was held at 65, High Road, Lee, on January 23, to consider the question of organising a central photographic society for Greenwich, Lewisham, and Deptford. Three delegates attended from the Catford and Forest Hill Photographic Society, and amongst others present were Messrs. Thomas K. Grant, A. E. Bennetto, Charles Stuart, H. A. Robinson, J. F. Ashby and A. Haddon (who was in the chair). A resolution was adopted affirming the desirability of forming such a society, and inviting photographic societies in the district to unite for that purpose. Further resolutions suggested that the prospective society should select headquarters as near as possible to Lewisham Junction, as the most central and accessible position to meet

the convenience of the whole district, and expressed the opinion that the Society's meetings should be held alternately at two or more local centres for the convenience of the members residing in particular localities. The gentlemen above-named were appointed as an organising committee, with Mr. John Nixon, of Ingleside Grove, Blackheath, as hon. secretary pro tem., and it was resolved to invite the Catford and Forest Hill Society and other local camera clubs to nominate representatives to serve on the committee. We understand that the Astronomer Royal and certain of the Observatory staff, Canon Barnes-Lawrence, Mr. Welborne Piper, and a number of well-known amateur photographers living in the neighbourhood, are in sympathy with the scheme.



## THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEMBERS' meeting was held at the Royal Photographers' Society, 66, Russell Square, on Friday, January 18, Mr. Martin Jaolette, president, in the chair.

In opening the discussion on "Payment at the time of sitting," the President said:—After the question of excellence in professional work, the next subject in importance is the adequate remuneration of it, and the means whereby that remuneration may be assured to the photographer. That payment for photographs should be made at the time of sitting has always been recognised as the correct business system, but the method in which the system has been carried out has been subject to considerable variation in detail and many photographers appear to think that there are difficulties in asking for money in advance, which in practice do not arise when the matter is judiciously managed. In my own practice payment is asked for after the customer has left the studio, and not before the sitting. In most cases the customer pays, and in others the account is taken away and a cheque promised. One advantage I find is that as time goes on the friends of those sitters who have paid at the time of sitting have learned that it is expected, and it has, therefore, become understood to be the rule of the establishment, and, consequently, they come prepared to pay. It is also found that decision as to the number of copies required has necessarily to be arrived at at once, and the copies are the sooner in circulation, which I consider of great importance in creating new business, otherwise negatives have waited sometimes for months before the order has been given. Then the collecting of accounts is always a matter of expense and trouble, and sometimes, I am sorry to say, the amounts are not paid without an unpleasant mention of legal proceedings. In some cases, certainly, sitters object to pay before seeing the results, and in these cases I have adopted the plan of giving the sitting and a certain number of finished prints for a stated amount. This plan I have found invaluable in obstinate cases; and to those who find any difficulty I recommend this course to their careful consideration. That the country photographer often is so situated that it is more difficult to make and carry out rules than in London I am aware, but a great many of the difficulties are really not inherent in the system, and may be avoided by a judicious adaptation of the means to suit the circumstances of the particular case. In this connection it is unnecessary to refer to methods which are expected to obtain in the Far West of the operator holding up a card before the sitter upon which is printed a demand for the money, or in holding up the sitter and demanding he cash at the point of the revolver.

The Chairman, in his concluding remarks, said there was doubtless room for considerable difference in practice, and in asking others to give their methods and experience he felt sure the result of the exchange of ideas would be useful to all.

Mr. H. E. Hull said that three years previously he started very much on the same principle as laid down by Mr. Jaolette. He took the trouble to make a list of all the sitters that did not pay, and by tracing the names back he found they practically all originated from one source and from one family connection. None of them paid at the time of sitting, and some never paid at all. It came to his mind that these people had arranged it among themselves. He made it a practice to obtain payment at time of sitting, and if the sitter paid a guinea he was entitled to so many proofs. There were, of course, cases where he did not insist on payment on sitting, owing to his discrimination. He should like to know, however, whether it was better that a customer should be asked to pay before going to the studio or after he came down?

Mr. E. H. Skillmann said it of course depended on the class of business done. He always endeavoured to get the money before his customers sat, and was pretty successful. He thought customers did one another of the rule of the establishment. Of course, in the case of any one he knew, or neighbouring tradespeople, etc., he did not insist upon payment.

Mr. T. C. Turner (Hull) said he thought they were all agreed that this matter really is acted upon by the question of free sittings. Those who had had experience of his studios know that all along they had made it the rule to obtain payment at time of sitting. That system had worked pretty well in North London, where there is a certain kind of clientele; but if they took another neighbourhood, say at Hull, where there were a large number of country

families, business procedure was influenced by the fact that they had to do with people who were demoralised by the system of invitation sittings. It was on that account difficult to get a definite order; but it was advisable that such an order should be obtained before the customer entered the studio. It was easier to obtain payment before customers had their curiosity satisfied by seeing the proofs. The receptionist should be sufficiently careful to get the order before the customer started for the studio, so that his requirements might be known. With regard to the number of proofs submitted an order for half-a-dozen photographs warranted one position, a dozen two positions, and so on, and unless the number of prints required was known before the sitting more negatives would be taken than was warranted by the amount of the actual order. Then, of course, came payment at the time at rates which the customer sees in print and which they cannot get out of. Again, payment at time of sitting was made an advantage to the sitter, one photograph being given over and above the dozen if ordered by prepayment, and customers naturally said: "Oh, we may as well pay now and obtain the advantage." Nearly 70 per cent. of business done is paid for in that way. Unless they were capable of inducing customers to comply the rule receptionists did not earn their salaries. They did not want to pay receptionists 30s., 40s., or 50s. a week merely to behave pleasantly. The crux of the whole thing was payment at time of sitting. It was essential to fighting the pernicious system of invitation sittings that the photographer should make his personality felt. The system was breaking down every day, he was pleased to say, and until it was completely broken down they would always have this bother of getting money at the time of sitting. The men who had held fastest to payment at the time were those who were making money at the present time.

The President said that, in regard to invitation sittings, he had instructed his receptionist to inform sitters that he never gave invitation sittings, as he preferred customers to have the copyright, and his staff were instructed to explain what happens in the case of an invitation sitting.

Mr. Turner said he thought that if they wanted to accentuate their idea of the value of the sitting they should charge so much for the sitting, and make a reduction for duplicates. Another thing, too, it was a splendid lever to secure a larger order. Would not the customer like an extra half-dozen at half-price? He thought photographers did not realise that. The only thing to make a modern business go was to get orders for duplicates. Many photographers seemed to think that the initial order was sufficient. A large amount of his turnover was for duplicates. But, of course, it was only done by charging the proper price in the first instance.

Mr. H. C. Spink (Brighton) said he found his customers only wanted a dozen or couple of dozen, as a rule, and did not want duplicates. He endeavoured to get his sitters to pay a guinea for photographing and then so much for subsequent copies. He came in afterwards by this means.

Mr. Turner said he came in first. He said they had to give him an order in the first instance. His printers would otherwise get an easy time while he would have to put in a lot of time in the studio.

The President thought that one firm's system would not suit another. Still they would learn something from the discussion. He had already done so.

Mr. W. Gill (Colchester) said he did not get quite the class of business that Mr. Turner did. He quoted examples from his price-list, and believed in giving customers the benefit of printed prices. His terms were cash at time of sitting, and compliance with that rule obtained an additional print per dozen. His customers mostly paid cash. He found out how many copies were wanted, the receptionist did her best, and sitters paid when they left the studio. The proofs he sent out finished, but unmounted, with an intimation that all proofs not returned would be charged for. If he missed the cash at time of sitting he generally obtained it at time of order. He was a great believer in the use of printed matter; it was cheap, and did not throw all the work on the receptionist. With every order he got his girls to fill in a form giving the price of extra copies, coloured copies, miniatures, etc. There was nothing invidious about it, and no one could object.

Messrs. R. Fellows Willson, Lang, Sims, C. H. Skillman, and F. Turner gave their views, and in each case payment was required at time of sitting.

The President thought the discussion had been of profit to them all. They had now arrived at as much as was possible to obtain, and he therefore closed the discussion.

#### COMMITTEE MEETING.

Previous to the members' meeting, a meeting of the committee was held. Present: Messrs. F. A. Bridge, H. E. Hull, Martin Jacolette, A. Mackie (hon. secretary), D. Prodger, E. Scamell, Lang Sims (hon. treasurer), R. Fellows Willson, W. Gill (Colchester), H. C. Spink (Brighton), and T. C. Turner (Hull). Mr. Martin Jacolette presided.

The Hon. Treasurer, in reference to the decision at the last meeting to invest £150 in Consols, said he had been advised that there were certain difficulties in that course, and that a more convenient investment would be to place the amount on deposit at the Bank in the joint names of the hon. treasurer and hon. secretary, and had therefore deferred taking action. He asked that the resolution of the committee be rescinded, and that he be empowered to place the amount on deposit at the bank. After discussion this course was agreed to.

The Hon. Secretary reported the joining of four new members since the last committee meeting; also that the January number of the "Circular" had been published and circulated. Six copies had been returned marked "Gone away, no address."

With regard to the proposed new Copyright Bill of the Artistic Copyright Society, the Hon. Secretary reported that the sub-committee appointed to deal with the matter had held two meetings and had carefully considered the draft Bill and its bearing upon photography. A conference had now been arranged with representatives of the A.C.S., at which it was hoped an agreement would be arrived at which would preserve the copyright in photographs from the fate it would meet with under the provisions of the Bill in its present form.

A discussion took place upon means to be adopted by the Association to protect photographers and the public from the fraudulent practices of canvassers for free enlargements, and other frauds of a similar nature.

The meeting was then constituted special in accordance with the rules for the nomination of a president and twenty-four members of committee to serve for the ensuing year.

After the formal business, the question of a committee dinner was discussed. It was agreed to hold a dinner on similar lines to those of the two previous years, on Thursday, March 7, the evening before the annual general meeting, and that Messrs. A. Ellis, Lang Sims, and the President be constituted a sub-committee to make the necessary arrangements.

#### THE TENDENCY OF ENGLISH PICTORIAL PHOTOGRAPHY.

In reference to the views expressed by M. Demachy that photographic characteristics are anti-artistic characteristics, views, to which we referred in our issue of January 4, a full translation of M. Demachy's article appears in "The Amateur Photographer" for Tuesday last, where also Mr. G. Bernard Shaw comments on M. Demachy's position. The following two letters to the disputants are sent to us by Mr. F. C. Tilney:—

AN OPEN LETTER TO G.

BERNARD SHAW, ESQ.

MY DEAR SIR,—Your little bout with M. Demachy is such rich entertainment that I cannot resist a dig at my typewriter to say how much your views upon pure photography will be appreciated by artists, and with what dignified reticence your views upon painting will be received by the same community. With a full knowledge of my shameless intrepidity, I put myself in the place of spokesman. Quoting M. Demachy in respect to methods of art, which are said to be incontestably superior to photography, you say, "Name those methods.

AN OPEN LETTER TO M. ROBERT

DEMACHY.

MY DEAR SIR,—Why do you distress yourself about the opinions of the English critics? They mean well enough. They are always delighted with your work. No one in his senses would debar himself the pleasure of contemplating your works of art because he happened to note that photography had "stepped out" of them. We all admit your right to give us beautiful pictures by any methods you choose. Please go on doing so. The real point is, and I think you have perhaps missed it, that those who have the advancement of photo-

graphy at heart, such as Mr. Bernard Shaw and others who hold a brief for what are called "straight" prints, do not quite see how your beautiful work reflect any credit upon photography at all. The credit is all to your own artistry. These pure souls, who put mathematical accuracy among the virtues, cannot see virtue in things that are not mathematically accurate. Hence they do not like pictures of places that they cannot run with to the place of inception and compare each item satisfactorily with its prototype in the scene. *Entre nous*, they are barbarians! Perhaps they have an inkling of this fact themselves, and seek to rise into artistic culture by the greasy pole of pure photography. Certainly, one of them has said: "Our only hope, then, is in evolution. We must replace the man by the superman." In fact, they want to breed the super-photographer. To this end you do not help them, since your methods are only an overwhelming stultification of photography uncontrolled. When you give out that the photographic character is an anti-artistic character, they very naturally say, "What's this?" and dash off fragmentary letters to the papers. If it really is anti-artistic they are done for—an eventuality that they would avoid at any cost. For my own part, I delight to count myself one of your obscure followers when I average up the merit of all the pure prints I see from one year to another. But should we go so far as to say that we never saw a straight print that was lovely? You and I, dear Sir, know more than and I, dear Sir, know more than one pure photographer, whose prints mark him undoubtedly as one of the initiated; as one, even, of the true-born. The work of such is only imitative, certainly, and, as such, it is not art of the highest planes; but its character is not anti-artistic; and, further, it points to possibilities of evolution along this imitative line that I, for one, should like to see encouraged.

You have been at some pains to prove that all the control you exercise, from negative to finished print, is done in your right as a photographer. I think it might be as well argued that it is exercised in your right as an artist to whom the initial photographic stages have not given satisfaction. When the pure

What are they? I deny their existence." Of course you do! You deny the existence of most things that we treasure, and we treasure you in consequence, for we know that the things *do* exist, or else you would not be able to knock them down, and your game of nine-pins is too delightful to miss. You ask for the name of some of the particular nine-pins under discussion. Here are a few: Elimination, suppression, enrichment of tone, introduction of accent, modification of composition, and, greatest of all, the catching of the artist's mood as he looks at nature. In your capacity of musical critic you would not dare to deny these things to music; we give you credit for logic enough to grant them in painting also.

What you claim as the highest aim of photography is the mere imitation of natural facts, and there I am with you entirely, whilst I add that such an aim is not nearly high enough for painting. That is why we can stand things from Corot that we would not stand for a moment from any pure photographer whose only aim is to reflect nature as in a mirror, to borrow the metaphor of a recent correspondent in the "Daily Chronicle." Imitation is not art: it is mere mimicry. If that were not so, you would have to put a student's still-life study above the masterpieces of the world. No doubt you do. But there is a higher truth than truth of fact for fact's sake. It is the truth that is eloquent of a message coming from nature to an artist, and handed on from the artist to all who will hear. It is not a message of topography, physiognomy, architecture, but of what those things have whispered to the artist, who alone can write it down, and hand it on. If you want the best record of soil and vegetation, of skin and bone, of stones and mortar, the camera will give it you; but don't call it art when you've got it. No one denies that these externals may be beautiful in themselves, and are worth recording and treasuring as we treasure bits of spar and pretty flowers. When they are recorded with the exquisite judgment and subtle appreciation of an F. H. Evans, photography is lifted to its highest glorification. Here it surpasses painting, simply because painting is not at its best when imitating the bodies of things, but



when it concerns itself with the spirits of them. Hence its methods are incontestably superior to photography. *Quod erat demonstrandum.* You can't really suppose, my dear Sir, that Rossetti and Ruskin were keenly interested in photography because they thought its methods incontestably superior to painting.

Both you and M. Demachy appear to agree as to photography having no limitations. Certainly, there seems to be no limitations to the methods of our clever French neighbour; but then they are not photographic methods. As to yourself, my dear Sir, whence, pray, the outcry you raise but from the wounds of your bruised body battered against those very inexorable limitations? Do not your own attempts —

I regret that an urgent appointment with some students of mine compels me to break off at this thrilling point. But I will just stay to sign myself—Yours in arms to separate painters from photographers in this discussion.

F. C. TILNEY.

photographer feels such dissatisfaction he does not preserve his work. You bring it through, by virtue of certain calculative processes which carry the thing along lines quite different from those of the initial stages. What is the difference in this case between chemicals and a painter's paraphernalia? An essential one. The fact remains, my dear Sir, that you are not a photographer, you are an artist making use of photographers' paraphernalia.

Whilst you continue to assert that your methods are photographic, you are mixing things up. The phrase, "artistic photography" is almost a solecism. Good photography is in no need of control and manipulation, yet those are the things that every other photographic frog bursts himself with. It follows that half the photographs would be better without control and manipulation, and this is Mr. Shaw's great and sound point.—I beg to subscribe myself, dear Sir, your admiring disputant,

F. C. TILNEY.

## Exhibitions.

### MODERN PHOTOGRAPHS AT THE NEW ENGLISH ART GALLERIES.

To any who are unacquainted with the peculiar qualities and the exalted aims of the modern artistic school of photography, the exhibition now open at 67a, New Bond Street will no doubt be of the highest interest and instructive value. To those, however, who know the work of Craig Annan, Coburn, Holland Day, Demachy, Mrs. Kasebier, the Baron de Meyer, and Puyo, the exhibition is not freshly informing. Most people who take an interest in pictorial photography have seen the bulk of the exhibits before, and it is to be presumed that the inception of the show is due to a desire for a special appeal to the outside public who have escaped previous exhibitions.

It is quite unnecessary to say that the collection of prints is a particularly art-y one. Its very housing upon the walls of the most advanced of art clubs gives it a sort of proud exclusiveness. By the way, those walls have a truly attic simplicity, being approached by a sort of slum staircase. But the place is bright and the walls are clapped, and the prints are stylishly mounted, and the catalogue is easy," and the Bernard Shavian shocks (which the photographers have coolly appropriated to make folk think that this is the style of photography which inspires the oracle, whereas really it's the style of thing that he will have none of) are of high frequency.

Six of the exhibitors send twenty works each, and the seventh, Puyo, sends but eight. If all had sent eight—the best eight—the show would have been more worth the shilling toll that is levied upon all who would ascend this Avenus.

The pictures of J. Craig Annan are the most steady in aim, and the most chastened in style. We wonder that so photographic a work as the "Portrait of Mrs. C." is allowed in this company. Of A. L. Coburn's work the finest are "Setubal," the "Rudder," and "London Bridge." F. Holland Day's prints are all dated, as though he were an imitatable "old master." It must be admitted that they wear well, for after an absence of three or four years one turns to them with all the old interest revived. The gum prints of M. Demachy are always enjoyable, and we shall never tire of the "photographic character" of such good things as "Montmartre."

In the case of Mrs. Kasebier a half dozen stand out from her score being fine things, and two of them are excellently fine—namely,

"The Silhouette" and "The Manger." The Baron de Meyer has chiefly filled his space with glass jam-pots holding gawky culled blossoms. One of these prints is indeed but the photograph of the shadow cast by two or three chrysanthemums. It is hard to imagine pictorial motive and incentive in worse straits. His six portraits are more worthy things, especially "Mrs. Kasebier," "Mrs. Koehler," and "Baroness de Meyer." The works that M. Puyo sends add nothing to his present reputation. One which appeared to have a cloud of flying fishes in the air turned out to be a picture of snow-covered hills with bits of dark rock showing through.

If the lay press, taking this little group of moderns on trust, and not as they find them, has given furtherance and publicity to pictorial photography, as one or two undoubtedly have, then we cannot but be grateful to the promoters of the show. We wish them both cash and kudos of their venture, which lasts until February 9.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following patents were applied for between January 14 and 19:—

PAPERS.—No. 993. Process for preparing paper for photographic purposes. York Schwartz, 77, Chancery Lane, London.

FINISHING PHOTOGRAPHS.—No. 1,157. Machine for preparing glass or other plates and applying thereto photographic prints in the process of finishing. Charles Rubie Neve, Belmont, Spencer Road, Wealdstone, Middlesex.

DAYLIGHT DEVELOPMENT.—No. 1,229. Improvements in and relating to the daylight development of photographic plates and films. George Wishart, 96, Buchanan Street, Glasgow.

PRINTING DEVICE.—No. 1,359. New or improved photographic printing device, particularly applicable for use in the duplication of drawings. Charles Jennings Hillman, 149, Strand, London.

DAYLIGHT DEVELOPING, ETC.—No. 1,404. Improvements in and relating to the daylight insertion and exposure in the camera of photographic dry plates or films, also the daylight developing of same, and combined appliances therefor. George Wishart and Frederick Mackenzie, 96, Buchanan Street, Glasgow.

FILMS.—No. 1,454. Improvements in the manufacture of films for photographic and other purposes. John Henry Smith, Cun House, Surrey Street, London.

SHUTTERS.—No. 1,468. Improvements in curtain-shutters for photographic cameras. Optische Anstalt C. P. Goerz, Akt.-Ges., 31, Bedford Street, Strand, London.

### COMPLETE SPECIFICATIONS.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

COLOUR PHOTOGRAPHY.—No. 716, 1906. Process for reproducing multi-colour photographs by means of one negative. C. L. A. Brasseur.

### New Trade Names.

COLO.—No. 286,153. Chemical substances used in manufactures, photography or philosophical research and anti-corrosives. George Nelson, Dale, and Co., Limited, Emscote Works, Wharf Street, Warwick. Manufacturers of gelatine. September 13, 1906.

FAIRY.—No. 286,156. Chemical substances used in manufactures, photography or philosophical research and anti-corrosives. George Nelson, Dale, and Co., Limited, Emscote Works, Wharf Street, Warwick. Manufacturers of gelatine. September 13, 1906.

ISOGINE.—No. 286,159. Chemical substances used in manufactures, photography or philosophical research and anti-corrosives. George Nelson, Dale, and Co., Limited, Emscote Works, Wharf Street, Warwick. Manufacturers of gelatine. September 13, 1906.

RADITE.—No. 287,638. A chemical substance used in manufactures, photography or philosophical research. Masters Monroe, trading as the Radite Company, 190, Vauxhall Bridge Road, London, S.W. Engineer. November 6, 1906.

SATRAPOL.—No. 289,125. Chemical substances used in manufac-

tures, photography or philosophical research. Chemische Fabrik auf Actien (vorm E. Schering), 170, Mullerstrasse, Berlin, Germany. Manufacturers. December 27, 1906. Address for service within the United Kingdom is c/o Carpmal and Co., 24, Southampton Buildings, London, W.C.

RAJAR.—No. 287,481. Photographic sensitised paper. Rajar, Ltd., Town Lane, Mobberley, Cheshire. Manufacturers of photographic materials and apparatus. November 1, 1906.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Ozobrome.

The working bath dissolves a little gelatine when used (writes Mr. J. H. Wilson in "The Photographic Monthly"), but will keep a long time if Mr. Manly's hint be taken about the addition of alum. He recommends that from 40 to 80 minims of a 5 per cent. solution be added for each four ounces of concentrated solution contained in the old working bath just before it is used. A statement to the effect that ordinary carbon tissue is unsuited to the ozobrome process is a direct challenge to the perversity of human nature, at any rate, in individuals like myself who have an unbelieving habit of making tests. I consequently wasted much time and about a square foot of carbon tissue in the attempt to disprove it. I found that, while it is easy to get an ozobrome of a sort in this way, yet I could not get anything like such a good one as from "the pigment plaster" and the same original, and this is owing, I believe, to the difference in the proportion of gelatine contained in the two.

### Shaw on Demachy.

This outburst of our friend Demachy (writes Mr. G. Bernard Shaw in Tuesday's "Amateur Photographer," in reference to M. Demachy's recent description of photographic characteristics as "anti-artistic") is pure *lèse-photography*. What is all this about "the photographic character being an anti-artistic character"? About "methods of art which are incontestably superior to photography"? Name those methods. What are they? I deny their existence. I affirm the enormous superiority of photography to every other known method of graphic art that aims at depicting the aspects and moods of Nature in monochrome. I say that a photographer imitating the work of a draughtsman is like a man imitating the noises of a barnyard; he may do it very cleverly, but it is an unpardonable condescension all the same. Also, he is substituting an easy, limited, and exhausted process for a difficult one which has never yet been pushed to the limit of its possibilities.

Mr. Shaw breaks off his note in characteristic fashion:—

"I regret that an urgent appointment at the Court Theatre compels me to break off at this thrilling point."

### A Distance Table for Flashlight.

The following table, given in the "Photographic News" of last week, is advanced as a guide for the correct amount of pure magnesium necessary for lighting a portrait at certain distances, using stop *f*/11 and an extra rapid plate:—

Distance of Light from Subject.	Grains of Magnesium required.
10 feet.	20 grains.
15 "	45 "
20 "	80 "
25 "	125 "
30 "	180 "
35 "	245 "
40 "	320 "
45 "	405 "
50 "	500 "

For ascertaining the quantity of light necessary for any other distance it should be remembered that here the value of the illuminant varies conversely as the square of its distance. Taking five grains of powder, therefore, as sufficient to light a portrait at five feet distance (five feet is much too near, however, for most practical work, as the lighting would be very harsh), it is easy to ascertain any other amount necessary for any given distance.

## Dew Apparatus, &c.

The Kodak Paper Developing Machine Made by Kodak, Limited  
57-61, Clerkenwell Road, London, E.C.

To save the fingers of the photographer from contact with the developing solution is, we take it, the chief aim of the Kodak Company in producing this piece of apparatus, and admirably they have achieved it. The machine has other points to its credit, but this we should put first. The exposed bromide or gaslight paper need not be touched from the time it leaves the worker's hand until ejected from the machine into a dish of water, as shown in the second figure. Developer having been poured into the well of the machine, one end of the print is inserted in the slot of the drum

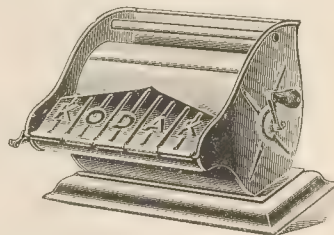


Fig. 1.

(shown in Fig. 1), and the drum rotated. The print is thus drawn evenly through and through the developer, its progress being observed as it passes on the upper side, where, if need be, it can be allowed to rest. All that is necessary to transfer it to the wash water or the fixing bath is to reverse the handle, when the print is lifted from the drum and discharged over the hinged "shoot" on the front of the apparatus into its appointed receptacle. We imagine that those who are unable to employ metal owing to the effect it has upon the fingers, will gladly welcome this piece of apparatus; but many more than those afflicted with this personal idiosyncrasy

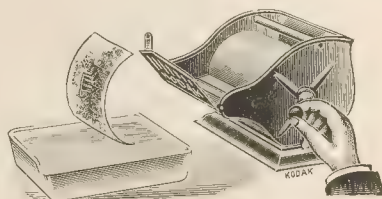


Fig. 2.

crasy should favour the addition of the machine to the equipment of their dark-rooms on account of the even and regular action of the developer and the entire absence of mess. The introduction of the machine marks another step made by the Kodak Company in making every photographic operation fit almost for the drawing-room or boudoir.

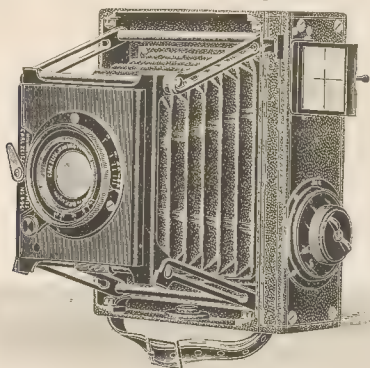
The developing machine is made in shining nickelled metal, and in appearance is so handsome that the task of the dealer—and particularly of him who can exhibit it in action—in selling it should be the easiest imaginable. The instrument takes prints up to about 10 x 5 inches, and costs £1 4s.

The Minimum Pamos 2½ x 3½ Folding Camera. Made by Carl Zeiss, Jena, and 29, Margaret Street, London, W.

In issuing a smaller pattern of the Pamos camera, which we reviewed almost exactly a year ago, the eminent Zeiss "Stiftung," of Jena, have embodied several new features which still further add to the usefulness of the instrument in practical work. In the first place the focal plane shutter in self-capping—that is to say, the slit is closed during the winding of the shutter and does not reach the particular width for which it is set until it is released. The gain in convenience to users of roll-film does not require to be pointed out, but it may be said that this added convenience of the focal-plane shutter is attained without sacrificing the facilities of the shutter in other respects; and, as in the case of that fitted to the cameras



already submitted to us, the adjustment of width of slit is done entirely from the winding key, and is made either before or after winding. The shutter is fitted with one tension only, the speeds, from 1/10 to 1/750, being obtained by alteration of the slit. The shutter also opens to the full size of the plate for time exposures.

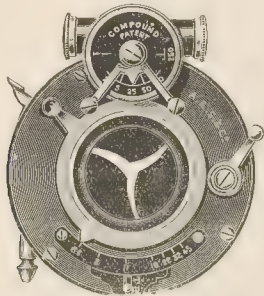


In other respects the camera is excellently made—in fact, it is difficult to think of a more efficient combination of strength, lightness, and utility—and in detail and general design is admirably adapted to be the companion of a tourist photographer, who need not fear to take it into any part of the world.

The camera takes a  $3\frac{1}{2} \times 2\frac{1}{2}$  picture, is fitted with a Tessar  $f/6.3$  of 11.2 cm. focal length, and with three double dark slides and leather case costs £13 5s.

The Deckel "Compound" Shutter, 1907 Model. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C.

In the model of this shutter improvements have been made which make for accuracy of working and convenience in use. The shutter is now made throughout of magnalium (black bronzed and inconspicuous), and weighs just over three ounces, the three plates of the diaphragm opening being very light indeed, and thus aiding the proper working of the shutter. There are the customary time, bulb, and instantaneous adjustments, the figures for which are engraved, not only on the face of the shutter, but on the upper rim of the central dial plate, so that a change can be made by the operator from behind the camera without leaning over to



examine the face of the dial. The shutter is made in six sizes, interchangeable with the  $5 \times 4$  and  $8 \times 5$ , "Unicum" and "Auto" shutters, so that existing lenses fitted with these shutters can have a new "Compound" attached without any alteration beyond the engraving of the diaphragm plate. We are glad to add to this the fact that for an additional sixpence Messrs. Staley supply a card of speeds for the shutter from tests made by themselves, an offer which should be proof of their satisfaction with the incidence of the marked and actual speeds.

THE Boardman Arc Lamp.—In reference to the new lamp of the Boardman Co., noticed in our issue of January 18, we would like to be allowed to supply an omission. The lamp was submitted to us in notice by Messrs. W. Watson and Sons, 313, High Holborn, W.C.,

who are the agents for it. Messrs. Watson will be pleased to answer any inquiries as to the lamps and to quote for complete installations for any given purpose. We are all the more glad to add this announcement to the technical particulars published a fortnight ago, since many of Messrs. Watson's customers will be glad to know that the old-established Holborn firm is watching their interests in the matter of artificial light.

The Imperial Exposure Reckoner, issued by the Imperial Dry Plate Company, Limited, Cricklewood, N.W., reaches us in a revised form. The table of speeds of the Company's plates, for which the "reckoner" is intended, has been brought into line with present manufacture, and, at the same time, the form of the reckoner is greatly improved. As now produced, the publication is a stiff folder measuring  $2\frac{3}{4} \times 4\frac{1}{2}$  inches, and carried comfortably in the waistcoat pocket. The scales are easily legible, and provide for the widest range of conditions in outdoor and indoor photography on the seven leading brands of "Imperial" plates. The "Reckoner" is strongly made in cloth, and sells at one shilling.

MOTORING Portraits.—Messrs. W. H. Redshaw and Son, Bourne, Lincs., have introduced a new series of accessories in the shape of imitation motor cars, which should be popular with photographic businesses where sitters appreciate surroundings which are foreign to their customary daily routine. The motor car accessories are supplied in two styles, the larger capable of seating three persons, and costing with seat and wheel complete, in flatted oil, £5 5s.; the smaller, showing the front of a car, and seating two persons, costs 7s.; or 6s. without seat. Messrs. Redshaw and Son will doubtless send a photograph illustrating the accessory in use to genuine photographers who make application to them.

## New Materials.

"Criterion" Rough Matt Bromide Paper. Made by the Birmingham Photographic Co., Stechford, Birmingham.

A new variety of bromide paper has been added to the series of "Criterion" papers by the introduction of this "rough matt," which is not rough and not matt, but something between the two, which it is useless to attempt to describe, but which, we should say, might be used for all the work which is usually done on the finest matt, if the photographer feels that his sitters can stand a slight move away from the minute detail of the glossy and semi-matt papers. In other respects the paper, in our hands, has shown itself possessed of the good qualities looked for in a modern bromide paper, and is supplied in all the usual sizes of sheet and package.

Mattos Papers, Vellum, Silk, and Wood. Made by Mattos, Ltd., 36, Arundel Square, Barnsbury, London, N.

We have recently had the opportunity of employing a supply of these sensitive materials, manufactured by the Mattos Co. for those of their customers who desire effects of a broader character than is obtainable on the rather fine matt surface of the standard brand of the No. 1 paper. The Nos. 2 and 3 papers are "Smooth Rough" and "Half Rough," the latter a rougher surface than the former. This choice of papers should satisfy photographers who are putting something distinctive before their customers, but the Mattos Co., with veritable prodigality of resource, issue also other special paper, Japanese vellum, linen, silk, satin, and wood, all sensitised by their process and all treated in identically the same way as the Mattos paper with which many of our readers are doubtless conversant. Our experience of these materials is not an extensive one, we will admit, but is sufficient to show us the ease with which a great variety of effects are obtainable without altering the *modus operandi* as regards toning and the other operations, save only in the case of the sensitised wood, that sufficient time must be allowed for proper fixation and for washing out the hypo. The tone of a print on wood, also, is warmer than that of one similarly made on paper. We commend a trial of these materials to those photographers who can place a novel and fairly high-priced type of print before their customers with a reasonable prospect of profit. The prices of the special sensitive media are higher than those of the regular paper, but the Mattos Co. supply in small packets, thus permitting of a tentative use of them at a small outlay.

A specimen of the "Prima" enlargements of Mr. H. Holden, 10, London Street, Paddington, W., is submitted to us by the maker, and is a piece of bromide work which we can commend for its fine lustrous quality. Mr. Holden works by daylight, and finds that he thus needs to put much less "finishing" on enlargements and that the retouching on the negative is agreeably rendered. His claims are certainly borne out in the example before us.

### CATALOGUES AND TRADE NOTICES

Some specimens of effective printing reach us from Messrs. Edwin Osborne and Co., 26, Red Lion Square, W.C., and known to all photographers as a supply house of mounts and other studio stationery. The examples show Messrs. Osborne to be successfully producing price lists and booklets which photographers may distribute with profit.

Messrs. W. Watson and Sons, of 313, High Holborn, London, W.C., send us their latest list of second-hand apparatus, a copy of which they will forward to any of our readers on application. The list included, amongst a variety of other articles, a large assortment of high-class cameras and lenses at greatly reduced prices, and we would advise those who intend adding to their photographic outfit for the coming season to obtain Messrs. Watson's list, or give them a call at the above address.

Bargains in enlargers are specified in a circular issued by Mr. W. Hume, 1, Lothian Street, Edinburgh, the well-known maker of enlarging apparatus. Mr. Hume is revising his series of enlargers, and in consequence offers a number of instruments, suitable for amateur and professional use, at about half the list prices. The circular should repay perusal by those in want of a reliable enlarging lantern for oil, gas, or limelight.

An album of celebrities has been issued by Messrs. Marion and Co., 22 and 23, Soho Square, W., as a reminder of the leading houses who use Marion plates in their regular business. The album includes portraits of the King, Lord Curzon, Mr. Chamberlain, Mr. Haldane, Lord Kitchener, Sir Henry Irving, and includes the prices of and formulae for the various brands of the firm's plates. It is sent free on application.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, FEBRUARY 1.

Sutton Photographic Club. "Modern Methods of Mounting." Hector Maclean.  
Aberdeen Photo. Art Club. Exhibition and Social Evening.  
Chester Society of Natural Science. "What Can be Done with a Hand Camera." C. P. Goerz.  
West London Photographic Society. Members' Lantern Night.

#### MONDAY, FEBRUARY 4.

South London Photographic Society. "Steps Toward Picture-Making by Photography." H. Snowden Ward, F.R.P.S.  
Lancaster Photographic Society. Federation Lantern Slides.  
Southampton Camera Club. Lantern Slide Competitions. 1. Landscape or Sea-Scene. 2. Flowers or Still Life.  
Oxford Camera Club. Annual General Meeting.  
Preston Camera Club. "The Carbon Process." Demonstrated. The Autotype Co.  
Leek Photographic Society. Monthly Lantern Night.  
Aldershot and District Photo. Society. "Latest Kodak Productions."  
Canterbury Camera Club. "Tabloid Brand Photographic Chemicals."  
Catford and Forest Hill Photographic Society. Print Competition. "Ozobrome." Demonstrated.  
Bowes Park Photographic Society. "Practical Hints in Pictorial Work." A. Horsley Hinton.  
Erdington Photographic Society. "Self-Toning Paper."  
Wilkesden Photographic Society. "Leading Principles in Velox Manipulation."  
Darwen Photo. Society. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Attercliffe Photographic Society, Sheffield. "The Photographic Lens." C. P. Goerz.

#### TUESDAY, FEBRUARY 5.

Royal Photographic Society. The Second of a Series of Demonstrations upon Early Photographic Processes. "Talbot's Paper Process." Thomas Bolas, F.I.C., F.C.S.  
Stafford Photographic Society. "Elementary Photographic Chemistry." H. and F. Cliff.  
Darlington Camera Club. "A Holiday in Belgium." R. W. Chapman.  
Hove Camera Club. Open Night.  
Liverpool Amateur Photographic Association. Auction of Members' Superfluous Goods.  
Manchester Amateur Photographic Society. "Bromide Enlarging." J. D. Leigh.  
Blyth and District Camera Club. "Mounting Exhibition Prints." A. D. Miller.  
Hackney Photographic Society. Smoking Concert.  
Sheffield Photographic Society. Photography Competition Slides.  
Worthing Camera Club. "Wellington New S.C.P. Lantern Plates, S.C.P. Gaslight Papers, Bromide Printing and Toning." Demonstrated. A. H. Dunn, F.R.G.S., F.R.P.S.  
Otley and District Camera Club. "Postcard Photography on 'Rotograph' and 'Rotox' Postcards."  
Aldrincham Photographic Society. "Sports and Pastime with the Goerz-Anschutz Folding Camera."

Border City Camera Club, Carlisle. "Pictures with the Goerz Lens."  
Rotherham Photographic Society. Social Evening.

#### WEDNESDAY, FEBRUARY 6.

Borough Polytechnic Photographic Society. "Ozobrome." Mr. Manly.  
North Middlesex Photographic Society. Lantern Slide Competition.  
Everton Camera Club. "Finotype Process." Ernest Ives.  
Leicester and Leicestershire Photographic Society. Home-made Apparatus.  
Members. "Ozotype and Ozobrome." H. L. Hopkins and Harry Walker.  
Edinburgh Photographic Society. "Lawn Tennis Photography." A. Walla M'Gregor.  
Bristol Photographic Club. "Ozobrome." T. W. Brown.  
Leeds Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper." O. S. Dawson.

#### THURSDAY, FEBRUARY 7.

Blenheim Club. "The Women and Girls of Many Lands." Clive Holland.  
Richmond Camera Club. "Development and the Negative." T. A. Coysh.  
Hull Photographic Society. "Marine Photography." F. J. Mortimer, F.R.P.S., L.C.S.  
School of Photo-Engraving. "Photographic Printing in Natural Colours."  
North West London Photographic Society. "Our Chapter Houses." E. W. Harvey Pper.  
Tunbridge Wells Amateur Photographic Association. "Photography by Artificial Light." H. Wild.  
Rugby Photographic Society. "Ozobrome." Demonstrated.  
Chelsea and District Photographic Society. "Pictorial Composition." A. G. Mountford.  
Small Heath Photographic Society. "Enlarging Simplified."  
Halifax Camera Club. "Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning Bromide Paper."  
Handsworth Photographic Society. "The Production of Negatives with Various Developers."  
London and Provincial Photographic Association. Lantern Slide Making. "Dry Plate." J. S. Teape.

### ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held on Tuesday, January 29, Mr. Thomas Bolas, F.I.C., in the chair.

Mr. W. Beck exhibited and explained the "Cervex" shutter of Messrs. R. and J. Beck, Ltd.

Mr. Robert T. Haines read a paper on "Animated Photography and the Principles of Duplex Projection," in which he described a system of cinematographic projection, in which the positive image projected was never at any time obscured, even partially, and from which, therefore, flicker would be entirely absent. The system depended upon the alternation of the odd and even pictures in a film on a band almost double the width of the upon which the negatives were taken. These alternate pictures were projected, one by one lens and one by another, accurately paired with the first, and the mechanism of the instrument provided for one picture being cut off whilst the other was being brought into action. The lecturer described the first apparatus constructed by himself, in which two lights were used, but he found that it was impossible to maintain exact equality of the two illuminants, and therefore in a later instrument he had used a single arc, the light of which was deflected to the two projection systems by mirrors. The instrument was being constructed in Paris, but Mr. Haines could not say when it would be completed.

Mr. H. V. Hopwood referred to the present unsatisfactory conditions of cinematographic projection, whereby the films were run through at an immensely higher speed than that at which they were taken, with the result that a trotting horse gave the speed of a gallop without its action, and persons who were actually walking in a street assumed a gait which was nondescript. This was simply due to the efforts of the operators to counteract the flicker of the cinematograph by decreasing the dark intervals—at the expense, however, of a natural and pleasing reproduction. Mr. Hopwood referred to the curve of an impression on the retina, and thought that the removal of flicker from a cinematographic effect would be found to be connected with the curious curve representing the impression of any strong light upon the human retina.

Dr. T. C. Porter referred to two papers by himself on the cause of flicker in cinematograph work read before the Royal Society. In these papers he gave calculations whereby flicker might be entirely removed, and he thought that mechanicians and others interested in the cinematograph might find it of some advantage to refer to these communications.

Mr. R. R. Beard also mentioned some practical conditions tending to the extinction of flicker.

Dr. T. C. Porter then read a paper on "Some Extensions of Von Helmholtz's Work on Stereo-Photography." He commenced by explaining the principles of true stereoscopic effect, the cause of which, he maintained, was the effort which each eye had to make in order to bring its line of vision from parallelism to convergence upon a distant object. The angle through which the line of sight had to be brought was greater the nearer an object, and the effort necessary to cause convergence upon objects at different distances was the cause, he declared, of the true stereoscopic effect. He had found



by actual experiment that there was a limit, at no very great distance from the eye, to this true stereoscopic effect, but the limit was greatly removed if the distance between the two eyes could be artificially increased by optical means, such as were suggested many years ago by Von Helmholtz in the shape of a pair of mirrors which reflected and re-reflected the rays reaching the eye. By this artificial means it was possible to intensify the ocular stereoscopic powers, and the same principle might be extended to stereoscopic photography to practically any extent. Dr. Porter gave instances, and exhibited photographs in illustration thereof, of the means which was thus afforded of measuring the distance of natural objects such as a landscape, clouds, etc., and expressed the view that greater attention should be given to this application of stereoscopy for military and other purposes. Little time was left for discussion, and the meeting closed with the usual votes of thanks to the readers of the papers.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting held on Thursday, January 24, Mr. Freshwater in the chair, the Chairman read a paper by Mr. Herbert E. Ives, upon "Improvements in the Diffraction Process of Colour-Photography." The Joly process was noted in some detail as having a direct bearing on the newer methods. To eliminate the grating effects of the narrow strips of gratings considered at lines, the device is used of making the strips (Joly lines) run at right angles to the diffraction grating lines, so that the spectra produced by them are thrown off in another direction, and do not enter the eye. The diffraction lines furnishing the three primary colours are:—2,400 to the inch for the red; 3,000 for the green, and 3,500 for the blue, and these are used in groups of three, of which there should be at least 200 groups to the inch. When viewed with the lens the pictures are entirely free from the defects of the old Joly system, the colours being both pure and brilliant, and the lines being too fine to be visible. The "Diffraction Chromoscope," Mr. Ives' invention for viewing the views, was shown by Mr. Freshwater, as were also slides the beauty of which were much admired by the members present. It was understood that the apparatus is shortly to be placed upon the market by Messrs. Newton and Co., and that further improvements might be expected, inasmuch as it was expected to be able to attach the apparatus to the ordinary lantern for projection, and also for making the pictures directly in the camera.

**CROYDON CAMERA CLUB.**—The annual meeting was held on the 3rd ult., and disclosed a very satisfactory state of affairs. Thanks to the untiring energy and business ability of its hon. secretary (Mr. H. M. Bennett), instead of an expected deficit due to the heavy expenses occasioned by the club's removal to its new premises, a good balance in hand was announced. Mr. A. E. Isaac was appointed president in place of Mr. W. H. Smith (resigned), and a hearty vote of thanks was deservedly accorded the latter. He, and the Council generally, are to be congratulated on having arranged a record fixture list in the past year.

**SOUTHAMPTON CAMERA CLUB.**—Mr. W. F. T. Wastell, on Monday last lectured on "A Dive into Belgium," and for over an hour entertained and interested a numerous audience.

Mr. GIDEON CLARK has been appointed secretary of the South London Photographic Society, and all communications should in future be addressed to him at 101, Calbourne Road, Balham, S.W.

The International Society of Painters.—Photographers are constantly being told that they should study works of art. We hope they take the good advice. They would learn a great number of lessons, if they were to visit the present exhibition now open at the New Gallery. The choicest thing, in our opinion, is Oliver Hall's "Sandpits," which is as good as an old chrome and very like one. Next, to learn what is meant by atmosphere, the photographer should study Emile Claus's "Matinée de Septembre," and George Buysse's "Morning in March." To portraitists we recommend Lavery's "The Hammock," a charming study in posing and illumination, and Wm. Nicholson's "The Paper Cap." The much boomed Rodin shows at last the long expected bust of Bernard Shaw. It would make a decent figure-head for a ship. The contour of the back of the head is not so good as that of any china doll. It is a bad likeness, and is entirely without grace or beauty.

## News and Notes.

**DEATH of a Consett Photographer.**—The death occurred shortly after ten o'clock on Wednesday, January 23, of Mr. Venice Dunn, photographer, of Medomsley Road, Consett, at the age of 55 years, after a protracted illness. For a few years Mr. Dunn represented Consett on the Lanchester Board of Guardians. The deceased built up an extensive business in the district as a photographer and dealer in artists' materials.

At the annual general meeting of the Bowes Park and District Photographic Society, on January 21, the following officers were elected for the ensuing year:—President, E. H. Down; Vice-Presidents, R. Core Gardner and W. T. P. Cunningham; Hon. Treasurer, H. Oliver; Hon. Librarian, F. C. Hornsey; Hon. Secretary, C. S. Carr; Council, J. A. Lovegrove, C. W. Peacock, and A. G. Warren. The annual exhibition will be held from February 21 to 23. Residents in the locality wishing to avail themselves of the privileges of membership should communicate with the Hon. Sec., Mr. C. S. Carr, 5, Earham Road, Bowes Park, N.

Mr. A. E. HARRIS, Hon. Sec. of the Cardiff Photographic Society, writes to say that, whilst their exhibition, which opens on February 15, is a members' show, in which there is no adjudication and no prizes are offered, they will be glad to receive, as on previous occasions, pictures from any outside workers, provided these are sent at the owner's risk and expense. Such exhibits should be addressed to the Society, at 7 and 8, Working Street, Cardiff.

MEMBERS of the Blenheim Club are to be congratulated upon the tempting programme of lectures provided for them during the current session, which will be held at the Club, 12, St. James's Square, S.W., on Thursday evenings at 8.30. Amongst these we note "The Women and Girls of many Lands," by Clive Holland; "An Architect's Tour on the Loire and in Poitou," by G. A. T. Midleton, A.R.I.B.A.; and "Picturesque India," by Mr. E. R. Ashton.

THE Lumière N.A. Company write: "We shall be glad if you will give publicity to the fact that the reports of a fire at our factory, which have recently appeared in the English press, owe their origin to a small outbreak occurring in a portion of the old factories. We have assurances from Messrs. Lumière that its effect is negligible, and that it has occasioned not the slightest delay or inconvenience in delivery of orders."

"LA FOTOGRAFIA ARTISTICA."—Our Turin contemporary of the above name is holding a great international competition for artistic and scientific photography, the interesting prospectus of which, in English, as written at Turin, reaches our table. We read that Messrs. J. H. Dallmeyer, Ltd., offer "a stegmatal objective, with obturateur 'Compound' of aluminium, and a tele-objective, 'Adon,'" and that "each concurrent will not have more than a prize for category. The works of the photographer of profession will be judged separately from those of the amateur."

**METRIC WEIGHTS.**—Two sets of tables of English and metric equivalents are sent to us by Mr. P. E. Radley, the compiler and publisher, of 30, Theobald's Road, London, W.C. The one is a 64-page booklet, and the other an eyeletted card for hanging. Both give a great variety of factors for conversion from one system to the other, though the requirements of photographers, we believe are better met by more detailed tables giving the equivalents of grains and ounces, and fluid ounces in grammes and cubic centimetres respectively.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—With the desire of helping the younger hands at photography, the members of the above association are arranging a series of special elementary lectures and demonstrations, each section being taken by the older members who have given special attention to the work in hand. Visitors are ever welcome at the meetings of this association at the White Swan Hotel, Tudor Street, E.C., on Thursdays, at 8 p.m.

We would remind intending exhibitors that entries for the exhibition of the Nottingham Camera Club close on Feb. 14. The awards in this exhibition will take the form of pictures to the value of one guinea to be purchased from the exhibition, instead of the usual plaques.

## Commercial & Legal Intelligence.

**SEASHORE Photography.**—At the Scarborough County Court, on January 24, his Honour Judge Dodd gave a judgment in the case of the Sherburn Rural District Council and George H. Doran, Filey, photographer, who claimed £1 10s. and an injunction. His Honour, in giving judgment, said that in this case the Sherburn Rural District Council brought an action to recover from Mr Doran, a photographer, who for some years had lived and carried on business at Filey, a sum of 30s., balance of £3 which it was alleged he agreed to pay the plaintiffs for the exclusive right to have a photographic cart on Muston Sands, to photograph persons or things upon the sands during the season of 1905, and also for an injunction to restrain the defendant from using the sands as a photographic stand without the consent of the plaintiffs. In the course of the case, upon the application of Mr. Perks, the counsel for the plaintiffs, he (his Honour) added a claim for damages for trespass upon the sands by the defendant in taking photographs upon the sands, and using the sands for the purpose of taking photographs thereon, without the consent of the plaintiffs. With regard to the original claim in the action, the claim founded upon the alleged agreement, the plaintiffs did not, in his judgment, succeed in proving that the defendant did agree to pay them the 30s. balance for the season of 1905. The plaintiffs must rest their case wholly upon the claim for damages for trespass in the year 1906, which was added, as his Honour had stated, to the original claim. With regard to the added claim, the Lord of the Manor, Mr. Mitford, was undoubtedly in possession, and had been so for many years, of the foreshore in question, and whilst in such possession let the sands to the present plaintiffs to hold, as his tenants, on certain terms. It was proved by very clear evidence that at all times material to that action the present plaintiffs were in possession as such tenants of the Muston Sands, and consequently were entitled to hold those sands as against any trespasser or person having no title. His Honour, therefore, found that the defendant was, in 1906, a trespasser, and liable in damages, which, under the circumstances, he assessed at a nominal sum of 5s. Should the defendant, or any other person, without right, wilfully persist in trespassing whilst the present plaintiffs were in possession of the sands, he had no doubt damages for such a trespass deliberately committed after the plaintiffs' rights had been made plain in that action, would be calculated upon a very different scale.

**A BUILDING Lawsuit.**—Lord Johnstone last week closed the record in an action by Charles Sweet, photographer, Rothsay, against W. C. Muir, draper, Montague Street, Rothsay, for £700 damages. Pursuer and defender are proprietors of adjoining subjects at 18 and 19, Battery Place, Rothsay, which formed one building. In 1905 defender took down the house at 18 and proceeded to erect a tenement of four storeys. During the construction of the tenement pursuer took out interdict against defender for encroachments on mutual property, but an agreement was come to under which defender undertook to do certain things which his operations had rendered necessary. Pursuer says defender has failed to implement the agreement. He further complains that defender's operations have caused sinking of the mutual wall and otherwise injury to his property, through which he has suffered damage and loss to the extent of the sum concluded for. Defender says the house he took down, as well as pursuer's, was over 70 years old. He states that the work has been carried out with due regard to the interests of the pursuer, and all unnecessary disturbance or injury to the neighbouring property has been, as far as possible, carefully avoided. He avers that he has observed the terms of the agreement, and, without prejudice, again offers to restore any damage caused by his operations, as same might be determined by a man of skill. He denies pursuer's averments of damage, and pleads that pursuer has no title to sue. The case was sent to the procedure roll.

**W. GRIGGS AND SONS (1906), LTD.,** Peckham, S.E.—Lien registered January 10, for £5,000 six per cent. debentures, part of £7,000 authorised; no trustees; secured on the undertaking, property, assets, and the uncalled capital, present and future, including the business of photo engravers and chromo-lithographers carried on in Peckham, S.E.

**SOUTHWARK Photo Engraving Company, Limited.**—Issue on 10th January of £1,500 6 per cent. debentures, being the whole of a series created same date, charged on the company's undertaking and property, present and future, including uncalled capital.

## Correspondence.

*\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\* \* We do not undertake responsibility for the opinions expressed by our correspondents.*

### ADVERTISING.

To the Editors.

Gentlemen,—In a letter appearing in your issue of the 25th inst., Ilford, Limited, charge us with discourtesy towards themselves in the wording of an advertisement of Portrait Velox issued by us. May we be allowed to present the other side of the subject?

The name "Portrait" Velox was adopted by us over ten years ago to describe a particular texture and quality of gaslight paper. During the whole of that period it has been prominently advertised and a large public now know it and order it under that name. The exclusive use of this word by us has been respected until recently by all rival manufacturers—a striking testimony to the existence of those "soft manners," referred to by Ilford, Limited, in their letter, and which we, with them, are delighted to recognise.

Yet, without warning, Ilford, Limited (with some others), forgetting the gentle courtesy for which photographic manufacturers are famous, first of all copy, as nearly as they can, the precise texture and general appearance of our "Portrait Velox," and next proceed to appropriate the very name "Portrait" which we have used unchallenged for so long a time, and this is the more difficult to understand seeing that a host of other suitable names was at their disposal.

Hence the publication of our advertisement, which was not levelled at Ilford, Limited, for this imitation of name, as stated, is not confined solely to them. We felt that the circumstances compelled us to offer a caution to the public, who, we held, were more than likely to suffer confusion, as to which was the original "Portrait" paper and which the imitation.

We cannot agree with Ilford, Limited, in classing the word "Portrait" with such words as "Plates" and "Papers." These latter are common property, being descriptive of certain kinds of manufactured articles; the word "Portrait" is descriptive of certain kind of picture, and, as such, is common property; but it is in no sense descriptive of a certain kind of paper, except in so far as it has become so through our own special application of the word during a very long period.

Therefore, with your permission, we desire to return, if possible without wounding your correspondent's feelings, this cap of discourtesy, for, in our view, it does not fit us. —Yours truly,

JOHN J. GRIFFIN AND SONS, LTD.

### THE USE OF FLAMING SUNLIGHT ARCS IN PORTRAITURE.

To the Editors.

Gentlemen,—Will you allow me a little space on the above subject to add my mite, and also to elicit, if I can, a little information?

First of all, with regard to the cost of the flame arc, which, presume, is inclusive of, if not the same as, the "Excello." At the York meeting of the British Association last August, Professor Silvanus Thompson gave a lecture on "The Manufacture of Light," which I had the pleasure of hearing, and which has since been published in book form; a great deal of very valuable information was given, much, however, of little photographic value. The following items, however, extracted from a much more complete table, have direct bearing on the cost of the two arcs.

		Efficiency.				Cost.
	Spherical c.p.	Watts.	Watts per candle.	B.T.U. per c. hour.	Luminous Efficiency.	Pence per 1,000 candle-hour
Ordinary arc...	353	440	1.26	3.71	0.00318	2.40
Flame arc .....	1655	440	0.265	0.78	0.01080	0.504

B.T.U. of course means British Thermal Units.

The cost of the current is taken at 2.4d. per kilowatt hour or unit.

The above cost naturally refers to the luminous efficiency and not the photographic, but the figures are interesting if not exactly applicable, and there must be some ratio between



the two, for I take it that the addition of the flaming material could not appreciably reduce the photographic action. In fact, the flaming arc owes its colour principally to the introduction of a calcium salt, one would naturally suppose that the photographic action might be increased.

Some rough idea of this may be gained from the spectra reproduced in your issue for January 11, p. 21, but unfortunately these, I think, produced with a prismatic spectrograph, and there being no wave length or other scale, speculation would be but wild.

Mr. Payne says that there is more active red than yellow light in the yellow flame carbons. Is this correct? May it not happen that the red square of the Chapman Jones sensitometer transmits orange and yellow, as well as the red, and therefore there is a greater range of the spectrum to act than in the yellow? What I should like to know is the region of the spectrum transmitted by the coloured patches in the above sensitometer, and whether Mr. Payne considers it a reliable instrument for an approximate guide to the colour sensitiveness of a plate.

I beg to enclose a copy of Professor Thompson's book for your perusal, as there is much which might interest you or your readers. Yours faithfully, A. GASCOIGNE.

[We are grateful to our correspondent for his courtesy, and we hope to return to the subject of arc illumination generally, when one of the information given in Professor Thompson's book will be useful. "The Manufacture of Light," as Professor Thompson's book is titled, is published by Macmillan and Co., price 1s.—S. B.J.]

#### PHOTOGRAPHIC ASSISTANTS' PROTECTIVE SOCIETY.

To the Editors.

Gentlemen,—Up to the time of writing nine more persons have kindly sent in their names. This makes the total of 102 members. Since my last letter of January 4 several of my correspondents have been trying to persuade me to take a different course as regards the forming of a society. After lengthy consideration I have decided to do so. Before giving the only suggestion it is only fair that I should give my reason for doing so. A great many who have written to me are strongly of the opinion that we certainly ought to hamper the P.P.A. at present, as the good work they are doing is certainly on the increase. The general opinion is that we should leave the society open, so that when enough members have been enrolled, their decision could be taken as to what method of procedure the society should take. If the members are agreeable to join hands with the P.P.A. in any other good work they could do so. If this is the reason of a great many not joining the society we are trying to form, then I hope the change of leaving the society open will bring the desired result.

The following suggestion has been sent:—

That a meeting be called in London of assistants of all grades, managers, etc., to discuss the formation of a society. A committee be elected, and books opened for the admission of members. A declaration to be issued to all assistants, etc., applying for membership, giving the rules and objects of the society."

If I can get enough London assistants to arrange with me a special meeting I shall be willing to travel to London for the express purpose. Will all those assistants in London and district who are willing to meet me please inform me, and I will endeavour to make arrangements accordingly? This will now prove whether the assistants will rally to the cause of a society.

One point I wish to particularly mention is that several of my correspondents are very pleased with the managers' suggestion of January 4, and they are now firmly of the opinion that the P.P.A. can open out some scheme whereby they can become members. If the P.P.A. does so, then I sincerely hope a good number will rally to the cause.—Yours faithfully, U. DOUSE.

Richmond Terrace, Romsey, Hants.

**SULPHITE OF SODA.**—The Lumière N. A. Co., ask to be allowed to correct the information sent for publication last week. The sulphite of soda is sold in bottles containing 17 ozs. at 8d., and 35 ozs. at 1s. 3d., not 10 ozs. for 8d. as previously announced.

## Answers to Correspondents.

- \* \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \* \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- H. U. Schofield, 5, Aspect Terrace, Pudsey, near Leeds. Photograph of a Group of Three Clergymen.
- E. Gael, 12, Leopold Road, Bristol, N. Photograph (Combination) of Horfield Barracks.
- F. Ormiston-Smith, Grindelwald, Bernese Oberland, Switzerland. Photograph entitled "Winter Sunshine".
- Isaac Slater, Mostyn Street, Llandudno. Photograph of Roman Coins found in Little Orme's Head, Llandudno.
- T. Taylor, 33, St. Albans, Liverpool. Photograph of the Accrington Stanley Association Football Team. Season 1906-7.
- J. Boak, 39, Newport Road, Middlesbrough. Photograph of the Boat "Annie," and Three Boatmen, with Skandael ss. "Awa Maru."
- A. Ridley, Tenterden, Ashford, Kent. Five Photographs of Interiors of Miss Ellen Terry's Farm at Smalhythe, Tenterden.
- J. W. Briggs, 13, Station Street, Kirby-in-Ashfield, Notts. Photograph of Organ and Pulpit Destroyed by Fire in St. Wilfred's Church, Kirby.
- E. Bailey, 13, Castle Street, Canterbury. Photograph of Opening of the Rifle Range at Canterbury by the Mayor.
- L. M. P.—"The Ilford Manual of Photography," 1s., should be as useful to you as any other.

**STEREOSCOPES.**—I should be glad if you will mention the name and address of makers of the "one-eyed stereoscope."—J. A.

Mr. Theodore Brown, 26, Drummond Road, Bournemouth, has one, if not more, patterns of such instruments. One picture is viewed by one eye through the apparatus, while the second picture is viewed direct by the other eye.

**GLAZING POSTCARDS.**—Will you kindly inform me in your columns where I can obtain liquid gelatine for glazing picture postcards?—T. H. W.

It is not sold. The prints are glazed with a hot solution of ordinary gelatine by firms such as McCaw, Stevenson, and Orr, Sloe Lane, E.C., and Strane and Co., Belfast, who do such work for the trade.

**AMERICAN PHOTOGRAPHS.**—I shall be glad to know if the American portraits now being exhibited at your offices are likely to be shown in the North of England in the near future. I am anxious to see the exhibition, but await your reply before finally deciding to come up to London.—A. O. FISHER.

The prints will be returned to Herr Dührkoop, in Hamburg, at the close of the exhibition here.

**REMOVING RETOUCHING.**—I have a negative which I was foolish enough to print from without varnishing, with the consequence that I now have silver stains on it. As it is retouched, I would be glad to have an answer to the following through the medium of your valuable paper. Will you kindly say how to remove retouching medium from negative so that I can remove silver stains?—BERRY.

Rub the surface with cotton wool soaked in methylated spirit or turpentine.

**PHOTO-BUTTONS.**—Can you oblige me with the names and addresses of makers of "photo-buttons"? We have searched the ALMANAC and BRITISH JOURNAL, but are unable to find anyone advertising in that line.—BRISON AND CO.

Fallowfield, page 1265 of ALMANAC, is the source of supply. The articles are not made in this country.

**BLEACH-OUT PROCESS.**—On page 648 of the ALMANAC, 1907, you give an outline of the "bleach-out" process, with Dr. Neuhaus's formula for the coating mixture. 1. I do not know whether it is intended that methylene blue solution should be decimal one in fifty or one in fifty. Auramine solution, I suppose, is decimal one in fifty. Will you kindly explain what was intended? 2. Will you also say where primrose, Victorian blue,

curcumine, and anaethol may be obtained? 3. Also, where celluloid in quarter-plate size can be obtained?—G. B.

1. Decimal one. 2. The Bayer Co., Mosley Street, Manchester, or Mawson and Swan, Newcastle-on-Tyne. 3. In small quantities from Fallowfield or Houghton; in bulk from Guiterman and Co., 35 and 36, Aldermanbury E.C.

G. F. H. The idea seems a good one, so far as we can judge from the photographs, but we doubt if the sale will justify a patent. We may tell you that to take out and uphold a patent costs in all £100. We doubt if the sale of your device would stand this. You might take out a provisional protection, which will cost you only a guinea.

TRADE NAMES.—I am bringing out a new series of picture postcards, which I wish to call the "—" series. Can you tell me how I can find out if this name has already been used; and if not, what would be the cost of registering it, and how would be the proper way to do it?—AREMAC.

You can see from a file of the "Trade Marks Journal," which is probably in your free library. Otherwise we can only suggest your addressing your query to a stationery journal, such as the "Stationery Trades Journal," 12, Warwick Lane, E.C., or employing a firm to search the files at the Patent Office. We have never seen the name on postcards. You can obtain instructions for registration from the Patent Office.

REV. T. W. L.—The f/4.5 Holostigmat as recently reviewed in these columns. The single components can be used and are obtainable, each of double the focal length of the complete lens, or of unequal foci. We know of no camera of the same type which can be used at double extension except by means of a separate attachment. We suggest a folding camera of the hand-stand (hinged baseboard) type, a number of which you will see described in the ALMANAC.

SITUATION IN CAIRO.—Will you kindly tell me, through the medium of your valuable paper, if there is any chance of a young man obtaining a situation in Egypt—for preference, Cairo; and where, or in what paper, could he obtain same?—EGYPT.

We cannot say. You might insert an advertisement in "Le Journal" or "Sphinx," the former a French and the latter an English newspaper in Cairo.

EMULSION MAKING.—I shall be much obliged if you will refer me to the best and latest information published on the subject of making bromide emulsions for plates and paper.—HAROLD WEBB.

The best and latest information is given in Eder's "Handbuch der Photographie," Vol. III., but this is in German, and no English translation has yet appeared. The last English work was Abney's "Photography with Emulsions," published by Sampson Low, and Co., which, we believe, is out of print.

PRINTING THROUGH GREEN GLASS.—Can you tell me why printing through blue, signal-green, or yellow glass so greatly alters the character of a print in platinum or in certain brands of P.O.P.? TOXO.

In the case of platinum printing, the variation in character is entirely due to the fact that the coloured glass weakens the light, and therefore more brilliant prints are obtained. Precisely the same results may be obtained by covering the negative with matt varnish or tissue paper. This is assuming that the colour of the negative image is black; if there is any stain in the image then the action of the glass may intensify this: thus yellowish negatives print more brilliantly through blue or blue-green glass, whilst bluish negatives will print better through yellow glass. In the case of P.O.P., the action of the coloured glass is dependent on the alteration of the spectrum composition of the light. Chloride of silver is sensitive from G in the idigo to the ultra-violet with the maximum at H. Most of the organic salts of silver are sensitive not only to this region, but also from G to beyond D in the yellow. If we use then a coloured glass which absorbs the violet and ultra-violet, so as to confine the printing action to the green and yellow light, the organic salt of silver will be more acted upon than the chloride, and, as a rule, a shorter scale of gradation is obtained—that is, the prints are harder.

JAMES STEWART.—Most of the coal-tar colours are transparent, and the majority of them are soluble in alcohol. With such you have only to add some of the colour to the depth desired to negative varnish, and apply to plain glass as you would

varnish a negative. You do not mention the tints you require, or we would suggest those you should get that are soluble in alcohol. However, when you order the dyes, specify those soluble in spirit.

A. J. R.—1. Yes. 2. We know nothing of Mr. F. 3. We cannot say positively, but we believe from Mattos, Limited, 36, Arundel Square, London, N.

F. SANDERSON.—It is not possible for us to say. The dispute should be referred to your solicitor.

CANINE PHOTOGRAPHY.—I should be pleased if you could inform me how I might photograph an Airedale dog, about twelve months old—a dog that has all good points for showing, but will not stand. Is there any way to wire him, or would you suggest any special plates or lens for this?—GRIP.

None that we are acquainted with. Your problem would be more appropriately addressed to a journal such as the "Field," Chancery Lane, W.C.

ARTIFICIAL NEGATIVES.—In your issue of January 18 is an instructive article, extracted from Liesegang's "Photographisches Almanach," on "Artificial Negatives," giving two formulae for the "ground" with which to coat a plate preparatory to etching it. In each case the instructions are to coat a plate and let it dry; but as a further preparation we are told in the one process to dust the plate with graphite, and in the other to rub it over with a mixture of lampblack and mucilage. The reason for this is not given, and as it is not obvious in either case what part this final step plays in the preparation of the plate—for the essential conditions seem to have been fulfilled when once the plate is grounded and dried—I shall be obliged if you can say whether this is essential, and, if so, why?—DONALD GUNN.

The purpose of these coatings is presumably to enable the operator to see the lines which are traced in from a print or drawing. If the drawing can be done direct on to the plate there is no need for this.

F. J. ROBINSON.—The book has scarcely the value of the published price, owing to the number of editions through which it passed. Nor is the other of any historical value.

BOOKS ON RETOUCHING.—Might I trouble you to tell me the name, price, and publishers of a good reliable book on retouching?—PORTRAITURE.

"Retouching," by Arthur Whiting (Dawbarn and Ward, ls.), and "Practical Retouching," by Drinkwater Butt (Iliffe and Sons, Limited, ls.).

L. NEGUS.—Nothing of the kind on the English market.

AMERICAN JOURNALS.—I take the liberty to ask you if you would give me information as to where I could obtain some American journals and papers of photography?—V. G. A.

See the list of foreign publications on pp. 855 to 858 of the ALMANAC. Messrs. Dawbarn and Ward, Farringdon Avenue, will get any of them for you.

G. K. BEVANE (Highgate).—An excellent formula is the first one on page 994 of the ALMANAC.

A. DYE.—1. Try Sanders and Crowhurst, Shaftesbury Avenue, London, W. They are as likely as any one. 2. Usually the corrections for spherical aberration, coma, etc., are better.

W. KEAST.—We know of none, except O. Sichel and Co., 52, Bunhill Row, London, E.C.

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## The British Journal of Photography

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## SUMMARY.

"The Right To One's Face." Miss Millar (Mrs. Lionel Monck), the well-known Gaiety actress, in the King's Bench Division last week, obtained an adverse verdict in an action brought to recover damages from a postcard publisher who issued portraits representing her in certain alleged objectionable costumes which had not actually assumed. (Pp. 94 and 108.)

A case in which the London and North-Western Railway Company claimed exemption under the Carriers Act for the loss of photographic enlargements was heard recently at Manchester. The company pleaded the clause in the Act respecting "pictures or paintings," but the judge held that the photographs were neither, in the meaning of the Act. (P. 94 and 108.)

A special report (by the representative of the BRITISH JOURNAL OF PHOTOGRAPHY) of Dr. Korn's demonstration of his telegraphic transmission of photographic images in Paris on Friday last appears on p. 103.

Part IV. of the notes on working-up with the aerograph deals with final points in the treatment of portraits. (P. 95.)

Filters for the photo-micrography of the common microscopic organisms have been worked out by Dr. C. E. K. Mees. (P. 100.)

A German paper journal gives tests for paper intended for the making of photographic materials. (P. 98.)

Formule for the Kallitype process by a well-known American worker of the process are given on p. 96.

Contents of the week include still another development-camera improvement in the Levy acid-blast etching machine for half-tones and a process of transferring resists to curved metal plates. (Pp. 104 and 105.)

The annual meeting of the Royal Photographic Society takes place on Tuesday next. Some items from the Council's report are given on p. 103.

C. Welborne Piper, in a recent communication to the Royal Photographic Society, describes his models of lens' aberrations to which recently a medal was awarded. (P. 102.)

## EX CATHEDRA.

### The Presidency of the R.P.S.

There is one most satisfactory announcement in the somewhat unsatisfactory literature which the Royal Photographic Society has issued to its members, and that is the unopposed nomination of Mr. J. C. S. Mummery to the presidency. Everyone who knows Mr. Mummery personally will applaud this choice, and to those at a distance it may be said that no one better qualified to discharge the duties of the office with grace and tact could have been selected to succeed Major-General Waterhouse, who, for the same reasons among others, has been a most popular president. But apart from personal qualifications, Mr. Mummery's position as a leading exponent of pictorial photography has earned for him, it may be said, the regard of all classes in that world of factions, though the fact is of even less importance to the Society than the record of the help, advice, and personal labour which the President to be has ungrudgingly given in all departments of the Society's life.

\* \* \*

### Photogravure for the Professional.

We have not infrequently commented on the neglect of that most beautiful of photo-mechanical processes, photogravure, as a medium for the multiplication of portraits taken in the way of business. Though scarcely any use is made of the process in these islands—Mr. Craig Annan is the only photographer who comes into mind as we write—we shall not be surprised to hear in the future of photogravures figuring with greater frequency in the price-lists of the leading photographers in a district. It is not likely that any number will undertake the preparation, and printing of the plates themselves, but the impressions may, nevertheless be obtained from one of the not very numerous houses doing good work in the process. Herr Dührkoop, of Hamburg, as we mentioned at the time of the exhibition of his portraiture at our offices, has made photogravure a feature of his studios, and we now see in the German papers that he offers to supply impressions from photographers' negatives under his own supervision. It is conceivable that a photographer in this country, with a mastery of the process, might similarly cultivate an outside business as a result of himself specialising in photogravure portraits.

\* \* \*

### Free sittings and the Postcard Case.

The recent decision as to Miss Gertie Millar's rights, or rather the absence of rights, in the reproductions of her photograph has evidently awakened many professional and other public persons to a lively sense of their position. They see clearly how they have played into the hand of the photographers who have offered them "free

sittings" and have thereby acquired absolute rights in the reproduction of the sitters' portraits unless such use can be proved to be defamatory. Thus we read in Monday's "Times" the angry letter of a "professional musician" complaining of the appearance of photographs of himself of all degrees of quality, and of the annoyance and trouble to which he is subjected by persons who beg the addition of his autograph to representations of himself which may at times be more truly described as caricatures. The fault here is evidently to be laid at the door of the half-tone engraver or "process" operator, not at that of the photographer, yet it does not seem to occur to the complainants that there is a very simple remedy for their grievances, viz., the payment of the photographer and the reservation to themselves of the copyright in the portraits. To talk about "exploitation of our personalities" and to describe the fruits of the compact with the photographer as "detestable traffic" is pure nonsense, but, at the same time, the occasion which is thus given to the use of such expressions is still another argument against the "free sitting" business, and still another reason for photographers to desert a system which lowers the dignity and strength of their profession, or makes these qualities more difficult to attain.

\* \* \*

**A Suggestion** The demonstration given at the Royal from Calotype. Photographic Society by Mr. Bolas on Tuesday is a reminder of the modern application of the ancient fixing process which Fox Talbot used. Talbot got rid of the excess of silver in his paper by treatment with sodium chloride and iodide, and by so doing removed the liability of the paper to darken further. Precisely the same principle can be usefully applied to P.O.P. in making prints intended to serve a purely temporary purpose. By printing out only to the depth required and treating for five minutes in a ten per cent. solution of common salt a print is obtained which will answer all ordinary exposure to light for a day or two. Equally may it be used in making enlarged negatives by direct enlargement in the camera, by which method a comparatively weak light can be used. The print thus treated will not stand exposure to a very strong illuminant, the electric arc at close quarters, for example.

\* \* \*

#### Photographs and the Carriers Act.

The case in a Northern county court which is reported in our "Commercial and Legal" column this week possesses an interest other than that supplied by the admission of the Judge that, within the meaning of the Carriers Act, photographs are not pictures. The North Western Railway had taken the view that photographs might be described as "pictures or paintings," but their contention, it is due to them to state, was not put forward as an expression of their championing of photography for a place among the *beaux arts*, but purely on account of the clause in the Carriers Act which allowed them to require a declaration as to the consignment and payment at a higher rate. His Honour, however, could not class the photographs as "pictures" under the Act, a reflection upon the productions which is no doubt robbed of much of its bitterness to the firm of photographers by their recovery of damages from the railway company to the amount of £10 10s. and costs.

**DEATHS of Photographers.**—We have to announce the death of Mr. W. T. Holme, of Wellingborough, and of Mr. Herbert Wraggs, of Wigan, both professional photographers of standing in their respective forms. Also of Mr. J. Pemberton, photographic chemist, of Herne Bay, and a clever photographer, whose work appeared in the illustrated press.

#### THE "FAKED PHOTOGRAPHS" CASE.

MISS GERTIE MILLAR, of the Gaiety Theatre, will assuredly have the sympathy of all broad-minded people, as she has ours and that of her professional friends, in the verdict which was last week given against her in the action against a firm of postcard publishers. The action, which led to the action and the report of the proceedings in the courts appear on another page, but, expressed in half-a-dozen words, the dispute was as follows:—The publishers issued three postcards, in each of which the face was Miss Millar's but the body that of another person, real or imaginary. The body in one instance was actually in a nightdress, in another was represented emerging from an egg, and in a third was that of the picture, "La Source," where the figure's attire is the scantiest. These representations would lead the public to think that the lady whose face appeared on the card had actually posed for the portrait, and the action was brought for defamation of character on these grounds. The summing-up of the judge, endorsed by the jury in their verdict, was that there was no defamation, inasmuch as the actress had been photographed in various fancy costumes and photographs had been published with her approval. The learned judge drew a distinction between a representation of the actress in a theatrical part and one of her in non-theatrical part.

The case is one which needs to be brought before the public for the reason that it may lead to the erroneous belief that a photographer's licence in portraying public or private persons is very much greater than it is. The judge's summing-up appears to have ignored the existence of Miss Millar as a private individual, with rights equal with other ladies. According to him, a lady who performs on the stage in fancy costume is not entitled to the same remedy which, as the summing-up recognised, would be granted to a vicar's wife. Yet the actress, of all women, is exposed to comment reflecting on her character, and it is therefore all the more in need of the power to prevent the publication of any portraits which in any way reflect unfavourably upon her. The verdict would be explicit if it came from twelve elders of a century-old Puritanism, in whose eyes the respectability and character of a lady of the stage were non-existent qualities, but from a jury of Londoners, in these times when the private life of the theatrical favourites is almost as well known as every man's is to himself, should indulge such a conception, is not in the least credible. There is, indeed, explanation forthcoming, except the suggestion in the morning paper that the decision is merely an instance of the rigid administration of the sound law by some utterly lacking in taste.

While we join our protests to those of the defendant in the case and to the chorus of indignation from the green-rooms of all the theatres where such a picture postcard are to be found, from the lady who was Miss Camille Clifford downwards, our chief intention is to caution professional photographers as to the rights which they may make of portraits of which they have the copyright. In contradistinction from this case, which we have alluded to, and in which, according to the view, the rights of the private individual have been ignored, there are others in which the libellous or defamatory use of a photograph has been made the subject of a successful action. In an article which we published last week from an American source some instances were given of how the reproduction of a person's face has been checked in the United States, and similar instances may be cited in this country—for example, one of about a couple of years ago, in which Miss Marie Studholme prevented a dentist from using her photograph, with the teeth blocked out, as an advertisement of the art.



teeth supplied by him. These actions are not brought under copyright law, which has nothing to do with them, but under common law, by which photographers or publishers may be restrained from issuing copies of a person's photograph of such a nature as bring him into ridicule or to prejudice his commercial, social, or official position in the eyes of the public. We are not infrequently asked to advise our readers on this matter, and we are sometimes surprised at the eagerness shown by some photographers in small places to publish a picture postcard which they know is certain to offend a customer of theirs, even if it is not actually libellous or defamatory. On the other hand, the squeamishness of individuals is equally surprising, if we believe the cases which are brought to our notice, such as one in which a gentleman sought to remove a postcard photograph of a sea beach from circulation on account of the inclusion of the microscopic representation of himself in the distance in regulation bathing costume. The fact remains, however, that the rights of the private individual must be respected, and this position is not altered by the recent decision, in

the course of which, indeed, it has been re-affirmed. We are glad to see in the London papers the statements of a number of photographers discountenancing the method of the "faked photograph," and drawing attention to the courtesies which it is their custom to observe in the case of all photographs of which they hold the copyrights. As one or two firms point out, it is only by being very particular in the use which they allow to be made of such photographs that they could expect to retain their sitters' patronage.

One side issue from the case may be mentioned before we dismiss it from consideration. It concerns the postcard publishers, and is the speculation on the part of a barrister in the "Daily Express," that as the photographs purporting to represent the face and figure of Miss Millar were only in a partial sense representations of her, the public have a claim against the publishers or the latter against a producer who, contrary to contract, should supply such a faked portrait instead of a genuine one. We would rather not discuss the debatable points which such a proposition suggests.

## WORKING - UP AND COLOURING WITH THE AEROGRAPH.

[In this fourth instalment of a series of articles on the practical use of the air-brush in portrait work, some final points in monochrome work are considered. The concluding article, in next week's B.J., will deal with colouring.]

### Vignettes.

A few points in regard to making a perfect vignette would perhaps be useful. In this work the "aerograph" is extremely useful, and any worker with an "aerograph" should not be pardoned for putting into his pictures the old definition which was called vignetting in the early days of photographic finishing; the point to remember in doing a vignette is that your shadows gradually run out at all points, and that your lights run out less gradually—that is, after carrying your shadow down with the "aerograph," making them gradually disappear at a uniform rate, you may add the lights with the eraser, carrying your lights farther into your vignetting than you carry your shadows; but, of course, lights and shadows both disappear on arriving at the white paper. Generally speaking, the more gradual the vignetting is, the more pleasing the result. You may begin to vignette in a bust picture almost from the neck if it is done sufficiently gradually.

### A Hint as to Roundness.

Keep the outlines of your figures soft: the camera sees with only one eye, but people look at objects with two eyes, and every rounded object presents two outlines to the spectator. You cannot make two outlines in the portrait, but you can give a diffused outline, which will go a long way to convey the impression that your picture has substance to it. I have represented two balls (Fig. 4), which, if the process engraver and printer do justice to them, will show this point. A will look like a hemisphere rounded on the face but flat on the back, while B will look like a complete sphere, round on the back. They are shaded practically the same, the difference is in the outline.

### Backgrounds.

A great deal now remains to be said about backgrounds; it is a very important part of the picture. In fact, an artist who can secure fairly good prints, spot them, and put in skilful backgrounds, will receive more credit for his work than one who finishes the faces nicely and neglects the background. A good enlargement which is simply spotted and a skilfully executed

background added, to suit the head, will make an acceptable picture.

The first thing to be considered in a background is that it should carry out the composition of the picture. In the usual bust portrait the composition is pyramidal, and this determines the position of the colour which you are to place around the head. The next point which may be considered is to bring the interest, or, shall we say, the contrasts of light and shadow into the centre of the picture. To do this, if you were treating a bust portrait, say, of a man with a black coat, you would find

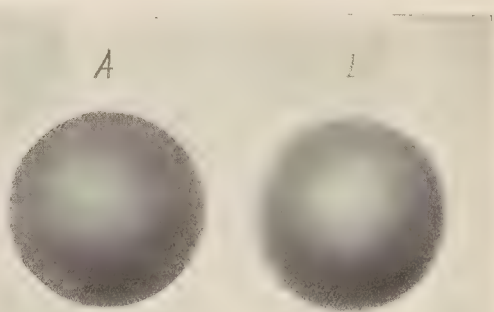


Fig. 4.

it desirable to add sufficient colour to the background above his shoulders to subdue the contrast which the black coat makes against the background. You must, therefore, make the shadow dark around the shoulders in such a portrait, and gradually disappearing to a point above the head.

### Atmosphere in Backgrounds.

Another thing to be remembered is to keep the general tone of your background at a point which will relieve the high

lights and lighter tints of the face by contrast, without destroying the strength of the shadows. Still another thing which is generally considered desirable is to add to the relief of the head by contrasting slightly light against dark, and dark against light, in the background. A better effect of relief is produced if you leave a slight halo about the head; it must not be sufficient to be noticeable. Now we have, so to speak, mentioned the broad lines of the background. You want one thing more, if it can be obtained, and that is the atmospheric effect, or effect of perspective around the head.

In the older school of photographic finishing this was accomplished by hatching. Coarse lines were hatched near the shoulder, gradually going away fainter in the distance. Hatching was also done to soften by contrast the finishing in the face. You can hatch these lines in with an "aerograph," if so desired, by thinning your colour very thin and setting your "aerograph" for a definite line by the little knurled band, and drawing the strokes at the proper angles with the point of the instrument close to the paper. Personally, however, we do not like the hatched backgrounds; they do not suggest to us anything in nature, and we are of the opinion that the atmospheric effect, or effect of perspective, can be better obtained by planes of shadows. To obtain a satisfactory cloud background it is not sufficient to make, what we may call, "lumpy" clouds: they must be clouds with perfectly defined edges, not hard, and with the least possible amount of contrast—but always planes of light and shadow to secure the atmospheric effect. And one must remember that the detail of this kind, which is put into the background, must be more marked at the lower part of the picture, near the shoulders, and gradually die away to an even

tint at the upper portion of the background. Torn blotting paper may be used as masks, and is employed by some artists to assist in producing this effect, but great care must be used not to make it look mechanical. The blotting paper must be torn in the right way and a little erasing done to take away its hard edge, and the colour when applied to be very thin so that the marking is scarcely perceptible. Having finished the shading of the background, the correcting and erasing of the lights of the picture complete the work.

You will not be able to leave extreme high lights on the forehead, nose, or eyes while shading the pictures; these must be erased, or scraped out, for the reason that these high lights for the most part have a sharp definition to them: the definition, of course, not to be abrupt—almost imperceptible—but it must still be sharp.

You will need to go over your work carefully to see that you have secured the likeness. Study the expression of the guide print, and, if you find your enlargement is different in any point, study it carefully until you have discovered which shadows produce the result, and correct them.

In correcting the picture a good practice is to study your guide print, and correct the shadows in your enlargement. See that they are as nearly right as possible. Then study the guide print from the point of view of the high lights, beginning with the extreme lights, and see that the high lights and lighter portions have the same degree of illumination. In this way you secure greater accuracy, and in a way prove your first corrections.

We must defer the chapter on colouring portraits until a later issue.

## THE KALLITYPE PROCESS.

(From the "Photo-Era.")

Kallitype as a method of photographic sun-printing may be said to have passed the experimental or doubtful stage. It is the method par excellence for the worker of serious purpose to whom the "fatal facility" of the gaslight paper has no appeal. Many there are among amateurs who sigh for results removed from the common. By printing on media of their own sensitising—paper of quality and texture that is rare—these fastidious ones may fulfil their desires.

As at first worked, kallitype had a most serious defect in the rustiness of the deeper shadows following the use of a negative of more than usual contrast. This trouble, however, has been eliminated, and the process is now capable of results quite the equal of platinotype, to which it is akin, the basis of both being ferric oxalate. We find in each the same richness in deposit of metallic particles, the same softness and beauty of gradation in half-tone, and the presence of those qualities that make the pictorial image more like a wash-drawing than a photograph.

The modifications of the original formulæ have been many, and for the greater part good, though some are rather involved as regards manipulation. For this reason I early sought for a more direct means than was then available for the production of prints in pure black and white, and I think I have succeeded. My process at least has the merit of cheapness, for the cost is trifling, in fact not much in excess of the "blue print." In brief, the process is as follows, and, as can be seen, is extremely simple.

A good paper is coated with the sensitiser, dried by artificial heat of low temperature, and is then printed under a negative.

There is a faint image, much as in a platinotype, but of a tawny hue. This image is instantly brought to full vigour in a bath of weak silver nitrate acidified with citric and oxalic acids. After about a minute the print is washed free of sediment, and is fixed for five minutes in weak hypo, after which it is washed for half an hour and dried on clean papers or between blotters.

The image is black, but many warm colours, from purple all through the red chalks to sepia, are quickly and easily obtainable by toning with uranium and fine cyanide of potassium, some of the colours and effects being rare and indeed very beautiful.

In regard to quality of paper, it should always be of linen, preference of course being accorded that specially made for photographic purposes. Excellent results, however, may be obtained on heavy bond and ledger stocks, Scotch linen ledger being among the best. This last comes in sheets, the dimensions of which are 19 x 24. This cuts to good advantage, whatever the size of plate employed. Nor are the common, everyday notepapers to be despised, where small sizes are demanded. Vellum, parchment, Irish linen, Berkshire mills, cream laid, may be here suggested. For soft effects, the more fibrous papers are in order, and these, as well as the Japan tissues, should have a generous portion of a good size, either of arrowroot or gelatine. Rub up in a bowl in a little cold water twenty grains of the arrowroot. Then pour on it, constantly stirring to prevent lumps, ten ounces of hot water. Bring to a boil, when the milkiness at first present will disappear. A couple of ounces of wood alcohol may be added once the mess is filtered.



For black-and-white effects the following has been found satisfactory:—

## Formula A.

Distilled water .....	1 oz.
Citrate of iron and ammonia .....	32 grs.
Ferric oxalate .....	16 grs.
Oxalate of potass .....	33 grs.
Oxalic acid .....	10 grs.
Chloride of copper .....	4 grs.
Citric acid .....	4 grs.
Silver nitrate .....	10 grs.
Gum arabic .....	10 grs.
Bichromate of potass., 5 per cent. sol.	10 drops.

For coating small sheets, 4 x 6 or 5 x 7, a wad of absorbent cotton will answer when but a few are wanted at a time; also where but a small portion is intended for printing and the effect of a careless wash-drawing is sought. For large sheets, however, a good camel's-hair brush is advisable, the flat variety, two or three inches wide, and rubber bound. It is a good plan to coat paper on a thick sheet of glass, holding the paper by four small metal clips, such as are used to hold neckties in place. A piece of the dimensions of 8½ x 11 in. will answer for most purposes. The size of paper will allow for two 5 x 7 or four 4 x 5 prints at each coating.

Pour a small quantity of the sensitiser on the upper section of the sheet, and with rapid strokes of the brush go over every part. The idea is to complete the coating of all parts before any one part has dried, thus insuring an even coating. With rough paper it is a good plan to first sponge with clear water, and when nearly dry, to apply the sensitiser, which insures the latter flowing into the meshes, a thing sometimes difficult to effect when the paper is bone dry.

Formula A may print rather slowly, but the blacks obtained are good. It is best adapted for use with rather hard, smooth papers, and for porous stock may require dilution. The generality of workers, I find are inclined to strong effects—good contrast—and lovers of low tones may find this sensitiser rather strong for their purposes. In such cases withhold from five to seven grains of the iron citrate to the ounce of solution. In preserving all details in the shadows it is best to use a rather weak sensitiser and give a double coating. Should the solution be found too weak, it may easily be made stronger by the addition of the iron salts.

Ferric oxalate being a somewhat difficult chemical to obtain outside of the large cities, I have made many attempts at a formula giving black tones.

## Formula B.

Distilled water .....	1 oz.
Citrate of iron and ammonia .....	50 grs.
Ferric oxalate .....	13 grs.
Oxalate of potass. ....	35 grs.
Chloride of copper .....	8 grs.
Oxalic acid .....	16 grs.
Silver nitrate .....	16 grs.
Gum arabic .....	10 grs.
Bichromate sol., 5 per cent. ....	5 to 10 drops for contrast.

For more contrast add one or more grains of the ferric oxalate. For contrasty negatives use a smooth paper, giving but one coat of sensitiser. For flat, overtimed negatives, use a rough paper and coat twice.

Printing should be effected in the sun. Print until the deeper shadows are well defined, the half-tones being invisible. In a snow scene, for example, or in the case of a white dress, in a portrait or figure study, no trace of the finer details should show.

The developer stock solution is:—

Distilled water .....	1 oz.
Citric acid .....	10 grs.
Silver nitrate .....	40 grs.
Phosphate of soda .....	1½ grs.

To seven drachms of water take one drachm of the stock solution and about a drachm of oxalic acid. A piece of the latter about an eighth of an inch in size will be near enough. For developing use a porcelain or glass tray, which should be kept clean and occasionally washed with muriatic acid.

Immerse prints face down, immediately turning them over to see that there are no bubbles present, which would leave white spots in the finished print. If there should happen to be any, break with a slight touch with the point of the finger. Development will be fully completed in a minute or less, nor can we overdo it once exposure is correct. Wash prints for a minute or so; then transfer to the clearing or fixing bath made up in the proportion of about two grains of hypo to the ounce of water. While for smooth papers five minutes will be sufficient for fixing, ten minutes may be safely accorded heavy, rough papers. Dingy whites indicate insufficient fixing and fading of the shadows when it is overdone, though there is not much danger of that unless drying has been too hasty. Complete operations by the usual wash for, say, half an hour.

For the sensitiser as well as the developer a dark bottle should be chosen. Add chemicals in the order specified, after which, without any shaking more than turning bottle upside down once or twice, put away for twenty-four hours in a dark place. At the end of this period stir up sediment from the bottom, shake well, and filter through absorbent cotton. The sole necessity for filtering is to free the solution from certain gritty particles which, if remaining, will mar the surface of fine papers in coating. Place a wad of cotton in the glass funnel, pour into the centre of this the solution, sediment and all, and gathering up the wad between fingers and thumb, squeeze all liquid back into the bottle. The gritty substances will remain in the meshes of the cotton.

To provide against possible failure, I herewith submit additional formulæ. For flat negatives, full of detail and overtimed, the following should give good results, and if it works out as it should the tone will be black, with a greenish cast:—

## Formula C.

Distilled water .....	1 oz.
Citrate of iron and ammonia .....	28 grs.
Ferric oxalate .....	23 grs.
Oxalate of potass. ....	35 grs.
Chloride of copper .....	8 grs.
Oxalic acid .....	15 grs.
Silver nitrate .....	19 grs.
Gum arabic .....	10 grs.
Bichromate sol., 5 per cent. ....	5 drops.

In all formulæ submitted there is a very careful balance of certain chemicals. For example, in this last a trifle less (a grain) of the silver will make a marked difference in the tone of the black. A slight excess of silver tends to green, while the same excess of copper makes for blue. Overmuch of the former means rusty shadows, while too much of the latter tends to flatness.

For fine gradation and delicate greys in the half-tones the formula is:—

## Formula D.

Distilled water .....	1 oz.
Citrate of iron and ammonia .....	18 grs.
Ferric oxalate .....	28 grs.
Oxalate of potass. ....	36 grs.
Chloride of copper .....	9 grs.
Oxalic acid .....	16 grs.
Silver nitrate .....	18 grs.
Gum arabic .....	10 grs.
Bichromate sol., 5 per cent. ....	5 to 10 drops.

When too strong, the solution, as a rule, may be diluted; but if there should thereby be a debasement of the image a stronger developer should be used—a little more from the stock bottle.

In the presence of a great advance in the price of platinum, this particular kallitype process should find favour. Worked at its best, it is with difficulty distinguished from platinotype, and as for lasting qualities, it is as good as any other silver process, while more artistic than most of them.

In regard to successful working, a great deal depends on the quality of the ferric oxalate. It may be obtained of the leading chemical establishments in our larger cities; and when in prime condition should appear in shining greenish-brown scales. When at all powdery or matted together, with a tendency to cling to the sides of the bottle, it should be rejected as worthless for our purpose. Many failures in the process I am convinced might be traced to defective chemicals, more especially the ferric oxalate. In my own experience, I lately had to complain to the leading druggists in Boston of ferric oxalate obtained of them and found useless. In looking over their stock of this chemical they found all but a single ounce in the same defective condition. Still they had been selling from the stock all the time, and some experimenter may be wondering why he failed. Once you have bought the ferric oxalate, discard the shaved cork that comes with the bottle, and substitute one of the regular kind that has been soaked in hot wax. Keep the sealed bottle inside of an air-tight screw-top jar. Such jars as the housewife uses for preserving purposes are just the thing. Under such precautions the last few grains will be found in as perfect condition as the first.

Prints slightly over-exposed are just right for uranium toning, it having a somewhat reducing effect. This formula is as follows:—

Uranium nitrate .....	4 grs.
Ferriyanide of potass.....	4 grs.
Glacial acetic acid.....	16 drops.
Water .....	2 ozs.

Immerse prints, and rock until desired tone is reached; rinse and transfer to a tray of water in which there are a few drops of acetic acid. In running water, swab back and front, then wash for not over ten minutes; dry on blotters. In this bath brilliant reds should mature in about five minutes. In my own practice I seldom take the pains to measure the chemicals. I simply take some water in a tray and throw in a few grains each of the uranium and ferriyanide of potassium, with the addi-

tion of a few drops of acetic acid. All the reds are pleasing, and by varying the proportions of the chemicals a great variety of tones and colours are at our command. Swabbing the prints back and front is, I find, essential—particularly in the case of rough papers—to eliminate the sediment, which if permitted to remain, impairs the purity of the whites. If this system of toning is done as it should be there need be no complaint of impure whites, where the above precautions are observed and the prints are allowed to get bone dry before toning. This for some reason seems to be important, results not being as good otherwise.

While this entire process is simple enough, practice makes perfect here as in all else. The best of chemicals should be utilised, and the utmost cleanliness employed. The fingers are apt to become stained with silver, and prints should therefore be carefully handled by the edges. Marks from soiled fingers will produce yellow stains that no amount of washing can eliminate.

There is no doubt that the most beautiful pictures have been made by this process, and specimens were submitted to experts of national repute before venturing to publish the formula. My personal employment of the process being limited, it seemed to me a pity that all might not share in it; hence my giving it to the craft.

Failures no doubt there will be; but where so many different formulae are given as is here the case, they may be attributed to something outside of the process—defective iron oxalate, perhaps. Where this chemical is below the standard, fairly good prints may be had, but the deposit is scanty. There is, therefore, lack of richness in the shadows. In such a case the addition of from two to twenty drops of a solution of chloroplatinite of potassium will save the day. The smaller quantity will insure purple-black pictures of vigour, while the larger tends to reds.

Those having a taste for experiment may find some unusual effects by varying the proportions of the ingredients as here given. In Formula A the addition of from two to four grains each of the copper, silver, and the oxalic acid may be suggested for a trial where the blacks are not good, or where some other tones are sought. There is an exact excess of the silver that gives very pleasant sepia, but too much makes rusty shadows.

JAMES THOMPSON.

## PHOTOGRAPHIC PACKING PAPER.

In our last volume, page 404, we gave a sketch of the methods of testing raw papers for photographic purposes. An equally important point is the purity of the paper used for packing sensitive plates and papers, though the paper need not be of quite such expensive raw material, and, as pointed out in the "Wochenblatt für Papierfabrikation," it is usually made of wood pulp. This contains two principal substances, the cellulose, or cell substance, which is soluble in ammonio-oxide of copper, and the lignose, or wood substance, which is insoluble in the same. There may also be albumen, tannin, resin, starch, and colouring matter. The wood pulp is generally treated with hot lye to remove these; the subsequent processes of bleaching or colouring may, however, introduce other prejudicial substances. Although it is not so essential for the packing paper to be as pure as the other, yet it should be free from sulphites and hyposulphites as well as tannin and all other substances which would cause a reduction of the silver salts.

A simple experiment will prove whether a paper should be used or not. A few pieces should be boiled with distilled water, and to the filtrate should be added some drops of ammoniacal solution of silver nitrate. If the solution remains clear the paper is fit to use; if, on the other hand, a grey or black precipitate results it should be rejected. A test which even surpasses the last for delicacy is to cut a circle, triangle, or any figure out of the paper and place it in contact with the film of a very sensitive dry plate in a printing frame and keep in the dark for two or three weeks. On development with a solution that does not fog it will be easy to see whether an image of the piece of paper is impressed on the sensitive film. In all probability the prejudicial action is due to gases given off by the paper, and this can be proved by placing between it and the sensitive film a sheet of pure porous paper. As a rule it will be found that Swedish filtering, good tissue paper, and waxed tissue paper are the purest.



## THREE - COLOUR CAMERAS.

In devising the following camera for three-colour work, Herr Hans Schmidt, writing in our contemporary, "Photographische Rundschau," has kept in view two points—first, that to obtain instantaneous three-colour negatives it is absolutely necessary for all three exposures to be made at once, and secondly, that considering the existing panchromatic plates, it is essential that the picture which requires the longest exposure should receive the full action of light.

The use of more than one lens appears, therefore, to be absolutely essential, as this is obviously the most satisfactory method of attaining this end. In order, however, to practically do away with the stereoscopic difference it is necessary for the optical axes of the lenses to be as close as possible to one another. If the apertures of the lenses are chosen in the ratio of the exposures which the author sets down as 1:2:1, the largest aperture may be chosen as  $f/4.5$  and the others  $f/6.3$ . If also a focus of 5 in. be chosen, then the three lenses may be arranged as in Fig. 1, and the optical axes

enters the prism at 4, is reflected at 5, and again at 6, leaving the prism at 7 and produces the image U below  $A^1$ . A point R at one side of A emits a parallel ray which enters the prism at 8, is reflected at 9, leaves the prism at 10, and now forms an image at L, which is on the opposite side of  $A^1$ .

As the prism is a total reflection one, and transmits a large field of view, the images correspond in extent and illumination. Practical tests have shown that the camera works very satisfactorily. It is obvious that three lenses must have the same focus if prints are to be prepared from the negatives; if, on the other hand, chromosome pictures are to be made, this is not of so much importance, as their coincidence can be effected by altering their distance in the chromosome.

The numbers in Fig. 1 represent the distances between the lenses in millimetres.

M. GEISLER describes, in the "Photo Gazette," a new one-exposure

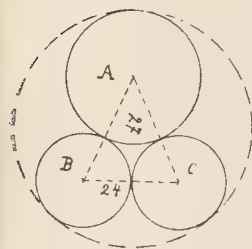


Fig. 1.

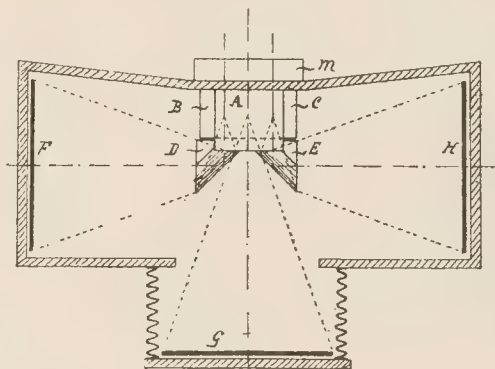


Fig. 2.

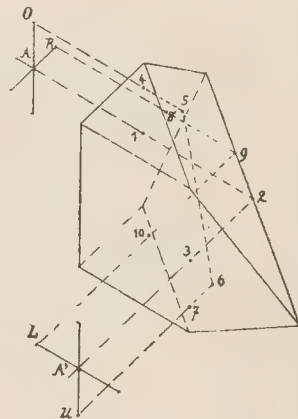


Fig. 3.

will be practically only 1 in. apart. This separation is so little that the stereoscopic difference, whilst theoretically existent, will not be practically seen, especially if one of the present three-colour printing methods be adopted.

By crowding the lenses together in this way the images will naturally be partially superimposed, and to avoid this, two of the images must be diverted by reflection. The use of mirrors or prisms between or behind the lenses is not new, but the disadvantages have been that the reflected images have been reversed. The introduction of a mirror between the lenses necessitates that the latter should be separated by a fairly wide interval, and with the modern anastigmats this only amounts to 1 or 2 centimetres, and it is therefore impossible; the reflecting surface must be placed behind the lens.

By the use of a special reflecting system shown in Fig. 3, it is possible, however, to reflect without inverting images, and without contracting the field of view.

The camera is shown in Fig. 2; the optical system consists of the three lenses A, B, C, and the two reversion systems D, E. M is the instantaneous shutter which covers all three lenses, whilst F, G, H are the three panchromatic plates and the filters in front of the same.

The light passing through the lens A proceeds direct to the plate G. By the combined action of the lens B and the system D, or the lens C and the system E, optical images are formed in F and H. These two images, in consequence of the peculiar action of the reversion systems D and E, agree in every point with that on the plate G, which is easily understood from a consideration of Fig. 3. From this it will be seen that a ray of light proceeding from A enters the prism at 1, is reflected from 2, leaves the prism at 3, and forms an image at A'. A point O lying above A emits a parallel ray which

three-colour camera, constructed by M. Nachet, the well-known optician, who was one of the first to make a chromoscope. Some years ago a company was formed to exploit a camera, which con-

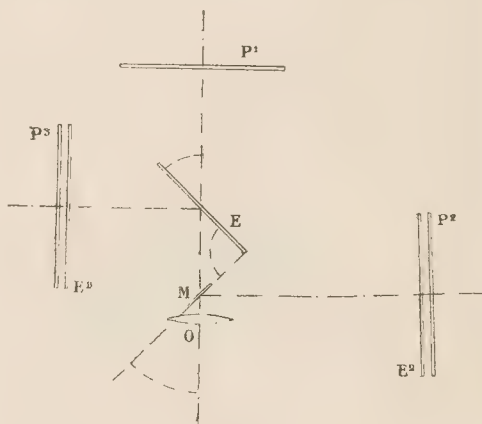


Fig 4.

tained two platinised mirrors, placed at an angle of 45 degrees behind the lens; but this went into liquidation, because it was not found possible to obviate the reflection from the second surface of the mirrors, which gave double outlines to the images. This defect

has now been overcome by coating the mirrors with a coloured varnish.

The apparatus, Fig. 4, consists of a lens O, behind which is placed a small elliptical mirror M, the minor axis of which is about one-third the diameter of the lens, and forming an angle of 45 degrees with the axis of the lens. The central cone of rays contains all the image as well as the annular cone. The image reflected by M is received on the plate P<sup>2</sup>, and passes through the green screen E<sup>2</sup>.

The annular cone of rays is received by the sheet of glass E, whence it is reflected part to the plate P<sup>3</sup>, passing in its course through the blue-violet screen E<sup>3</sup>. The sheet of glass E acts as a mirror, and is coated with an orange-coloured varnish, which acts as the filter for the light passing through E to the plate P<sup>1</sup>. The

coat of orange varnish naturally extinguishes to some extent the duplicate image from the back of this glass plate E, and as also the duplicate image becomes a deep orange through its passing twice through the orange varnish, it is completely absorbed by the violet filter.

The dimensions of the elliptical mirror are so calculated as to reflect only the central cone of rays through the green filter, and the annular rays are partly diverted through the violet filter, while the other part passes direct through E to the plate opposite the lens, the ratios of the lights for the three plates being proportional to the actinic coefficient of the plates used.

Mr. F. E. Ives was the first, we believe, to use platinised glass for the mirrors, and he also obviated the duplication of the image by using coloured varnish, but on the back of the mirrors.

## THE SELECTION OF PLATES AND FILTERS FOR PHOTOMICROGRAPHY.

[The importance of orthochromatic work in photomicrography, the close attention of Messrs. Wratten and Wainwright, of Croydon, Mees, stating the principles upon which new filters, specially designed dyes, have been prepared. The instructions for their use appear to with Messrs. Wratten's consent we have quoted a large portion of

long recognised by expert photomicrographers, has of late received as a result of which a booklet has been issued by Dr. C. E. Kenneth to aid the reproduction of microscope specimens stained in the regular us so generally informing on this branch of photographic work that them below. —Eds. B.J.]

THE difficulty encountered by all photomicrographic workers in obtaining upon the photographic plate a proper and satisfactory contrast when dealing with stained sections of animal or vegetable tissue and more especially preparations of bacteria is very great, and many such objects quite baffle any attempt in making even a fairly good printable negative. The explanation is to be found in the fact that the dyes with which such objects are stained, though visually producing a striking contrast when examined in the microscope, do not affect the photographic plate in anything like the same degree, and although much may be done with the ordinary orthochromatic plates and screens now on the market, yet these fail in producing a negative that will satisfy the careful and earnest worker in this important branch of microscopy.

No text books on photomicrography give any definite instructions, and the worker is always in doubt as to what screen is required for a certain colour. The following notes and instructions combined with the use of our plates and screens will, we venture to think, be found sufficient to enable the photo-micrographer to obtain records of objects that he has long given up in despair.

A table is given below that will enable one to tell at a glance just what screen and plate to use for a given stain. The troublesome, uncertain, and "messy" liquid screens are done away with, our series of screens can be used in the ordinary screen holders or can be cut into circles and used in the patch-stop carrier of the sub-stage condenser of the microscope, which is no doubt the best position. Another important point is that by using a proper screen the resolving power of the ordinary achromatic micro-objectives is much improved and will make their performance almost if not quite equal to that of the more expensive apochromatics.

### Principles.

There are two main principles to be kept in mind.

- (1) The light used should be as nearly as possible monochromatic, that is should consist of homogeneous light of one colour only.
- (2) The light used should be in the *absorption region* of the stain; that is, should be complementary in colour to it.

When speaking of the light used it must be remembered that this means the *light acting on the plate*; not the light visible to the eye.

With regard to these two principles.

- (1) Any objective will give better definition when used for monochromatic light than for polychromatic, and in the case of objectives with any but the most perfect chromatic correction the improvement is most noticeable.
- (2) If light corresponding to the absorption region of the stain be used then the stain will be as dark as possible, and the greatest possible contrast in lighting will be obtained.

### The Nature of Light.

In order to make this point quite clear, the following explanation may be useful:—White light may be regarded as being made up of light of various colours, and by different devices may be split up into these colours. When this is done, there is obtained what is known as the spectrum.

Light is found to consist of waves of different lengths, different lengths corresponding to different colours, so that the spectrum corresponds to a scale of different length waves. The length of a light wave is the distance from the crest of one wave to the crest of the next.

The following diagram gives a simple arrangement of the spectrum, the numbers representing the length of the waves and the colours being placed close against them:—



It will be seen that the visible spectrum extends from 7,000 to 4,000, and is equally divided into regions which may be broadly termed:—

Red	7,000—6,000
Green	6,000—5,000
Blue Violet	5,000—4,000

### Absorption Spectra.

Now if we take a solution of methyl violet and examine the spectrum of a light source through it, we shall find that the whole region between 4,600 and 6,200 is absent, that is to say, *methyl violet has an absorption band extending from 4,600 to 6,200.*

Consequently we shall fulfil both the principles given above if we photograph a methyl violet stained section with monochromatic light (principle 1) of wave-length anywhere between 4,600 and 6,200. But if we dilute our solution of methyl violet, we shall find that as the solution grows weaker, the absorption band narrows until with very weak solutions the only remaining trace of a band is from 5,800—6,000.

So that if we are to fulfil condition (2) for sections very weakly stained with methyl violet, our monochromatic illumination must be as near as possible to 5,900.

### Practical Instructions.

The chief microscopical stains have the following maxima of absorption, and consequently require illumination in those regions. The column at the side gives the plate and screen which will give those



illuminations. The screens referred to are the Wratten Photo-graphic screens (M series).

Stain.	Spectral Absorption Bands.	Plate and Screen.	Band used.
Aniline blue .....	57-60 ...	Allochrome E .....	56-59
		Verichrome or	
		Panchromatic E & B .....	56-60
Ismark Brown* .....	General ...	I.D.S. or Allochrome D ...	40-46
	in blue		
Goongo Red .....	48-52 ...	Verichrome B & C .....	46-52
India .....	49-53 ...	Verichrome G & H .....	51-54
		or less effective B & C .....	46-52
Erythrosin .....	51-54 ...	Verichrome G & H .....	51-54
Chrysine .....	53-57 ...	Allochrome E .....	56-59
	or better	Verichrome G & H .....	51-54
Centian Violet ...	57-60 ...	Allochrome E .....	56-59
		Verichrome or	
		Panchromatic E & B ...	56-60
Acematoxylin ...	Gradual ...	Verichrome B & C .....	46-52
(Kleinenburg)	absorp.		
	from Violet		
	to 5,800		
(Ehrlich)	Gradual ...	Verichrome B & C or .....	46-52
	absorp	Allochrome E .....	56-59
	through		
	Green		
(Haydenhain)	60-56 ...	Allochrome E .....	56-59
		Verichrome or	
		Panchromatic E & B .....	56-60
Aniline Green .....	62-65 ...	Verichrome F & G .....	61-64
Ethylene Blue ...	60-62 ...	Panchromatic D & G .....	64-69
	& 65-68 ...		
Methyl Violet .....	58-60 ...	Allochrome E .....	56-59
		Verichrome or	
		Panchromatic E & B .....	56-60
Methyl Green .....	62-65 ...	Verichrome F & G .....	61-64
Picro-Carmine ...	51-53 ...	Allochrome E or .....	56-59
	& 56-57 ...	Verichrome G & H .....	51-54
Orange Bengal .....	53-56 ...	Allochrome E .....	56-59
		Verichrome G & H .....	51-54

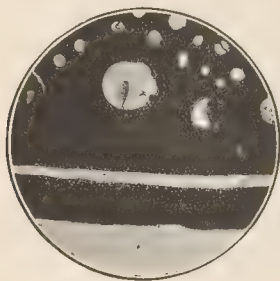


FIG. A.—Whalebone Section (light brown) photographed for contrast, I.D.S. plate and D screen.

In order that the reasons for using the above plates and screens may be clear, it must be understood that the Wratten plates record follows:—

I.D.S. ....	From Ultra-violet to 50
Allochrome .....	and 54-59
Verichrome .....	Whole Spectrum to 64
Panchromatic .....	Entire Spectrum to 69

The Wratten M Screens have the following transmissions:—

A .....	From red end to 59
B .....	60-46
C .....	52-40
D .....	Red end to 64 and 46 to Ultra-violet
E .....	Red end to 56†
F .....	Red end to 61 and 46 to Ultra-violet
G .....	Red end to 51
H .....	54 to blue end
K3 .....	Luminosity screen for correct reproduction

So that taking a few typical stains from the list given, we have Aniline Blue with an absorption band from 37-60, photographed

For photography by transmitted light, see "Uniformly Coloured Sections." When are lamps are used, Screen E transmits the ultra-violet, and G must be used to cut it out.

with screen E. Screen E transmits from Red end to 56, but the Allochrome is only sensitive to 59, so that the Aniline blue is photographed with the narrow band from 56-59 and in its absorption band. Methyl green has an absorption band from 62-65. Photographed

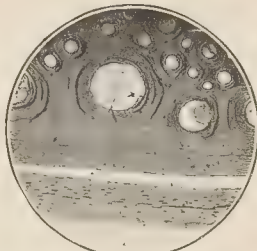
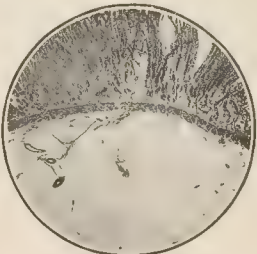


FIG. B.—Whalebone Section photographed by transmitted light, Verichrome plate, F & G screens.

with screens F and G which transmit from red end to 61; but the Verichrome is only sensitive to 64, so that the methyl green is photographed by the narrow band from 61-64 in its absorption band.

It is not forgotten that the resolution of an objective increases in proportion to the shortness of the light waves, so that for extreme

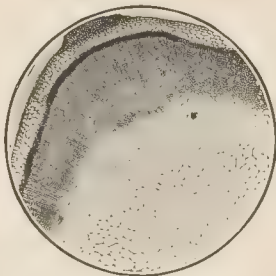


Aniline blue stained Section (very faint), photographed with Allochrome plate and E screen.

resolution it is necessary to use light below 30 if possible, but in ordinary work this is negligible in comparison with the importance of obtaining sufficient contrast.

By using these screens together the spectrum can be divided up into monochromatic portions thus:—

A & D .....	Red end to 64
A & F .....	" " " 61
A & B .....	60-58
B & E .....	60-55
C & G .....	51-52 (very dark)
G & H .....	51-54
B & C .....	46-51
D & H .....	46-40



Inner cells stained with methyl green, outer picro-carmine, photographed with Allochrome plate and E screen.

If the best results for a particular section cannot be obtained by following the instructions, then the section should be examined

visually with the above combinations of filters until that filter is obtained by which the portion which it is desired to photograph shows the greatest contrast compared with the field. If that filter is then employed for photographing, the best possible result will be obtained.

#### Uniformly Coloured Sections.

There is one type of section which requires entirely different treatment, because principle (2) does not apply.

In some cases, notably large insects, we have a wholly coloured field without any clear glass in it, and it is required to obtain detail in this coloured field.

In this case photography must be done in the region transmitted, not that absorbed. Thus, in figure (a) we have a section of whale bone which has been photographed in its absorption region, and shows the maximum contrast. Figure (b), however, shows the same section photographed in its transmission region by means of a Verichrome plate and F and G screens, giving all the detail of the section.

For insects and yellow sections generally photograph—  
For contrast, with an I.D.S. plate and D screen.

For detail in the section, with a Verichrome plate and F and G screens.

## MODELS OF LENS ABERRATIONS.

[The following communication to the "Photographic Journal," by Mr. C. Welborne Piper, gives a description of the models of lens aberrations shown at the last exhibition at the New Gallery, and awarded the only medal in the Technical Section.—Eds. B.J.]

THESE models, which are now in the museum of the R.P.S., were made some time ago for the purpose of studying the structure of a light pencil with a non-spherical wave-front; that is, such a pencil as is formed by a lens corrected for chromatic aberration alone, or by a simple positive lens when the light is monochromatic. The first thirty models are accurate representations made with the aid of an 8-in achromatic meniscus lens; as, however, such a lens does not produce all the varying effects possible, the series illustrating "Coma" is complete only for this particular lens. Other varieties of coma exist, hence the models must not be considered to give a complete analysis of the subject. The last ten models illustrating astigmatism are also incomplete. They simply represent the forms of astigmatism left when the fundamental cause of the coma, existing in the other models, is removed. They therefore only illustrate a hypothetical case, and though this is one of considerable theoretical interest, it is not typical of the effects of astigmatism commonly met with.

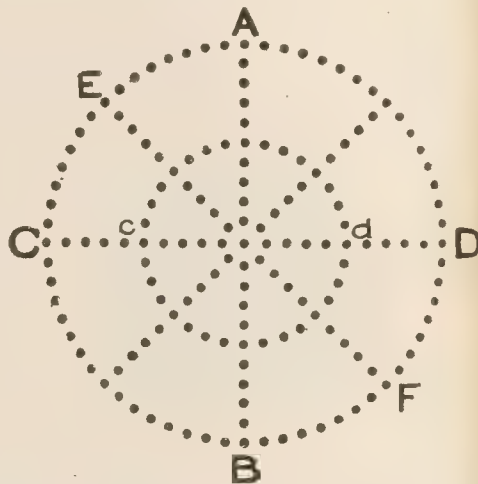
The classification of the aberrations that I adopted when labelling the models is incomplete also, owing to the limited conditions observed. Later work has shown that a certain feature of the particular coma pencils studied, which at the time was merely noted as an interesting characteristic, is most probably a special feature that is responsible for certain of the effects in the coma models and possibly productive of a different variety of astigmatism.

The manner in which the models were made has already been described in this "Journal," at page 341, in the issue for November, 1906, and need not be repeated; a description of the classification and of the terms used on the labels is, however, desirable.

In constructing the models, the light pencils were analysed in the following way. A plate perforated as shown in the figure was placed in front of the lens to serve as a diaphragm. The central aperture then transmitted the "chief ray" of the light pencil, and the perforated "Zones" and the "Radial Sections" (AB, CD, EF, etc.) transmitted a skeleton pencil that could be studied and mapped out in detail. In the case of oblique or eccentric pencils the plate was arranged so that one radial section, AB, coincided with the primary plane of the pencil, this section thus becoming the "Primary Radial Section." The radial section CD was then in secondary plane and became the "Secondary Radial Section," while any other radial section, such as EF, was simply styled a diagonal radial section. The light passing through any one of these radial sections forms a "Chief Section" of the light pencil, this term being adopted because all such chief sections contain the chief ray, which is common to all. According to the radial section from which any chief section originates so such chief section is styled Primary, Secondary, or Diagonal. The Primary chief section is invariably a plane, coincident with the Primary plane of the pencil. The other chief sections are not necessarily planes and therefore do not always coincide with the corresponding Secondary or Diagonal Planes, which are datum planes only. Excepting in the case of a pencil quite free from coma, these other chief sections are winding curved surfaces of interesting form, and a series of them is to be found in model B. These surfaces are of course subject to modification in the case of other lenses showing other varieties of coma.

The light passing through any one zone of the diaphragm plate forms a hollow "Zonal Pencil," which in the absence of either coma or astigmatism is conical in form. In the presence of either of these effects the zonal pencil has an intricately curved envelope that can only be perfectly shown in a model. Various specimens of zonal pencils are to be found in the models.

A transverse section of a zonal pencil gives a "Zonal Section." Examples of such sections will be found in models 27—29 D, at 38—40 F, others will be found in Professor Sylvanus Thompson's



Traill-Taylor Memorial Lecture on "Zonal Aberration," and in M. Dennis Taylor's "System of Applied Optics." The effects illustrated in the models are those commonly known as Central Aberration, Coma, and Astigmatism. These terms I have used simply to describe the effects produced on the image screen. I do not look upon these effects as separate "aberrations" because analysis shows that the latter two effects are usually very complex, and due to several distinct defects in the structural formation of the light pencil. The term "aberration" I have applied only to the structural defects that ultimately cause the effects styled coma, etc., and in the models three such defects or "aberrations" are mentioned, under the names of "Longitudinal Aberration," "Lateral Aberration," and "Radial Aberration." In the models the existence of the three aberrations mentioned is very obvious, and they may be described as follows.

Reference to Fig. 1 will show that a perforated plate such as that shown divides the large pencil into a number of small beams that may be styled rays for the sake of argument. If we consider only such perforations as mark the intersections of the various zones and radial sections we can exactly define any one ray by describing the zone and section to which it belongs. Thirty-three



rays, including the chief ray, can be thus defined from the diaphragm shown. If the lens is perfectly corrected it is obvious that all these rays must meet in one point or focus, but if aberration exists this condition will not be fulfilled. Certain rays will meet one another and form foci, but these foci will be displaced in various directions from the one position that they should occupy in the perfect pencil. If the intersection of any two rays is styled a focus it is obvious that the number of foci formed in a complete pencil is infinite, and a very large number may exist even in a skeleton pencil of only thirty-three rays. It is, however, only necessary to consider a limited number of such foci in order to classify the various degrees of displacement to which they are subject, and so distinguish the separate aberrations.

The possible foci may be divided into "true foci" and "false foci," the former being the foci or intersections of rays belonging to the same zone and same radial section. In the diagram a true focus will be formed by rays passing through A and B, C and D, E and F, of c and d, but A, E; A, F; or C, d, for example, will make false foci. In the classification adopted in the models I ignored displacements of false foci and considered only those of the true foci.

In the perfect pencil all true foci coincide and the following conditions prevail:—

1. All true foci are on the chief ray.
2. All true foci belonging to any one zone are equally distant from the lens.
3. All true foci belonging to any one radial section are equally distant from the lens.

In the imperfect pencil the true foci may be displaced laterally off the chief ray, in which case we have "Lateral Aberration," which is the fundamental defect that causes the unsymmetrical effect known as coma.

Again, the true foci belonging to one zone may not be equally distant from the lens; thus AB may have a nearer focus than CD. If this is the case then different radial sections in the same zone give "true foci" that are separated longitudinally from one another, and "Radial Aberration" exists. This is the fundamental defect that causes the effect called astigmatism.

Again, the true foci belonging to any one radial section may be at different distances from the lens. The different zones in one radial section then give true foci separated longitudinally from one another. In this case a form of "Zonal Aberration," distinguished as "Longitudinal Zonal," or simply "Longitudinal Aberration" exists. This is the prime defect that causes the appearance of "Central Aberration," sometimes called (but I think misnamed) "Spherical Aberration."

The coma models all show a very complex effect due to all these aberrations. If all traces of lateral aberration are eliminated from these models, a mixture of longitudinal and radial aberration is left, which is styled "Mixed Astigmatism" and is illustrated in some of the models. If from the mixed astigmatism the longitudinal aberration is removed radial aberration alone is left and "Pure Astigmatism" appears. This is also illustrated in the models, and the peculiar effects shown at the foci are inevitable unprovided radial aberration exists alone. In this pure astigmatism the primary and secondary "focal lines" are represented by figures of eight, while the mean focus is a cross. In the mixed astigmatism the same forms exist in individual zonal pencils, but those belonging to any one zonal pencil are obscured by the other zonal pencils, which owing to the longitudinal aberration are all in different phases at any one particular distance from the lens. The primary and secondary foci then become ovals, while the mean focus is an approximate circle. Another form of astigmatism is possible, but this cannot be caused by pure radial aberration alone, nor yet by a mixture of radial and longitudinal aberration, and is not shown in the models. The astigmatism actually found in photographic lenses seldom appears to resemble any of the hypothetical forms. It is often modified by varieties of lateral aberration and many of the effects observed are very complex. Accurate models of the existing forms have not yet been attempted.

If longitudinal aberration exists alone, central aberration appears. This is commonly only observed in centrally incident direct pencils. The slightest degree of eccentricity or obliquity at once introduces lateral aberration, which is almost invariably accompanied by

radial aberration. The lateral aberration thus introduced varies in direction. With a positive uncorrected lens of meniscus form with concave side towards the object, simple obliquity of incidence always produces outward coma, or lateral aberration in the direction in which the emergent pencil is swung. Simple eccentricity produces lateral aberration in a direction opposite to the eccentricity, and as this may be in either of two opposite directions the effect of eccentricity may tend to either re-inforce or to partially counterbalance that due to obliquity. This is shown in models 4 to 7A.

These models represent work that was carried out over four years ago, and the classification given above is not quite the one I should adopt to-day. It is, however, necessary to describe it if the labels on the models are to be understood, and even though the classification and nomenclature be imperfect according to present day views the accuracy of the models is in no way affected.

It should be noted that the classification is imperfect owing to the fact that it considers the displacement of "true foci" alone. A complete analysis would also consider the displacement of certain "false foci," which defects exists in the coma models, and is one of the causes of the "linear astigmatism" shown by spherocylindrical lenses and sometimes by combinations of spherical lenses. In this variety of astigmatism the primary and secondary foci are lines and the mean focus is an approximate circle. No cross is formed, but with photographic lenses traces of the cruciform "pure" variety can often be observed.

C. WELBORNE PIPER.

#### THE ROYAL PHOTOGRAPHIC SOCIETY.

The annual meeting of the Royal Photographic Society will be held on Tuesday next, February 12, when the election of officers by ballot for the present year will be announced and the report of the council and the balance-sheet presented. The ballot-paper now with the members is to be returned to the secretary at 66, Russell Square, not later than Monday next, February 11. The Council's report already circulated among the members is repeatedly apologetic in its tone, although in some particulars—e.g., the accession of new members—the past year of the society has been one of progress. The following few items, selected from the documents which have been issued, will no doubt be discussed at the annual meeting:—

There is a deficit of £94 on the year's working.

The Journal of the society has been published at a loss of £222, an increase of £25 on 1905.

The alterations to the lecture-room, placed to the capital account, amounted to £406.

The profit on the exhibition was £106, compared with £166 in 1905, the difference being due to the greater expenses necessitated through the society's house being in the hands of the builders.

Members to the number of 67 showed at the exhibition, the remainder of 174 being non-members.

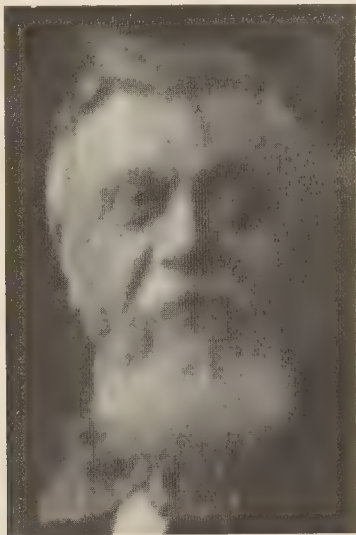
#### DR. KORN'S TELECTROPHOTOGRAPHY IN PARIS.

Last Friday, February 1, at the offices of the Parisian journal, "L'Illustration," Professor Korn gave a demonstration of the telegraphic transmission of images, the accounts of which have already appeared in our pages. The event was made the occasion of a public function by the proprietors of "L'Illustration," to whom the sole rights in France of the Korn system have been ceded by the inventor. A large number of representative men were present, including M. Louis Barthou, Minister of Public Works, and M. J. Simyan, Secretary of the Postal and Telegraph Department, with numerous members of the French Chamber and of the Press. We noticed among the six hundred visitors Le Prince Roland Bonaparte, M. Faurès, M. Santos-Dumont, and M. Nadar.

Dr. Korn, speaking in almost perfect French, gave a brief address on his invention, illustrating the results which had been obtained by projection on the screen of portraits, transmitted a few days previously over a circuit of 1,500 kilometres. Among the portraits were those of the Prince Regent Bavière, of M. Poincaré, the mathematician, and of M. J. Carpentier, member of the Bureau of Longitudes. Lastly, the appearance of a portrait of His Majesty King Edward, who that evening had arrived in Paris, was the signal for a round of applause.

The meeting then proceeded to witness the transmission of the

portrait of M. Fallières, over a circuit from Paris to Lyons and back, a distance of 1,024 kilometres, the outward and return wires being those of the Central Telephone Company of Lyons. The receiving instrument was placed a few yards from the transmitter, and the portrait which we reproduce was obtained in six minutes. The dimensions of the largest picture which can be transmitted are 18 x 24 cm., the transmission taking place at the rate of one minute



Reproduction of the portrait of M. Fallières telegraphed from Paris to Lyons and back.

per square centimetre, at a speed of rotation (of the cylinder of the machine) of ten revolutions per minute. The demonstration was directed by M. Carpentier and Herr Wilm, Dr. Korn's assistants.

The demonstration was not without its humorous incident, for the telephone operator "cut off" the connection during the progress of a transmission, with the result that the portrait showed a white line along its length.

Apparatus for the continuous working of the instruments between Paris, Berlin, London, and Munich are in course of construction by M. J. Carpentier.

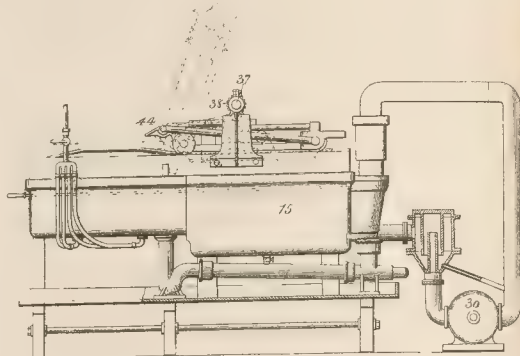
## Photo-Mechanical Notes.

### The Levy Acid-Blast Etching Machine.

A recent patent (No. 18,869, 1906) taken out by Louis Edward and Max Levy, of Wayne Avenue, Berkley Street, Philadelphia, U.S.A., describes certain improvements in the machine, which has become known in this country and is already in use in the establishment of at least one photo-engraver. Means are now provided whereby the etching-chamber is provided with aspirators for the removal of the gaseous but condensable products which result from the action of the etching fluids in the metal plates. The general construction and action of the machine will be clear from the following figure and description:—

The etching fluid is placed in the etching-chamber (15) in sufficient quantity to cover the lower portions of the aspirators, the carriage having the plate to be etched attached thereto is moved to occupy a position above the etching-chamber, and is connected to the hook 44, and when power is applied to the shaft 37 the carriage and its attached plate will be reciprocated. The pump or blower (30) being driven forces air into the compartment below the etching-chamber, and such air under compression escaping through the aspirators projects the etching fluid in the form of atomised spray

against the reciprocating plate. The chemical action of the atomised erodent upon the unprotected parts of the plate evolves fumes, heat, and gases, all of which augment the contents of the etching-chamber, and to prevent such fumes and gases escaping and vitiating the atmosphere about the machine and to recover a part of the etching fluid, the vapours along with the fumes and gases are drawn from



the etching-chamber by the pump or blower, effecting a partial vacuum in the etching-chamber, the reduction of pressure causes an inflow of air into the etching-chamber about the edges of the covering plate. The products that are drawn from the etching-chamber by the pump or blower pass about a series of baffle plates, the vapours being condensed flow back into the etching-chamber. The plate after being etched is moved over the washing-chamber and is washed by water that is projected upward through the nozzles attached to the bottom of the washing tank.

### Ippertype-Transfers of Resists to Metal Plates from a Relief on Flexible Film.

A very lengthy patent specification (No. 26,965, 1905) has been filed by John William Ippers, 101, Beekman Street, New York, U.S.A., for a process of preparing rotary metal printing plates by the following process:—

- (1) Making a sensitive gelatine plate on a flexible celluloid base, having a gelatine coat of uniform thickness.
- (2) Exposing the gelatine plate to light through a negative.
- (3) Developing the plate by bathing it in water, and thereby making numerous irregular and irregularly-distributed cracks in its surface.
- (4) Drying the plate in air and applying glycerine solution to those parts of the surface which will take it.
- (5) Applying ink to the other parts of the surface and transferring the ink to the periphery of a metal roller.

### "Klimesch's Jahrbuch," 1906.

This annual, which is somewhat on the lines of Penrose's "Process Year Book," has lately reached us. It differs from the latter, inasmuch as there is consideration of book printing, as well as process matters. There are twenty-seven articles, most of them are of a somewhat solid character. Of these more than half deal with printing or allied subjects, the remainder are concerning photo-mechanical processes, the chief perhaps being one on the preparation of screen negatives by means of collodion emulsion, for three and four-colour work, an article that runs to fifteen pages. Two useful articles always contained in this year-book are a list of the technical books published during the year in Germany and a list of the patents granted by the German Government in the particular classes concerning photography and the printing press.

The supplements are not bewildering in number and variety, as there are only twenty-seven of them, but they are excellent of their kind, chiefly three and four colours, and some good collotype. Except for the binding, the wire stitching, and some of the ornament used, the get-up is very tasteful, a calendered paper is used, not a clay surfaced art paper, and the type is good and readable.

### PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

MOUNTING BLOCKS.—No. 709. Improvements in mounting blocks for printing plates. Albert Waters Harrison, 7, Southampton Buildings, London.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following Patents were applied for between January 21 to January 26:—

**SHUTTERS.**—No. 1,487. Improvements in appliances for automatically operating the shutters of photographic cameras. Edward Geisler Herbert, 89, Northern Grove, West Didsbury, Manchester.

**ELECTROPHOTOGRAPHY.**—No. 1,548. Improvements in tele-automatographic systems. Arthur Korn, 133, Fleet Street, E.C.

**POSTCARD PHOTOGRAPHS.**—No. 1,617. Improved method of attaching photographs to postcards. Thomas Clegg, Park Studio, Rawtenstall.

**STEREOSCOPY.**—No. 1,763. Improvements relating to stereoscopy. Gilbert Arden Shakespear, 18, Southampton Buildings, London.

**TRIPODS.**—No. 1,787. Non-slipping shoe for photographic and other tripods. Alfred William Stainton Sanderson, Mossburn Buildings, Altrincham.

**SHUTTERS.**—No. 1,849. Improvements in focal plane shutters or other roller blind photographic shutters. Arthur Lewis Adams, Birkbeck Bank Chambers, Southampton Buildings, London.

**PRINTING PAPERS.**—No. 1,883. Improvements connected with photographic printing papers or surfaces. John Page Croft, 11, Burlington Chambers, New Street, Birmingham.

**STEREOSCOPES.**—No. 1,926. Improved stereoscope. William Arthur Phillips, 4, South Street, Finsbury, London.

**PHOTOGRAPHS IN GLASS.**—No. 1,928. Improved process for producing photographs on metal, glass, porcelain, etc. Alfred Hans, 58, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**DEVELOPING APPARATUS.**—No. 1,037. 1906. The claim is for a combined camera and developing chamber, capable of containing a change of plates or films, of exposing the same, and of transferring them to a chamber for development without handling them or detaching them from the apparatus. The apparatus is thus, first, a wrapper for the plates; second, a light-proof vehicle for charging and unloading the camera with the plates; and third, a light-trapped sheath which enables the plates to be developed and fixed without removing them therefrom. Arthur Augustus Brooks, "Cranleigh," Park Avenue, Ashton-on-Mersey.

The following complete specification is open to public inspection before acceptance under the Patents' Act, 1906:—  
**FILMS.**—No. 1,454. 1906. Manufacture of films for photographic and other purposes. Smith.

## New Trade Names.

**ANNO.**—No. 288,760. Photo-engravers, sensitive compositions, being chemical substances, included in this class. The British Gelatine Works, Ltd., New Bedford Road, Luton, gelatine manufacturers. December 11, 1906.

**OPTICLUX.**—No. 2,881,529. Photographic and microscopic lenses and prisms. W. Watson and Sons, 313, High Holborn, London, W.C., opticians. December 4, 1906.

Under the name of "Chromograph" a system of trichromatic colouring is being worked by Mr. Henry Hawkins, York Road, Ilford, by whom portrait or landscape prints will be coloured for professional photographers. Unlike other systems, resembling "chromograph" as described, the results of the process are free from excessive brilliancy and, in certain of the specimens submitted to us, harmonious in colouring. Mr. Hawkins offers to supply a single cabinet from any negative for 2s. 9d. mounted ready for showcase, post free, or 2s. each for not less than six copies. He is also open to demonstrate the process for a fee.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Print Trimming.

In cutting very thin papers (writes Mr. C. H. Hewitt in last week's "Photographic News") the principal danger lies in the paper first slightly buckling under the forward movement of the knife, the alternate slight buckling and cutting resulting in an irregular or wavy edge. Three conditions are necessary to avoid this. The first is a very keen edge on the knife, so that the blade will cut without pushing the paper before it. The second is a very clean square edge on the steel triangle, so that the paper is held close up to the cut. The third is a cutting plate which is absolutely flat, ensuring the paper being nipped tightly between the true edge of the triangle and itself. If the sheet of zinc recommended for general use gets at all out of the flat, a sheet of cardboard may be employed for this special work, and, being slightly yielding under pressure, the thin paper is more firmly held at its edge.

### Pictorial Postcards.

A stationer on the South Coast (writes "F. M. S." in Tuesday's "Amateur Photographer.") has said that during the past year he has sold no less than 100,000 postcards. At first sight it would seem that his profit on such a quantity would be enormous, but when the figures are looked into, the profits are very small.

Putting the hundred thousand at one penny each—perhaps too high a figure, for in many towns they are sold at five and six a penny—we have a total of £416 nearly. Against this must be put the cost of the cards, rent of shop, wages of assistants, and depreciation of stock: say, £100 for cost of cards and envelopes; £100 for rent of shop, gas, etc.; £75 for wages; £25 for depreciation, and we have a profit of £116.

To sell 100,000 cards in three hundred and eight days, they must be sold at the rate of three hundred odd a day, or nearly two in every three minutes of an eight-hour day.

The amount, £25, for depreciation may seem high, but many subjects soon become stale and become unsaleable; then many buyers forget to pay for what they buy.

Whether £75 is enough for wages depends on the market value of human flesh. One person would have to attend to the sales and another to the buying. If the latter is not most carefully attended to, the stock would soon become far too large. Then when the mania exhausted itself, the stationer would find himself burdened with many hundredweights of waste paper.

### Night-lights for Ruby Lamps.

Like many others (writes Mr. W. A. Grosvenor, in "Focus"), I have tried numerous contrivances, both in the shape of lamps and in different kinds of illuminants. The "night-light" proved to be the most handy in every way, being extremely portable, and when burnt in a glass cup was most cleanly and safe. There was only one drawback. The light given was hardly sufficient. As an experiment, I drew out the wick, replacing it by a larger in the shape of a wax vesta, and the result was a larger flame, and a capital light. Here, I concluded, if only a larger wick were inserted in the ordinary night-light, was an ideal light for the photographer. So I wrote to Messrs. Field, of London, of "Ozokerit" fame, and mentioned the suggestion. To my pleasant surprise, I discovered my idea had been already acted upon, for in reply to my note Messrs. Field informed me that they had for some time been making special lights for photographers on the night-light principle. These are in a casing of thin lead, with a wick which gives a good flame. I immediately tried one of them, and at last found what I had long sought after—a good, reliable, safe, and portable dark-room illuminant.

### CATALOGUES AND TRADE NOTICES

"Thornton-Pickard Novelties."—An abridged catalogue has been issued under this title by the Thornton-Pickard Manufacturing Co., Altrincham. It lists the latest of the firm's introductions in cameras, including the "College" set of remarkable value, the new "Automat" camera, and the folding "Ruby" hand stand camera, an instrument of the most universal type, if that phrase may be admitted.

On Monday next, February 11, a fortnight's clearance sale opens at Messrs. Marion's. The full catalogue published yesterday should be applied for by those desirous of securing bargains in lenses, cameras, mounts and sundries, of which Messrs. Marion offer a large variety.

## New Books.

"Photography for Students of Physics and Chemistry." By Louis Derr. 247 pages; 7 x 4½. London: MacMillan and Co. 6s.

The writer of this text-book is associate professor of physics in the Massachusetts Institute of Technology, in which position he has delivered courses of lectures on the principles of photography to students in the chemistry and physic classes. The volume, which has grown out of these lectures, aims at stating the theories of photographic processes in an elementary form capable of assimilation by those who have had some scientific training, but not very much of it. Hence the book is not an instruction manual, of which there are already too many, but a discussion of the broad principles underlying photography, of which there are too few. Professor Derr thus approaches the reader as a person who wants to know the reasons for certain photographic procedure and the main facts upon which photographic processes and the construction of photographic apparatus are based. He devotes more than one third of his space to the lens and the camera, and gives a very clear and uninvolved explanation of the principle of a lens' action, and the means of eliminating the chief aberrations from a lens. The chapter on "Classes of Lens" presents as good a review of the latter achievements in photographic optics as could be desired and the explanation of lens terms which are given *en passant* should be appreciated by the student to whom the subject is strange.

In treating of development he classifies methods of rendering visible a latent image, in regard to which it is somewhat confusing, we think, to speak of potassium oxalate in the platinotype process as a "developer" analogous to an acid solution of iron salt for the wet collodion plate. The later discussion, however, of the work of Hurter and Driffield and Watkins, is excellent, though later on we come to a curious typical developing formula with sodium phosphate in it. The author gives no reason for instancing the presence of this substance, and the selection of a special formula must prove puzzling to the reader who endeavours to discover the function of each constituent in it. Later still, we are told in the same chapter that the ferrous oxalate developers must be made up at the moment of use. Yet these minor slips do not detract from the total usefulness of the book not only to students of physics and chemistry, but to the photographer who, knowing a good deal of the practical side of photographic processes, desires to systematise his knowledge and to carry out his practice more intelligently. The volume shows marks of its American origin in the spelling of "center" and other words, and the use of the word "kit" in its transatlantic sense—that of carrier for a small plate in a larger dark-slide.

"GUIDE du Photographe Debutant."—A little brochure of 35 pages has been issued under this title by MM. Gautier and Villars at 75 centimes. It is from the pen of M. C. Fabre, and briefly introduces the photographic beginner to the essential preliminaries to his hobby.

MESSRS. RAYNER AND Co., patent agents, 37, Chancery Lane, London, W.C., send us the completion of abridgments of specifications in Class 98 (photography) which they have been issuing, with an indication of those patents which have become void. This additional information adds to the value of the official records, and Messrs. Rayner's labours have our commendation, if only for the reason that they have frequently been of service to ourselves.

THE South London Exhibition.—The last day for pictures, we would remind our readers, is February 16.

THE Lancashire and Cheshire Photographic Union has published its 1907 year-book, containing the rules and objects of the Union and a list of the societies in it. The term "affiliated" used in the year-book is apt to cause confusion, we are afraid, particularly as the cover of the year-book is an almost perfect match to that of the affiliation "Red Book." The many lecturers and lectures which the Union can "present" are also listed. We congratulate the Union on the strength it has now attained for forty-two societies and 3,300 associates.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, FEBRUARY 8.

Cardiff Photographic Society. "Gwbert" D. Till.  
Photographic Society of Ireland. "Light and Shade." James Brennan.  
Wallington Camera Club. "Denizens of the Deep." F. Martin-Duncan, F.R.P.S.  
Hamstead Scientific Society. "Bird Stations of the British Isles." Herbert Goodchild, M.B.O.U.  
St. Albans Photographic Society. "Sports and Pastimes with the Goerz-Anschütz Folding Camera."  
Oliver Goldsmith Photographic Society. "What Can be Done with a Hand Camera." C. P. Goerz.  
Marple Camera Club. "Postcard Photography on 'Rotograph' and 'Rotox' Postcards."  
Sutton Photographic Club. "Architectural Photography." C. J. Marshall.  
Whitby Camera Club. "Theory and Practice of Self-Toning Papers."

#### MONDAY, FEBRUARY 11.

Derby Photographic Society. "President's Holiday Rambles with a Hand Camera." E. Collier Green.  
South London Photographic Society. "Stereoscopic Photography." H. Creighton Beckett.  
Lancaster Photographic Society. "Bromide Toning." A. Davies.  
Oxford Camera Club. "Combination Enlarging." John H. Gear.  
Preston Camera Club. Exhibition of Members' Work in Club Rooms.  
Southampton Camera Club. "Gloucester Cathedral." Illustrated. Harold Baker.  
Wolverton Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Central Photographic Society. "Ozobrome." Dr. J. H. Wilson.  
Wellcome Photographic Club. "The Photographic Lens." C. P. Goerz.

#### TUESDAY, FEBRUARY 12.

Royal Photographic Society. Annual General Meeting.  
Burton-on-Trent Natural History and Archaeological Society. "The Carbon Process." E. Abrahams.  
Leeds Photographic Society. "A Chat about Hand Cameras." Illustrated. A. M. Nicholson.  
Keighley and District Photographic Association. "Glimpses of Life and Scenery in Switzerland." P. Lund.  
Hackney Photographic Society. "A Cornish Holiday." W. A. Furze.  
Manchester Amateur Photographic Society. Lancashire and Cheshire Photographic Union Lantern Slides and Folio.  
Trove Camera Club. Lecture and Lantern Slide Competition.  
Darlington Camera Club. "Preparing the Exhibition Print." C. J. Barthorpe.  
Nelson Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Birmingham Photographic Society. Exhibition of Post Cards.

#### WEDNESDAY, FEBRUARY 13.

Central Technical College Photographic Society. "Astronomical Photography." Prof. E. Walter Maunders, F.R.A.S.  
Edmonton and District Photographic Society. "Figure Study." E. T. Holding.  
Woodford Photographic Society. "Preparation of Negatives for Printing." E. H. Carpenter.  
Borough Polytechnic Photographic Society. "The History of Photography." W. F. Notman.  
Leicester and Leicestershire Photographic Society. "Home Portraiture." D. C. Uquhart.  
North Middlesex Photographic Society. "Ozobrome." T. Manly.  
Hertford Camera Club. "Contact Printing on Rotograph Bromide." The Rotary Company.  
Workshop and District Photographic Society. "Leading Features of Velox Manipulation."  
Birmingham Photographic Society. "Making Enlarged Negatives." W. I. Greatbatch.

#### THURSDAY, FEBRUARY 14.

Handsworth Photographic Society. "Tentative Development of Negatives on Unknown Exposures." F. E. Bill.  
L.C.C. School of Photo-Engraving. "Business Methods of American Photo-Engravers." Wm. Gamble.  
London and Provincial Photographic Association. "Lantern Slide Making (W. Plate)." H. C. Rapson.  
Hull Photographic Society. Members' Slides.  
Richmond Camera Club. "Exposures by Artificial Light." P. Payne.  
Blenheim Club. "A Further Account of My Three Years' Stay in Morocco." Illustrated. C. Rider Noble.  
Liverpool Amateur Photographic Association. "Lantern Slides" Demonstrated. F. G. Tryhorn.  
Windsor Camera Club. "Tabloid Brand Photographic Chemicals."  
Blackburn and District Photo. Society. "Enlarged Negatives on 'Rotograph' Negative Paper."  
North London Photographic Society. "Focal Plane Work." W. Kilbey.  
Kettering Camera Club. "What Can be Done with a Hand Camera." C. J. Goerz.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, February 5, Mr. J. C. S. Mummery in the chair. The second of the series of demonstrations of ancient photographic processes was given by Mr. Thomas Bolas, F.I.C., of "Talbotype." Mr. Bolas first exhibited a piece of the paper made by Turner in the fifties for the Talbotype process, its chief feature being evenness of texture. This property, he proved, had become totally destroyed by the decomposition of the sizing of the paper, for on immersing a piece of the paper in the iodising solution the latter penetrated quickly in some places and slowly in others, presenting a patchy effect. Modern thin Rives paper, the lecturer stated, would answer for the process. The first operation



consisted in saturating the paper with the iodising solution and removing the excess from the surface by pressing between blotting-paper. This process of complete saturation and subsequent removal of excess made the best of any irregularities in the paper, and was preferable to applying the solution with a brush. If a brush was used, one of the ordinary kind was useless for this, as for any photographic purpose where a clean chemical solution had to be applied, for the reason that the root of the brush retained traces of old or contaminated solution which could not be removed. In place of a hair brush, the so-called "Buckle brush," consisting of a tuft of cotton wool, drawn into a glass tube by a loop of string, was the best for the purpose, as it could be made new for each occasion of use by the provision of a new piece of cotton wool.

The iodising solution, the lecturer went on to point out, contained potassium iodide as its chief constituent, but it had also small quantities of potassium bromide and potassium iodate. This "compound" iodiser, as it was called, was prepared by the old Talbotype workers by employing the medicinal potassium iodide sold in large tube crystals and containing the above substances as impurities, whereas the purest iodide was obtained in a form, the crystalline shape of which could hardly be seen.

The sensitising of the iodised paper was done in a solution of the following composition:—

Silver nitrate .....	1 oz.
Water .....	8 ozs.
Acetic acid .....	1 oz. fluid.

This was contained in "dishes," which were made by the worker himself by cementing strips of glass round the edges of a glass plate with marine glue.

In place of the paper prepared in this way it was usual to iodise the paper, sensitise it, and then wash out the excess of silver solution so that the paper became practically insensitive. In this state the paper would keep for any reasonable time, and was "excited" at the time of use by immersing for a second time in the sensitising solution. It was exposed wet or dry. The lecturer prepared and exposed paper by both these methods, and in using a sample of old iodised and sensitised paper (method II.) explained that the darkness of its colour was due to the action of minute traces of iodine in the sensitiser on the starch in the size of the paper. The iodide of starch was, however, bleached at once by the silver solution. The exposed paper was developed in a solution of gallic acid, representing a strength of about 1 in 100. In this developed slowly, the operation requiring half an hour to an hour. The negative was then fixed in hypo in the ordinary way. This case of the waxed paper, which was used in order to secure greater transparency of the prints, the operations of sensitising and development occupied, in many cases, hours, and even days, in order to secure penetration of the solutions into the wax-coated surface of the paper.

Mr. Bolas exhibited a large number of specimens of Talbotypes and of Talbotype apparatus, including a Melhuish roll-holder, the prototype of the modern apparatus familiar to users of roll films. A hearty vote of thanks was passed to the lecturer on the proposition, who announced that the next demonstration would be of wet collodion, and by Messrs. Burton and Braham, of the Talbotype Company.

**SOUTHAMPTON CAMERA CLUB.**—The members of the above held a lantern slide competition on Monday evening last, the subjects being "Landscape and Still Life." Thirteen sets were sent in for a first, and a very popular award was secured by W. H. Triffin, one of the oldest of the club workers. Six sets were entered for "Still Life," and the award fell to H. Essex, with a couple of flower studies.

**BURTON PHOTOGRAPHIC CLUB.**—So considerable has been the awakening of interest on the part of local amateurs that during the last two years the membership of the club has more than doubled, consequently the meetings are now held weekly instead of fortnightly. That on the 25th ult. was devoted to a practical demonstration by the vice-chairman, Mr. A. P. Hoole, of the ozonem process, which he successfully demonstrated and explained. The 1st inst. a full exposition was given by the chairman, Mr. Hector Maclean, F.R.P.S., on "Modern methods of Mounting" to be reported in our next issue.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting held on January 31, Mr. Ernest Human in the chair, Mr. A. H. Dunning lectured upon and demonstrated the new Wellington S.C.P. lantern plate. He said that the claim for this new plate was that, in addition to its being usable in an ordinary room, it was capable of rendering an immense variety of colours by development alone. At the same time it required more care in handling than did the paper of the same brand and make, and he recommended that it be shielded from the direct light when putting into the printing frame.

In place of the usual metol-hydroquinone developer he recommended and used the following:—

A. Water .....	20 ozs.
Hydroquinone .....	80 grs.
Soda sulphite .....	500 grs.
Soda carbonate .....	500 grs.
B. 10 per cent solution potass. bromide.	

The following table of colours is calculated for exposure to a naked incandescent gas burner at a distance of 12 inches:—

Tone.	Exposure.	Developer.
Black .....	15 seconds	A normal
Warm Black .....	30 "	Add 2 drops B to the oz.
Brown .....	60 "	" 3 " "
Warm Brown .....	2 minutes	" 6 " "
Red Brown .....	4 "	" 12 " "
Red .....	8 "	" 24 " "

Good tissue paper, he said, with ordinary mountant, made ideal slide binders, which were easy to put on, and, more than this, stopped where they were put, being far and away before the commercial article. He exposed the plates and produced both black and brown slides, using magnesium ribbon for the exposure, about  $\frac{2}{3}$  of an inch being used for the black toned slide.

A lively L. and P. discussion followed. Mr. Teape asked how long a red toned slide would take to develop, and upon being told ten minutes, offered a sixpenny bet that Mr. Dunning could not produce one in the time. The room being declared a place within the meaning of the Act, bets were inadmissible, but upon request from the chair Mr. Dunning attempted the task, using a foot of ribbon for his exposure. Upon measuring the bromide solution, however, he thought he had too much, and took half the quantity, the result being a warm brown fully developed in three and a half minutes. The chairman upon this likened the lecturer to the man who used an exposure meter, and then relied upon his own judgment, under-exposure resulting.

The chairman, in asking Mr. Stretton to move a vote of thanks, said that the members, at any rate, had taught the lecturer one thing, and that was that he could not produce red tones at command. Under new conditions Mr. Dunning, however, promised to work the red tones out with the ribbon, and let the Association know the exact result.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—On Monday, February 4, before the members of the Society, Mr. H. Snowden Ward gave his lecture on "Picture-making for Photographers." The lecturer commenced by showing the first efforts of the primitive symbolists who drew a vertical straight line as indicative of strength and vitality, and the horizontal straight line as indicative of submission and calm. In combining the two the triangle was formed, a symbol of stability and aspiration. The circle and oval afterwards drawn indicated by their curved lines feminine grace and beauty. From these, a picture built up entirely of straight lines or triangles gave a harsh effect, while one composed entirely of circles gave a weak, squashy effect. The combination of the two producing the most pleasing picture. Mr. Ward gave as his opinion that 90 per cent. of the pictures exhibited at photographic exhibitions showed the lack of the first principles of composition or arrangement of subject, and said that picture makers should think throughout the whole course of their work. The lecturer then showed by a series of diagrams the best way to build up or arrange a picture, showing the strong and the weak points in the position of the principal objects. Right-handed pictures, or those in which the eye is led from left to right,

are generally more satisfactory than those in which the reverse method is taken. Mr. Ward then made some remarks as to tone values. In a picture the highest lights should lead one to imagine that something lighter still could be shown, and in the deepest shadows that something even darker could be indicated absolute black or white should not appear in a picture.

We showed on the screen Mr. A. Marshall's Salon picture "Sunlight and Whitewash," which he considered the most perfect and masterly example of tone rendering he had seen exhibited for many years. If a satisfactory picture could not be made out of the materials at hand the photograph had better be left untaken. A few horizontal lines in an uninteresting foreground greatly improved the picture. In architectural subjects taken with a wide angle lens the foreground appears to run uphill, but a few horizontal shadows thrown across the same foreground will remove the uphill appearance, and these can generally be obtained by choosing the right line.

Pictures to represent spring or aspiration are best shown as upright panels, while those to represent autumn evening calm or tranquillity look best as horizontal panels. A picture which will not bear reduction or being hung above the eye indicated, in the lecturer's opinion, faulty composition. At the conclusion, a discussion took place as to the merits of certain of the pictures shown, but the lecturer said that he did not wish his statements to be taken as a rigid rule, but they were given as his own personal opinion and that candid criticism and discussion were always helpful. A hearty vote of thanks was then accorded Mr. Ward.

## Commercial & Legal Intelligence.

**CARRIERS' Liabilities as to Photographs.**—At the Manchester County Court, on January 21, Judge Parry heard an action brought by the Gainsborough Portrait and Enlargement Company, of Cheetam Hill, against the London and North-Western Railway Company, to recover £35 damages, alleged to have been caused by the delay of the railway company in delivering a number of enlarged photographs entrusted to them as carriers. The damages represented the value of 23 enlarged photographs at £1 1s. each, and four weeks' wages of a representative of the plaintiffs. According to Mr. W. E. Laycock, who appeared in support of the claim, the photographs were delivered to the railway company on August 10, to be carried from Manchester to Market Harborough. They were lost or mislaid until October 2. The result was that customers who had ordered the photographs refused to take them, and even complained to the police. The plaintiffs' representative was at Market Harborough four weeks waiting for the parcel to arrive. As a result of the non-arrival of these photographs his clients lost their connection in Market Harborough, and, more than that, the police were set on their track.

A representative of the firm said he waited at Market Harborough for the parcel for four weeks—till he was sick and tired of it. "The town was so small," he added, "that I got known to everybody, and the police got on my track." (Laughter.)

Mr. Frank L. Lambert (of Euston Station), who appeared for the railway company, pleaded the Carriers Act, 1830, contending that the photographs came within the definition of "pictures or paintings," in respect of which a declaration should be made and a higher rate paid. Many consignments of this type were being made at present, and the case was of some importance to railway companies. The goods miscarried by a pure accident. The adhesive label got rubbed off, and the parcel ultimately turned up at the lost property office at Euston.

The Judge: What about picture postcards? You might call them pictures or some of them waste paper.

Mr. Laycock argued that the photographs were of no value except to those who had ordered them. The "pictures" contemplated by the Act were pictures of value which might be stolen for their intrinsic worth.

In giving judgment, the Judge said the case raised a very interesting point. After fully considering the facts he could not honestly say that the photographs were "pictures" of value within the meaning of the Carriers Act, which was designed to protect carriers from serious claims for damages which they could not possibly foresee. The photographs might have a sentimental value to the individual who owned them, but they certainly had no commercial

value. He must therefore find for the plaintiffs, and he assessed the damages at £10 10s., with costs on the higher scale. It was certainly a case in which he thought the railway company should get the decision of a higher court, and he granted leave to appeal, with a stay of execution.

**"FAKED" Postcard Portraits.**—Last week, in the King's Bench Division, Mr. Justice Darling and a jury had before them an action by Mrs. Gertrude Monckton, the wife of Mr. Lionel Monckton, of Russell Square, to recover damages from Messrs. Dunn and Co., printers and publishers, in Barbican, in respect of alleged defamatory postcards published about her. The defendants admitted publication, but said the postcards were not defamatory.

Mr. Foote, K.C., for the plaintiff, said the defendants appeared to have got hold of a photograph of the plaintiff and had then "faked" a postcard by placing Mrs. Monckton's head on the body of some other lady, either by photographing or drawing. The photographs published of the plaintiff were libellous, and calculated to bring her into contempt.

The first picture of which the plaintiff complained was one in which her head had been placed on a body attired in a nightdress, and holding a candle in her hand, and any one looking at it would at once assume that the plaintiff had been photographed in that position. This gave her great pain.

In regard to this the defendants said the idea was taken from the costume of characters appearing in "A Night Out," recently performed at the Vaudeville. The plaintiff desired to put a stop to this, and asked the jury to read the defendants such a lesson that they would not repeat it.

Another photograph published by the defendants which was objected to was one which they said they took from the idea of "La Source." As a work of art no one could take objection to such a picture, but when the plaintiff's head was photographed so as to make anyone believe she was willing to be photographed in that position the matter became very serious and painful to her. There was a third picture which was vulgar, as it represented the plaintiff crawling out of an egg-shell.

The plaintiff, who was then called, said she did not think any one would like such photographs to be published of them because they were not pretty. (Laughter.) She had never been photographed in the positions indicated.

In cross-examination by Mr. Powell, K.C., Mrs. Monckton said that when she objected she understood the defendants did their best to get the postcards back, but they had no right to publish them. She was now playing a title-role in the "New Aladdin." As a man she had appeared in knee breeches and high boots, and had in male parts appeared as a costermonger and a Mexican cowboy, and in such costumes she had allowed her photographs to be published. The plaintiff further stated that she was not aware that Messrs. Garbett and Co. were the same people as Messrs. Dunn and Co. The publication of the postcards was first called to her attention by someone sending one to her and asking for her autograph. She then consulted Messrs. Foulsham and Banfield.

You know that Foulsham and Banfield's photographs are sold at 2d. each?—Yes.

And that those of Dunn's and others are sold at a penny?—I do not know that.

You did not write to Messrs. Dunn to object?—It was too late, the mischief was done, and apologies in these matters are no good.

Take the nightgown photograph, may I get your consent to think that it is a pretty photograph?—No, it is not. My reason for objecting is that the public would be under the impression that I was photographed in such a vulgar attitude, in my nightgown.

Do you suggest that no decent person would allow a picture of herself with a nightdress on?—I will not express an opinion; people have different ideas. I would not be so photographed.

Mr. Powell, for the defendants, asked the jury not to let their natural sympathy for a young, attractive lady lead them into wronging a mere tradesman who had not the charm of the plaintiff, and who was not before the public. They must keep in mind that it was an action for libel, and nothing else, and they had to ask themselves whether she had been defamed or not, or whether other people were likely to think less of her. There was a difference between those before the public and those who were not, and the latter might very well complain of that which the former could not. The district



visitor, whose greatest excitement was a mothers' meeting, might very well complain if, instead of her sombre garb, she were represented in some of the costumes which actresses sometimes wore on the stage, and were willing to be photographed in. The lady from the suburbs might very well feel defamed, because she might say, "I never could appear in public in that way;" but the plaintiff had appeared in positions which to some minds were more objectionable than the pictures in this case.

Mr. Ralph Dunn said that he had purchased over 600 photographs of actors and actresses; he had obtained the copyright to publish them, including one of Miss Millar. They had never published any without having paid for the right of doing so. He wanted a pretty picture of the plaintiff and other actresses, and having obtained from Germany the photograph of a girl in a nightdress, holding a candle, issued as an advertisement of the candle, he put the plaintiff's head on it. Thirty-four gross of the nightdress picture were printed, twenty-one gross of the egg-shell, and twenty-one gross of the stream picture, and twenty-two gross of the first, eight gross of the second, and eight gross of the third were sold. The wholesale price was a halfpenny, and the retail price a penny. He did not sell a single copy after complaint was made. He ordered about 10,000 of each.

Mr. Powell characterised the case as like the pictures. The figure-head was Miss Gertie Millar, but the heart and nerves and motive-power, and the whole force of the body was Mr. Foulsham and Mr. Cruesemann, the rivals in trade of the defendants. It was their interests that this matter was brought forward, to crush at trade competitors. If it were Foulsham's action, let them leave to him. He would never be so ungallant as to allow the plaintiff to bear the brunt of it. Counsel hoped the jury would say that it was an action that ought never to have been brought, and in the interests of fair play and justice their verdict should be for the defendants.

Mr. Foote declared that there was not the slightest warrant for the suggestion that the loss, if there were any loss, would not all on Miss Millar. There was something suggestive in the pictures, not too much, but just enough. He did not say they were decent, but there was just that about them which would make them sell.

In summing up, Mr. Justice Darling asked the jury whether they thought Mr. Sydney Buxton, the Postmaster-General, would take Mr. Foote's view of the stream picture. With regard to the one of the plaintiff coming out of the egg, nobody could suggest that there was anything improper in it. The only thing his lordship could see against it was that it was so common-place. The plaintiff was constantly before the public. She did not want to live absolutely unknown. It might well be that if a picture like "La Source" were published of the country vicar's wife she would have reason to be very annoyed. But it was not quite the same thing to publish photographs of a lady who was often exhibited in fancy costume, similarly with statesmen and private individuals. If any one put the head of one of the jurymen on one of the caricatures of Mr. Chamberlain and stuck them all round his place of business, he would have a perfect right to say: "Why should I be treated like this? I have not advocated anything for the good of anybody." (laughter.) They must not, therefore, forget the position the lady occupied, but at the same time they were entitled to draw a distinction between what represented the actress in a theatrical part and what represented her not in a theatrical part. They must look on it as plain common-sense men.

The jury gave a verdict for the defendants. Mrs. Monckton in a letter to the Press, states that she will not appeal from the decision, being satisfied with the verdict of the public.

**CHARGE Against a Photographer.**—At the Witham Sessions, last week, John Henry Rubens Bloomfield, alias Henry Rubens, travelling photographer, was charged on remand with obtaining 5s. by false pretences from John Oliver Turner at Rivenhall on December 1. Evidence showed that prisoner obtained from prosecutor an order for three photographs of Durwards Hall, and the photographs were to arrive on the following Tuesday. They never arrived, however, and prosecutor did not see the prisoner again until he had been arrested on January 21 at Brintree. The case was dismissed, as there was no legal evidence of false pretences; and prisoner afterwards handed photographs to the prosecutor.

## NEW COMPANIES.

**OTTO FULTON PROCESS, Limited.**—Capital, £30,000 in £1 shares. To adopt agreements (a) with F. Behm, relating to the allotment to him of 18,000 fully paid shares in consideration of services rendered in procuring certain British patents, stock, furniture, fixtures, fittings, and apparatus for this company, and (b) with the Fulton Syndicate, Limited, for the acquisition of certain British patents relating to photolinel, and certain stock, furniture, fixtures, and apparatus, and to carry on the business of photographers, engravers, decorators, artists, designers, publishers, printers, lithographers, picture dealers, film and photographic apparatus manufacturers, etc. No initial public issue. Registered without articles of association. Registered office: Worcester House, Walbrook, E.C.

## News and Notes.

**A SPANISH** contemporary solemnly prints, in a list of its staff of collaborators, *Mrs. A. and L. Lumière!*

**AN Optical Lecture Experiment.**—Mr. A. E. Smith, writing to "Nature," says:—A striking example showing how any large lens can "see" in relief may be demonstrated to an audience. An electric glow-lamp is lit in an optical lantern, and the image of the filament projected on to a screen. This image is only sharp in parts. A card with a small hole in it ( $\frac{1}{2}$  inch) is now placed close in front of the lens; this sharpens the image on the screen. The card should now be moved backwards and forwards; the image changes in a remarkable way with every movement, showing that the lens sees the filament from a different point of view from each point of its surface. Photographs taken with the "stop" at either side of the lens make a good stereoscopic pair.

**ANIMATED Photography at the Alhambra.**—On Monday last some new and brilliant films were introduced into the "Urbanora" exhibit. Miss Annette Kellermann, who has so nearly swum the Channel, was pictured in a delightful demonstration of high-diving; and in "Callers Herrin" the great fishing industry of Wick was convincingly illustrated.

**THE Photo-Secession.**—Next Tuesday a "two-man" exhibition in the "Little Galleries" of the Photo-Secession, New York, will close. The photographs have been from the cameras of Baron de Meyer and Mr. George H. Seeley.

**SUPPLIES of Platinum.**—Attempts are being made, according to the "Chemist and Druggist," to obtain platinum in the Yukon district. Although fine-grained platinum was recognised in the black-sand residue obtained along the Teslin or Hootalingua River, Yukon Territory, as early as 1898, until recently no active preparations have been made to recover it. A syndicate, whose concessions cover fifteen consecutive miles up the river from its mouth, are now preparing to exploit the river bed with a Risdon dredge, which will be equipped for saving the black-sand residues and extracting the platinum from them. Black sand from this river was treated by the United States Geological Survey's plant at the Portland Exhibition in 1905, the opinion being that the platinum, although exceedingly fine, is capable of recovery.

**ERRATUM.**—A correspondent calls our attention to an error in our issue of January 25 in reply to a correspondent asking for the length of side of a square enlargement to be twice that of one of its sides. The correct answer should have been  $\sqrt{162}$ —nearly 13in., not 4.2in., as stated through an arithmetical error.

**THE Catford and Forest Hill Photographic Society** are holding their Second Annual Exhibition at St. Mary's Hall, Ladywell, on March 22 and 23. There is an open class, and entry forms can be procured from the Hon. Sec., 169, Woolstone Road, Forest Hill. They must be returned by March 8. The judges are the Rev. F. C. Lambert, M.A., and Mr. A. Horsley Hinton.

**A CANVASSER'S BUSY DAY.**—Walter Witherington, a young fellow, described as a photographic canvasser, at the Accrington Police Court, was fined 5s. and costs, and ordered to pay £2, for a plate-glass window he had broken at the "Old House at Home" beer-house. Defendant stated that he stumbled on the step, and fell through the window. He appeared in Court with his hand bandaged.

## Correspondence.

- \*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.**
- \*\* We do not undertake responsibility for the opinions expressed by our correspondents.**

### ADVERTISING.

To the Editors.

Gentlemen,—Messrs. John J. Griffin and Sons, Limited's, letter under this heading in your to-day's issue is incorrect.

There is no ground for the insinuation that we are attempting to pass off Ilford Portrait Gaslight Paper as Special Portrait Velox.

Page 16 of the "Velox Manual" quotes "Special Rough," "Special Carbon," "Regular Rough," "Regular Carbon," "Special Glossy," "Regular Glossy," "Velvet," and "Special Portrait," as varieties of Velox paper. Obviously these words are used in their general sense as ordinary adjectives.

The word "Portrait" means a likeness or representation of a person, and is properly applicable to any material designed for the purpose of portraiture. Witness Messrs. Marion and Company's and The Gem Dry Plate Company's "Portrait" Plates, 1895, and "Portrait" Lenses, dating from forty years ago.

We deny that Ilford Portrait Gaslight Paper imitates, or is intended to imitate Special Portrait Velox in any way.

We shall not trouble you with any further letter on this subject.—Yours faithfully,

Ilford, E., February 1, 1907.

ILFORD, LIMITED.

### PROPERTY IN ADJECTIVES.

To the Editors.

Gentlemen,—On November 26, 1897, Ilford, Limited, advertised a bromide paper in your columns as having a "rich velvety surface." Has the Ilford Company protested against the recent use of the word "Velvet" and "warned" the public that "Velvet" papers are not "velvety"?—Yours truly,

"ROSA DARTLE."

### PLATINUM RESIDUES.

To the Editors.

Gentlemen.—Your leader on platinum-residues in the current issue of the Journal is of considerable interest to me on account of my own experience in collecting these residues. Some time ago, I was using a considerable amount of platinum paper, and as I have always bestowed marked attention on the collection of residues, I made very careful provision for the collection and precipitation of the platinum residues. All developing baths, and the first acid bath, were collected in large earthenware jars capable of holding several gallons; when full the platinum was precipitated with iron protosulphate, and the supernatant liquid was not syphoned off until a test-tube examination showed that no platinum was present. A collection of what appeared to be black platinum was gradually accumulated at the bottom of the tank, and in a year's time this was carefully collected and evaporated to dryness. The result was about 4lbs. of dry precipitate, which, with 3lbs. of platinum ash, was sent to the refiners. The result, as far as any return to me, was practically nil. At the same time, I was getting from 60 per cent. to 70 per cent. of the prime cost of gold and silver back as value for residues. What was the reason for my failure with the platinum? I have consulted several experienced chemists, and they unhesitatingly confirmed my method of precipitation, as indeed do the text-books. The point of interest in your article to me is the fact that you recommend nascent hydrogen for precipitating the residue, and I am curious to know if this would have brought me a return for my trouble. Of course, a considerable portion of the precipitate would be oxalate, but there could be no doubt about the liquid being free from suspended platinum when it was drawn off. As I paid for platinum paper in the year I am referring to, close upon £90, the result is sufficiently discouraging. I have at the present time a good collection of platinum residue, but *cui bono*? It is not even potable!

I may add that the *bona fides* of the refiners is beyond question, and the failure must lie somewhere in my own methods of precipitation.—I am, Sir, Yours faithfully,

G. T. HARRIS.

Sidmouth.

[We can only say that our correspondents procedure appears quite correct, we shall be glad to hear from any reader who may have been able to locate the cause of a similar experience.—Eds. B.J.]

### CANINE PHOTOGRAPHY.

To the Editors.

Gentlemen,—I noticed your reply to "Grip" under "Canine Photography" in last week's "B.J." If "Grip" will supply himself with a crisp biscuit and nibble it just as he is going to expose he will probably succeed.—Yours faithfully, J. E. GUBBINS, Lieut.-Col. Westward Ho! R.S.O., N. Devon.

### "PHOTO-BUTTON" APPARATUS.

To the Editors.

Gentlemen,—I noticed a paragraph in your last week's issue stating that "photo-button" apparatus and parts are not made in England, but that I import them from abroad. Although I buy considerable amount of jewelry for this class of photography from America, I have been able to manufacture the dies, machines and button parts themselves here in London for the last three years, and I shall be glad if you would put a note to this effect in the JOURNAL.—Yours faithfully,

JONATHAN FALLOWFIELD.

146, Charing Cross Road, London, W.

[The British Photo-Button Company, Alton, Hants, also informs us they manufacture photo-buttons from material made in England.—Eds. B.J.]

### THE USE OF FLAMING SUNLIGHT ARCS IN PORTRAITURE.

To the Editors.

Gentlemen,—I was very interested in Mr. Gascoigne's courteous letter, more especially with reference to the relative cost of lighting, but I am afraid that he has misunderstood my previous letter upon this subject, for I did not, as he says, "state that there is more active red light than yellow light in the yellow flame carbons." What I did was to draw attention to the curious results of the sensitometer tests. I am afraid that I cannot do more than refer Mr. Gascoigne to my last letter.—Yours faithfully,

Gateshead.

ARTHUR PAYNE.

## Answers to Correspondents.

- \*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.**
- \*\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.**
- \*\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, &c. Two unmounted copies of each photograph must be sent with the fee.**

### PHOTOGRAPHS REGISTERED:—

- A. E. Parkin, 53, King Edward Street, Hull. Photograph of Alderman Symons.
- J. R. Steadman, 41, Dudley Road, Sefton Park, Liverpool. Photograph of Baby Sitting in a Bath on a Chair in a Room.
- A. W. Sargent, 12, Albany Road, Cardiff. Photograph of the Lord Mayor, Cardiff. Mr. W. Crossman.

**SULPHIDE TONING.**—Can you tell me the reason why a large batch of bromide postcards, bleached with the usual ferricyanide and bromide formula, and toned with sulphide of soda, resolutely refused to tone? The sulphide was a freshly made up solution. The ferricyanide had been used two or three times, and my assistant informed me that it was rather slow in action. The loss entailed by a large batch of cards like this being lost is a serious item, considering the small profits on such cards, and if you can assist me I should esteem it a favour. Sample of the bleached cards are sent herewith.—DOLPHIN.

We are unable to assign any reason. We have heard of similar cases, but have not been able to indicate the cause or state a remedy. We should like to have more particulars of the prints—viz., developer, if alumined or not, etc.

**WEEDEE.**—1. We think there would be no objection to the plan you suggest. 2. Blue.

**J. V. T.**—There is very little advantage in a screen unless it employ considerably longer exposures. As your studio is so short we should advise you to select a lens of  $f/6$  aperture. With the larger apertures the focus will be too long if you are



secure proper covering power. You can see within what limits you must choose from the table on page 1128 of the ALMANAC.

**FLASHLIGHT.**—1. There is no patent in it. The effect can be got by double printing from two negatives, or with a repeating back. Write to Messrs. Jonathan Fallowfield, 146, Charing Cross Road. 2. You had better get "Magnesium Light Photography," by F. J. Mortimer (Dawbarn and Ward, ls.). Impossible to answer usefully in this column.

**BOOK REQUIRED.**—Will you kindly inform me through your columns where I can get a good book on trimming, mounting, and framing prints?—RICHARD B. SHARPE.

"Trimming, Mounting, and Framing" (Dawbarn and Ward, 6d.).

**RESTORING FADED PRINTS.**—I hope you will kindly give me reference to an article in your journal on a special book which treats of restoring faded prints on albumen or gelatino-chloride papers, if only for a short time for copying, etc. I have tried various methods, and yet could not come to satisfaction.—Hari Raoji Chandarikar.

There is no really satisfactory method by which faded paper prints can be restored. If the faded picture be put into a solution of bichloride of mercury—say, one part of a saturated solution diluted with two parts of water—the yellowness of the paper will be removed and the print generally made brighter and more suitable for copying. But no detail that has actually faded out will be restored. Prints so treated, if thoroughly washed, will last for many years without further change.

**REVERSED NEGATIVES.**—1. Where shall I find the best instructions for making reversed negatives? 2. Can carbon be made to equal a matt P.O.P. for rendering detail in the shadows of small negatives?—Toxo.

1. There are several methods of making reversed negatives which have frequently been described in these pages. However, here is a simple method: First harden the film of the negative to be reversed in a solution of formaline, or in one of chrome alum; wash and dry. Next soak it in a solution of carbonate of soda for, say, ten minutes, slightly rinse, and put the plate in water (10oz.), mixed with ½oz. of hydrochloric acid, and in a few minutes the film will leave the plate, and can then be transferred to another in the reversed position. Another simple way of producing reversed negatives is to take them direct in the camera by exposing them through the glass. In this case, it goes without saying that the back of the plate must be thoroughly cleaned before it is put into the slide. 2. Yes, certainly it can.

**W. J. C.**—Unless direct fraud can be proved against the canvassers, there is no legal remedy. The business is conducted on slightly different lines from that of Tanquerly, but both classes of persons are clever enough to keep out of the hands of the police.

**POSTCARDS, ETC.**—1. Kindly inform me if you know how the postcard publishers get at the shops to sell their cards? Is it done through wholesale houses such as sell the ordinary papers? Is there any way of getting a list of same for the various towns, as I feel confident it would not pay them to work the small shops in each town? 2. If we add acetic acid, alum and sulphite of soda in fixing bath to stop blistering, has it any effect in stopping the after-toning with the ferricyanide bath? Also, if we put them (the prints) in salt and water before fixing with the bath, as I have quoted, and then straight into the fixing, do these various things interfere with the permanency of the prints, or do you suggest a better remedy to harden cards and to stop blistering for those to be enamelled? 3. What is the best to spot cards with glossy bromide previous to being enamelled? We have tried water-colour with albumen, but all comes off when prints are wetted.—ACETIC.

1. Stationers are travelled by the large postcard houses and by the wholesale firms dealing in stationers' supplies. There is no list. The wholesale newsgagents, we believe, do not touch postcards as a rule. We should advise you to consult a stationery journal such as "Morris's Trade Journal." 2. Our own attempts to cause such a bath to prevent the after-toning have failed, but we have heard of cases where the use of an alum fixing bath seemed a possible explanation of difficulties in after-toning. We cannot say precisely. The salt is usually removed before fixing, but it is not absolutely necessary to do so. If

left in, the prints as they go to the alum-fixer, it will not affect the permanency. 3. Special glossy spotting colours are sold by Fallowfield.

**PURPLE-BROWN TONES.**—Will you please inform me how I can obtain a purple-brown tone upon bromide and gaslight postcards. I have tried several modifications of the sulphide toning, and also the hypo-alum process, but with these I can only get various 'sepia' tones. The exact colour I want is that of the toned bromide postcards issued by the Rotary Company.—SEMPER IDEM.

If you employ the Rotary papers you should have no difficulty in obtaining the precise tone for which the hypo-alum process is recommended by the makers. The following method of preparing the bath is recommended:—

Hypo .....	50 gms.
Hot distilled water .....	300 ccs.
Alum .....	5 gms.
10 per cent. silver nitrate solution...	1½ to 2 ccs.

This last constituent is only needed when making up fresh bath. Heat the fresh bath two or three times to 122 deg. to 140 deg. Fahr., allowing it to cool after last application of heat. The solution should be used at 100 deg. to 120 deg. Fahr.

**W. S. T.**—We are not aware of such positions occurring frequently, but when they do they are usually advertised or filled by the firm's fitting up the party.

**MAGNESIUM LIGHT.**—Can you please tell me of any method of using magnesium ribbon in a room for illuminating a subject without producing the peculiar smell connected with the combustion of this article?—H. J. L.

The Platinotype Co. supply a lamp in which the magnesium is burnt in a closed chamber. The alternative is to construct framework covered with muslin (impregnated to diminish its flammability) in which to burn the ribbon.

**S. E.**—We think you cannot do more. We should say an entry of, say, a dozen subjects would be acceptable and stand a good chance of exhibition. We should not advise you to send more, and you had better keep a list of the subjects in order that you may send rough prints to identify them. Some of the Continental exhibitions find it difficult to deal with English work.

**PHOTOGRAPHIC DEALING.**—I am serving my time as a photographer, and I want to take up photographic dealing, chemist, etc., when finished my apprenticeship. Are there any books that would be of any help for same? Are there any classes I could attend?—H. S. B.

There are none of either. Your best means of getting experience is to take a position as assistant at a dealer's.

**A FRENCH LABEL.**—In taking stock, I find a bottle labelled "Phosphate tribasique de soude," which I take to be a sodium phosphate. Please say how or what way this is used in photography, also exact English translation.—A. CLARKE.

Tri-basic phosphate of soda used as an alkali in developers and placed on the market by the Lumière N. A. Co.

**TITLE LETTERS FOR NEGATIVES.**—You advertised recently in THE BRITISH JOURNAL OF PHOTOGRAPHY a firm who sell loose letters for sticking on negatives for the purpose of naming them. I should esteem it a favour if you would kindly give me the name and address of the firm.—FREDK. SUMNER.

O. Sichel and Co., 52, Bunhill Row, E.C.

**CARBON PRINTING BY ARTIFICIAL LIGHT.**—(1) Can the oxygen and coal-gas limelight be satisfactorily used for carbon printing? (2) If so, how does it compare for intensity, etc., with the electric arc light? (3) Is the electric arc light considered a complete success for carbon printing? (4) Is any other light available for the purpose?—HANOVERIAN.

(1) It could be, but the exposure would be very long. (2) The limelight would be very much slower; but no comparison can be given, as that must, of course, depend upon the power of the two lights. (3) Yes; but it is somewhat costly to use, and for that reason is but little used by professionals, except in cases of urgency. (4) The mercury-vapour lamp is good for the purpose, and is, we know, employed by one firm when daylight is not available and orders have to be executed. This light requires a continuous current.

**CELLULOID SQUEEGEERING ON GELATINE PRINTS.**—Can you enlighten me as to the proper method of squeegeeing coloured (by dyes) photographs in contact with celluloid, so that they remain so permanently? We have tried soaking in spirit, also water, then squeegeeing bubbles out, and putting under warm iron, but when the photograph is dry the celluloid peels off.—E.

The prints are dropped in spirit and attached to the celluloid by hot pressure. Messrs. Fallowfield supply a roller for the purpose.

**LIEUT.-COL. J. E. G.**—Many thanks for your correction.

**OPERATOR.**—(1) At such high speed a very fast plate—also one that is a very good plate—is necessary. We advise you to try one of the ultra-rapid plates sold at prices in advance of the "popular" prices. (2) If you will apply at the side door of the offices up to 6.30 you will be admitted on mentioning your name.

**FLASH.**—Certainly, you require a lens of much better covering power, one that at  $f/16$  will cover your 12 x 10 plate to the corners. You should get a lens of 7 or 8 inches focus, which will do this. If you look up the makers' lists with these requirements in your mind you will be able to judge of their respective merits. We should advise No. 5 of the W.A. series you name in preference to No. 4, or to the No. 5 of the other series.

**UNTONE PRINTS.**—Are prints that are only fixed in hypo as permanent as those that have been toned with either platinum or gold, previous to fixing? I am of the opinion that they are not.—A. GREGG.

On theoretical grounds and in practical experience they are not.

**HAND CAMERA.**—I am wanting to buy a hand camera, and should like your advice as to choosing. Is it possible to take just ordinary snapshots and microscopical objects, with the same camera, or is it a matter of different lenses? I am not wanting an expensive one (about £2 would do), and should be much obliged if you would let me know what kind to get.—D. WHITE.

Your requirements are totally antagonistic. For direct enlarged work you require a very short focus lens and a great extension of camera. There is no instrument which can be recommended to you. The best thing you can do is to study an elementary text-book of the two subjects. See the list of books in the "Almanac."

**LANTERN SLIDES.**—(1) Can you tell me if there is any book on lantern slide painting, or where I can get colours for same, other than oil? I have been using dyes (Judson's), and although I get nice soft coloured slides, when enlarged to any size the colours hardly appear definite enough. (2) Can you tell me what colours are used for commercial slides? (3) I have been told that the most transparent colours are albumen. Are they used in the same way as water-colours? (4) Do you think 2s. too much for making a slide from a print? My customer thinks so. He also thinks 9s. per dozen for slides by contact, and 12s. for slides by reduction, exorbitant. What do you think? I feel inclined to tell him to take his work elsewhere.—SARNIA.

(1) "The Book of the Lantern," by T. C. Hepworth, at 3s. 6d. (2) Oil colours. (3) Transparent tinting colours for lantern work are supplied by Fallowfield, and are used as water colours. (4) Both are reasonable prices.

**TINTING ENLARGEMENTS.**—(1) What water-colours or photo tints are suitable for tinting enlargements on semi-glossy paper, so as not to show smeary work when dry, chiefly to be permanent and transparent? I have tried some colours, which are all right, but sink into paper sometimes, and sometimes not, making it awkward to judge how much colour to apply, and chiefly they fade in a few days on exposure to sun, so are useless. After colour has sunk into paper, print looks like a faded coloured print, but on looking through it the colouring is quite strong. (2) What would prevent these colours sinking in?—NELSON.

(1) If you wish to colour the photographs in washes (i.e., without stippling) the only really successful method is to use aniline colours or dyes, but unfortunately none of these are permanent. Many of the better class of water-colours are fairly permanent, as may be seen from Messrs. Reeves and Sons' list, but some stippling with these is necessary. (2) To get over the difficulty of the colours "sinking in," either brush the prints

over or else immerse them in celluloid varnish, and when dry, again in a weak gelatine solution. This will give you a gelatine film to work upon, without the possibility of the colour getting to the paper surface below.

**H. MOORE.**—Try a set of three—namely (1), aqueous solution of gamboge for yellow; (2), aqueous solution of indigo with oxalic acid for blue; and (3), solution of dragon's blood in methylated spirit for red, the latter being invariably applied first.

**G. C. H. W.**—Our experience of the suggested apparatus has not been regular, but our recommendation is emphatically in favour of the dark slides.

**A POSTCARD DISPUTE.**—Some short time ago I took a photograph of a railway accident near here. The following day I had a person call on me, wishing to know if I would sell the negatives (two) or two prints. I was assured that if I sold two prints to him it should in no way interfere with the sale of my own postcards, that they would keep them to their own district. After a little talking and consideration, and thinking that they were twenty miles away from me, I consented, and sold him two prints for 7s. 6d., and to receive one gross of postcards from them free of charge. Now, after about a week from selling the prints, I find they are selling their cards to a stationer here, and extensively advertising them. I have written to them denouncing their principle, and asking them to withdraw the cards in circulation here at once. To this they have not replied, neither have the cards been withdrawn. I may also add that they have registered the prints, and they print their name and copyright on each card. What is my remedy for such a mean action, and have they any right to copyright the prints without my permission, as the negatives are mine and in my possession?—S. P.

You have conducted the transaction in a very unbusinesslike way, but from your account it was evidently your intention to grant the parties right to reproduce, though you must surely know that the purchase of prints transferred no rights. Legally the parties have infringed your copyright, but you cannot take action for publication before registration by you of the photograph. We assume you have not registered the photograph. You had better do so at once, and you can then stop further sales. The infringers have no right to register in their own names. We advise you not to take a dispute, arising from your own ignorance of copyright, into Court.

**STAGE PHOTOGRAPHY.**—(1) If a person pays for a seat or a box at a theatre or music-hall, would he lay himself open to action or penalty (a) if he photographed a stage setting, or (b) any particular performer during the course of the usual evening performance? (2) Would he be at liberty to use such photographs for picture postcards or in other manner, after copyrighting them, always, of course, providing he did not use them in any objectionable way?—H. G. W.

(1) (a) and (b) We believe the managers of a theatre have absolute rights as to permitting or restricting photography, whether such photography interferes with the audience or not, but we doubt if legal action could be taken afterwards in regard to photographing in the theatre. (2) Once the photographs have been obtained, the photographer could do as he liked with them.

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## The British Journal of Photography.

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## SUMMARY.

The exhibition of photographs by American professionals at the J. offices closes to-morrow week (February 23).

Mr. J. C. S. Mummery has been officially (and enthusiastically) elected president of the Royal Photographic Society. (P. 120.)

Mr. Chapman Jones, in a letter to the B.J., states his attitude towards the R.P.S. (P. 128.)

The Photographic Convention has been invited to Brussels for 08. (P. 115.)

Demonstrations to photographers by acknowledged leaders in the profession (in the leaders' own studios) is the latest activity of the Professional Photographers' Society (New York). (P. 113.)

The increased imports of British dry plates into Germany last year—nearly nine times that of 1903—is causing uneasy apprehensions in the Fatherland. (P. 114.)

A case in which a photographer was alleged to have libelled a sister by exhibiting a portrait of him was decided last week against the photographer. (Pp. 114 and 124.)

The concluding chapter on aerograph work deals with finishing water-colour. (P. 115.)

Dr. W. Scheffer, of Berlin, publishes the results of photomicroscopic researches on the grain in gelatine plates. (P. 116.)

Patents of the week include reflex and stereoscopic cameras and picture postcard. (P. 121.)

The South Suburban Photographic Society is the title of the new society with its headquarters at Lewisham Junction. (P. 125.)

Lantern slide making, as demonstrated at the L. and P. by Mr. S. Teape, is reported on page 126.

## EX CATHEDRA.

### A Possible Convention in Brussels.

We are informed that the President of the "Association Belge" has forwarded a cordial communication to the "Photographic Convention of the United Kingdom," inviting the members to hold their next year's meeting in Brussels. Among the interesting and attractive places to which excursions might be made are mentioned Bruges, Ostend, Ghent, Antwerp, Malines, Villers la Ville, Dinant, and the wonderful Grottoes of Han. The "Association Belge" is a photographic body with its headquarters in Brussels and with numerous societies in other centres with which it is in very close relations. In fact, the Association is fully representative of photographers in Belgium in a more direct way, for example, than the Royal Photographic Society is of those in Great Britain. A meeting in Belgium would be a welcome change in the Convention's itinerary, and one which, we have no doubt, a large proportion of the members would favour. The Council will consider the proposition between now and the Hereford meeting, on which occasion the place of the 1908 visit will be fixed.

\* \* \*

### A New Move by the American "P.P.A."

The Professional Photographers' Society of New York, a body with aims almost identical with those of the Professional Photographers' Association in this country, has hit upon a new form of activity which should attract many new recruits into its ranks. It has arranged a series of five demonstrations, by leading professional photographers, of special branches of the profession, to which each one of the demonstrators has devoted years of his life, and in which he has obtained universal acknowledgment of his ability. The first subject will be child photography, to be demonstrated in his own studio by Mr. E. B. Core, of New York. Mr. Core's business, as our readers may have learnt from our columns, is confined exclusively to children, and the examples of his work which are now to be seen in the little exhibition at our offices have shown the peculiar strength and delicacy of his portraits. He has his own methods, and these he will demonstrate to a party of twenty of his fellow members of the Professional Photographers' Society. This is a form of service which is bound to be of the greatest value to men who are struggling from the lower ranks of the profession, and it is one which, with some differences, necessitated by the smaller distances which separate photographers in this country, might be carried out by members of the P.P.A.

\* \* \*

### Certification Mockery.

A bold man is Mr. E. J. Mock, of Rochester, U.S.A. We read in the "Photographer" that he has proposed a scheme of certification for photographers which certainly has the merit of being unlike anything of the kind of which we have ever heard. Yet we are not in two minds of the possibility

of carrying it through in any general way. Mr. Mock suggests that one or two photographers and one or two artists in a town band themselves into a committee to grant certificates of proficiency to photographers in the district, on the basis of work which is genuinely their own from first to last. The certificate is to be for a single year, and at the end of that time may be renewed if the output of the photographer merits its continuance. We should like to see the idea suggested in any town in Great Britain! Mr. Mock argues that photographers who know their business from end to end should have a diploma no less than dentists, but he also seems to take the view that a self-awarded certificate is just as valuable as one granted by a public or national body. Perhaps it is—in America.

#### A Photographer's Libel

The sequel to as silly an act as any portrait photographer can perpetrate is reported in our "Commercial and Legal" column this week. It took the form of an action for libel brought against a photographer in Bishops Stortford by a person whose portrait he had taken in the usual way of business. Failing to obtain payment for the photographs the photographer displayed one in his window above an insulting reference to the person represented. The latter, in an action heard at the Hertford Assizes on Saturday last, obtained a favourable judgment and one farthing damages, the costs of the case, of course, falling upon the foolish photographer. Our readers may recollect our commenting on the incident at the time of its occurrence, and that we ascertained the calling previously followed by this "professional photographer." It is when silliness of this kind is reported in the newspapers that one wishes it were possible to exclude the ex-sweep, and cook, and candlestick-maker from posing to the public as a professional photographer.

#### Sunlight Arcs.

Our recent article on sunlight arcs for portrait work has aroused considerable interest, and we have had a good deal of correspondence from users of electric light. It is, we believe, fairly correct to assume that with the same cost for electric energy something like three times the illuminating efficiency is obtained with sunlight arcs as against ordinary arcs, the measurement being made with such an instrument as the flicker photometer. But it must be borne in mind that such a comparison does not hold with lamps of the enclosed type for photographic work where the adjustments are specially arranged to give a light of great photographic efficiency, owing to the preponderance of the violet and ultra violet rays, which possess very little illuminating power. In estimating the relative cost of various lamps the question of carbon consumption is one that cannot be ignored. The consumption of carbons in flame arc lamps may be taken as being approximately three times as great as in enclosed-type arcs. The vapour of silicates and fluorides increases the conductivity of the arc, a longer arc resulting. Not only is the actual consumption heavier, but the cost of the carbon is greater to begin with. Reference has been made by a correspondent to the variable quality of the light obtained when using soft-cored carbons. Where the substances introduced to give a colour to the arc are used as a true core, this is no doubt the case, the soft core being consumed a certain distance down into the carbon, when for a time the substance of the carbon is alone incandescent, this continuing until the core is again reached. When the sodium, calcium, strontium and other salt is incorporated with the carbon this variation is hardly likely to occur to any appreciable or measurable extent, and, at all events, would have no effect in practical everyday portrait work.

#### BRITISH PLATES IN GERMANY.

Photographic Plates imported into Germany from Great Britain (kilos):—					
1903.	1904.	1905.	1906.		
9,800	25,300	38,700	89,000	...	...

MANUFACTURERS of photographic plates in this country should read with satisfaction the outcry against the increasing imports of English plates into Germany which recently been made in that country. It has, we think, been generally acknowledged that in the production of gelatine plates of extreme rapidity and other good qualities Great Britain has never had a rival, a pre-eminence which after all, is a natural corollary of the invention and perfection of gelatine emulsion processes in these islands. The result has been that in open markets the British dry plate has held its own against all comers, and has now shown its capability of disturbing the ranks of manufacturers in a country where home production is favoured and foreign competition handicapped by a tariff.

It is not so many years ago that the plates introduced into Germany did not amount in all to a total of any importance, but the keen competition between British makers has doubtless been the cause of the attack on every available market. The commencement of the appeal to the German consumer may be said to have been the indirect result of the introduction of the "popular" prices for plates some years ago, a step which was taken by the Ilford Company, and with which practically every plate maker has fallen into line. Before that time the home prices of English and German plates were so nearly alike that on this ground there was not the opportunity for a satisfactory competition, but whilst the reduction of prices in England was adopted almost without an exception, in Germany it was adopted at first by only one or two firms. As a result, so we are told by our contemporary, "Die Photographische Industrie," the impression was made that the cheaper plates were inferior, in which view the consumer was encouraged by his dealer.

The next phase in the German dry plate trade was a keen competition among the makers by means of increased discounts, as a result of which an effort was made a few years ago to establish a uniform minimum price. It failed to achieve its object; on the contrary, several makers further reduced their prices and raised their discounts.

It is within the last two or three years that the increase in the imports of British plates has become of notable proportions, and in the last year has risen to a total which is described by our contemporary as "gefährlich für die deutsche Industrie." Our contemporary, which, though lately established, may be said to express the views of the German photographic trade, urges the German makers to take a more serious view of this competition, and to take such steps as shall place the makers in a position to compete effectually with the English importations. In reference to the first of the two factors in the case, quality and price, the German writer takes the comfortable view that the German plate, coming as it does from a nation of the scientific attainments of Germany, must, of necessity, be better, an assumption which we should imagine may be rudely dispelled at any moment by a short conversation with an emulsion maker. In regard to price, the German, despite, or rather, in consequence of, his tariff laws, is not at the advantage which will enable him to produce a high grade plate at a price considerably below that of the English article; for he has to import his glass from Belgium or Great Britain, and to pay on it pretty nearly as much duty as paid by the importer of the English plates. Therefore the cry is raised of German-made glass for the German plate-maker, a scheme which very possibly Germany may realise in time, though she has a formidable task before her in establishing factories with the facilities



of the Belgian glass works, even when she has overcome the technical difficulties. Indeed, it will be remembered that the Germans had every incentive to perfect the manufacture of glass for dry plates six years ago, when the duty on glass from Belgium and Great Britain was increased forty per cent.

In addition to these two limits to the expansion of the home production of the German plate, there is, according to a correspondent of the "Photographische Industrie," another which is self-imposed. The writer states that many German plate factories have carried on their trade in Prussia, Bavaria, Saxony, Wurtemberg, and Baden, by establishing a sole agent from whom the dealer in these States of the German Empire must purchase if he wants the plates. Usually he will not do so for the two reasons that the agent is a direct competitor with him, and that in dealing with him he does not get the full discount obtainable from the manufacturer direct. If plates were supplied by the maker direct at full discount in all parts of Germany, it is thought that the dealers in these States who are now purchasing British plates would discard them for those of home manufacture.

Those who have moved in German photographic circles will recognise in this appeal to the German makers to be up and doing the tacit admission of the superiority of the

British manufactures. And it is a fact that in the case of many products, the name of an English maker is a guarantee of quality. We remember paying a visit some years ago to a large German polytechnic, in the instruction rooms of which we found students being shown the making of positive transparencies on Thomas's plates, and of carbon prints on "Autotype" tissue, and in more recent contact with the German professional photographers it has been our gratification to observe the favour extended to manufactures in the way of plates and printing papers which are "Englische fabrikat." Therefore it is all to the good of the English maker that he has a reputation to live up to ready-made for him in Germany, and he needs only the commercial enterprise to push his goods among the consumers in that country. In doing so it may be well if he keeps in mind the few special preferences of the German photographers, chief among which is the lesser use of pyrogalllic acid as a developer than in this country, and the greater favour which is given to the more recent reagents such as amidol and rodinal. Stand development, on the other hand, is much more greatly in favour with the German amateur photographer than is the case with his prototype in this country, and the reigning system of signifying the speed of plates is, of course, that of Scheiner, a modification of the Hurter and Driffield method.

## WORKING - UP AND COLOURING WITH THE AEROGRAPH.

The article printed below concludes the series of chapters on this subject which has recently appeared in our pages. The previous contributions have dealt with the elementary practice necessary to obtain proficiency in the use of the instrument and with the methods to be followed in undertaking commercial work of this kind.

Coming to the subject of finishing in water colour, the writer is of opinion that it is desirable, especially for beginners, to confine themselves to as small a number of colours as possible, and to work the tints as pure as possible—that is, not mix the colours each before applying them. This would perhaps sound like impossible advice to a worker with a brush, but it is not only thoroughly practical, but desirable, in working with the "aerograph," for the reason that you can modify any tint on your picture after it has been applied in such a delicate and almost imperceptible degree that the trouble of mixing tints may be avoided.

You have the double advantage that you can study the colours, *situ*, and not as a liquid on the point of a brush or on a palette, and the "aerograph," instead of concealing the place where you are working, as a brush would do, permits you to develop the tint as a photographer develops his negative, but with more freedom. An "aerograph" will distribute tints of colour so delicately that on a white paper you could go over the surface several times before the tint is visible.

### The Colours to Start With.

For a beginner's palette we should recommend the following colours, which are placed in two groups, those under A being permanent, and those under B being nearly permanent:—(A) Venetian red, light red, Indian red, raw and burnt sienna, raw and burnt umber, cobalt blue, lamp-black. (B) Vermilion, carmine, sepia, Prussian blue, Indian yellow, lemon yellow, Hooker's green No. 2, vandyke brown, Chinese white.

It is desirable to have two glasses or cups of water, one in which to clean brushes and clean your "aerograph," and the other with which to prepare fresh colours. It is not possible in the limits of articles to give a very comprehensive system of colouring. The subjects vary so materially, and there is so much

to be said which is difficult to put into language that all we shall hope to do is to give a rough outline and indicate the points wherein the "aerograph" treatment would vary from the ordinary work with brushes.

We find it desirable to rough in a little colour to show the colour-scheme. If you have bright-coloured drapery, for instance, or hair which is to be brightly coloured, it may affect the work upon the face, unless a little portion of the colour is put in; it need not be finished.

### Flesh Tints.

In colouring the flesh, the first treatment will be to make a thin wash of a light yellow red. This red would vary in character somewhat for different subjects, and also to meet the conditions of the print. If you have a portrait of a child where a fair delicate complexion is wanted, and your print is very dark, you have but one resource, and that is to put over a thin wash of scarlet vermilion. In the case of an older person, where so much delicacy and colour is not required, it is more desirable to make this first flesh wash of Venetian red or light red. These may be modified with vermilion to treat an especially dark picture.

Try to go over the flesh pretty evenly with this tint, shadows, high-lights and all, being careful not to get too much on the forehead or other very light parts—not sufficient to make them appear red.

The next step will perhaps be to strengthen or colour the deeper shades of the face: Indian red, or Indian red with a little burnt umber, is a suitable colour for this work. Put the lines of the eyelids, the shadows of the ears, the upper lip and a portion of the lower lip, the nostrils, and the heavier shadows on the cheek and neck, with this dark red colour. A considerable quantity may be used on the lips and on the ear, and about the

wings of the nostrils; a little touch also under the lower lid of the eye, and, if the colour of the cheek is in shadow, a considerable amount of this colour may be used on the cheek, and perhaps a little on the chin as well.

### Colours for the Hair.

It will perhaps be as well at this stage to colour the hair, or some portion of it, and get in more of the various colours in the drapery, which are likely to modify your work by contrast. It will also relieve your eye of the flesh colour, so that when you go back to it you approach the subject with an eye less fatigued. The shadows of the hair should be warm in golden or yellow hair; the yellow tones appear for the most part in the half-tones between the dark and the extreme light. Little touches of blue and green may be put in in finishing the hair, but they must be done with great care, and never put into the shadow or darkest parts. It will perhaps be best now to return to the flesh colour. Examine it with a view to see where the photograph shows itself through the colouring, and try to get rid of this photographic or bluey-black effect. Raw sienna and sepia are both useful colours to use in suppressing this photographic effect. Your flesh colour will now be of a warm tone throughout, and you require a few touches of grey. If you were painting with brushes you would be compelled to prepare a suitable grey, and stipple, or wash it locally. The "aerograph," however, will distribute tints of colour so delicately that you may take, say, crude Prussian blue, and soften the flesh colour where it meets the hair; little touches of this blue may be put in to represent the veins of the forehead if the subject is thin-skinned. A little blue colour may be used at the side of the nose near the inner point of the eye; a little just under the eye, a very little upon the upper lip and at the outer corners of the eye, and upon the neck. These blue-grey tones, bear in mind, come between the shadows and the extreme high-lights. For the most part the shadows should be warm, and the high-lights have a tendency to yellow. Touches of green may be used in place of the blue; a little of this colour, about the temples and outer corners of the eye-sockets, and along the edge of the hair, will give an appearance of flesh colour. A great deal of green colour may be used in the face of the brunette

type. The colour in the cheeks for the children may be a combination of alizarine and vermilion, keeping the vermilion near the high-light. This should be put in a more or less triangular shape, on the bones of the cheek, and just a little on the point of the chin; but it should not be put on too smooth, as if rouge had been used. The colours in nature are slightly mottled and spotty.

The lower lip may have a touch of this bright colour, and a very little may be used about the wings of the nose and under the lower eyelid, and a considerable quantity in the ear, which is almost invariably a pinky colour. The eye must be painted to suit the subject; the iris is the part to receive the local colour; the pupil must be very dark, except in the case of a very pronounced blonde; the eyelashes and shadow of the upper lid will be represented by brown colour, light or dark, to suit the subject. A little bright colour may be put in the inner corner of the eye.

### Backgrounds.

Coming now to the background, colours should be employed which carry out the colour-scheme of the picture, but it must always be remembered that to produce the atmospheric effect about the head, the colder colours must be employed for the portion which will represent the distance—that is, the upper part of the background; the lower part, in practically every case, representing the foreground, may have some warm colours with some drawing of detail in them. There is much scope for the artistic taste of the painter in doing the background. As before recapitulated, for black and white work it is desirable that the different tints should represent planes, so to speak, of shadow or colour in the background—not sharply or definitely defined, but still planes of colour blending the one into the other. There are many books which treat of the colouring of details of drapery, and the like, with a brush, which do not vary considerably from the rules for "aerograph" work.

Lastly, do not work on the picture mechanically without thought. When you are not doing a picture good you are almost certainly doing it harm. Think about your work, and if you find that you fall into the habit of working mechanically, correct yourself in every possible way.

## MICROSCOPICAL RESEARCHES ON THE SIZE AND DISTRIBUTION OF THE PLATE GRAINS.

To examine the change of size which the grain undergoes in development, different compounds of the halogen salts of silver were developed in test tubes and the photo-micrographs of the undeveloped and developed grain were compared. Fig. 1 shows silver bromide formed in water (Stas. flocky yellow form). It is seen that the single grains are united into groups. The upper superfluous fluid has been poured from the yellow masses and these have been washed in different changes of distilled water. The grains were developed in a five per cent. rodinal solution. Fig. 2 shows the grains after development. Fig. 3 is crystallised bromide of silver. Fig. 4 shows what these crystals have become by development. In both cases the developed grain has quite a different form from the undeveloped. The two developed grains (figs. 2 and 4) are very similar, although they are the result of the development of quite different halides of silver. A comparison of the size of the developed and undeveloped grain shows that in fig. 1 and fig. 2 the grain formed by development is much larger than the undeveloped.

In figs. 3 and 4 the difference of size between the crystal and the black grain is smaller. There is no noticeable difference between the developed grain, figs. 2 and 4. We call a developed grain a more or less distinct mass which is connected with the neighbouring grains by small bridges. Naturally, the experiments have been carried out so that in every development equal quantities of silver have been developed in equal quantities of developing solution. The different stages of development have been examined in very thinly-coated emulsions of silver bromide. Fig. 5 is undeveloped. Fig. 6 shows the first stages of development. Jutting out from the grains are shorter or longer filaments which are either straight or irregularly curved and mostly terminating in a knob. These filaments have also some times thickenings in their length besides the terminal knobs.

Fig. 6 is a part of the preparation which is especially rich in such germs in the first stage of development. Naturally, these filaments are stretched out in all directions of space. In the photo-micrographs only those situated in the focal plane are sharp; the others, whether through the grain or cover it partly, and seem to be more or less opaque bodies which sometimes seem to divide the grain into compartments. An examination of a grain

NOTE.—On the photo-micrographs the magnification of the originals from which the half-tones are taken is 800 diameters, except figs. 5 to 7, which are 2,150, and figs. 5a to 7a which are 4,000. The reduction in making the half-tones was to about  $\frac{1}{5}$  scale in the figs. 5 to 11: nearly full scale in figs. 12 to 19.



number of preparations shows that the smaller grains have comparatively more of these filaments than the larger ones, if we

results of something similar to an explosion which takes place during the exposure. Small bodies are shot away from the

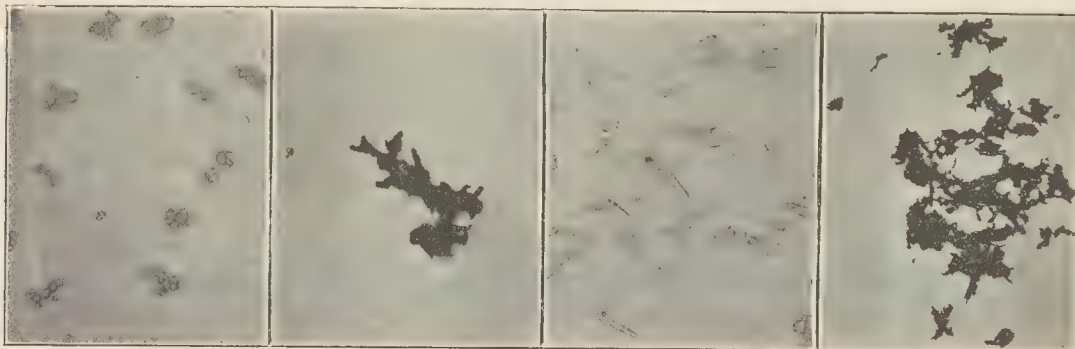


Fig. 1.—After washing. Grains of the Stas flocculent form of silver bromide precipitated in water.

Fig. 2.—After development.

Fig. 3.—Crystallized silver bromide.

Fig. 4.—The same after development.

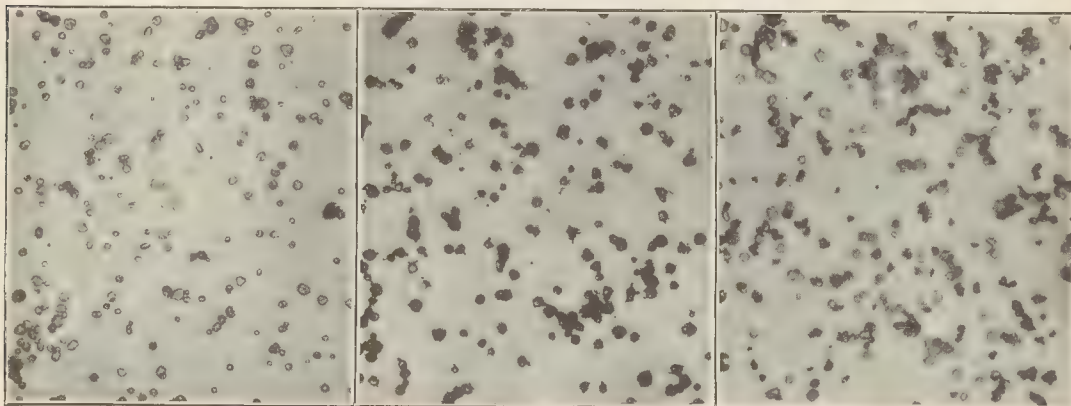


Fig. 5.—Undeveloped.

Fig. 6. Early development. Grain in thinly coated emulsion of silver bromide.

Fig. 7.—Early development of portion rich in germs.

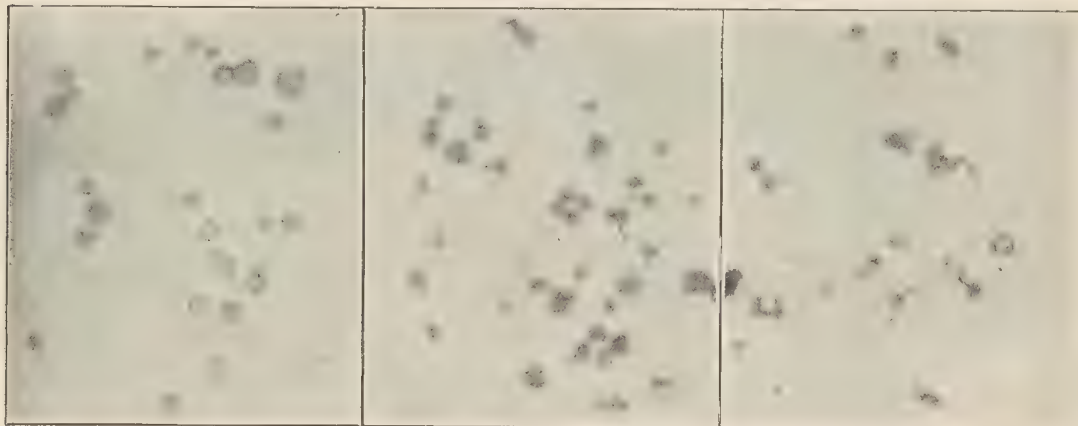


Fig. 5a.

Fig. 6a.

Fig. 7a.

Grain in thinly coated emulsion of bromide of silver.

Fig. 5a, 6a, and 7a, are photo-micrographs at higher magnification of Figs. 5, 6, and 7 respectively. They are slightly hand-retouched to bring out the filament formation which is reproduced with difficulty in the previous figures.

take the relative masses into consideration. It gives me a strong impression that the formations described here are the grains and they make their way through the gelatine either in straight or in irregularly curved lines. The filaments are

formed by parts of the small bodies shot off which remain in the path. Sometimes at the end of the path the small particles can be seen as a terminal knob. In other cases the whole is used up on the way. Both the terminal bodies and the filaments are the germs at which development commences. Sometimes

formation of the developed grain commences are situated outside the original grains, and that also the further stages of development take place outside the original grain. This can easily be seen, as long as the original grain is not entirely covered. These bodies can be seen only with very good oil

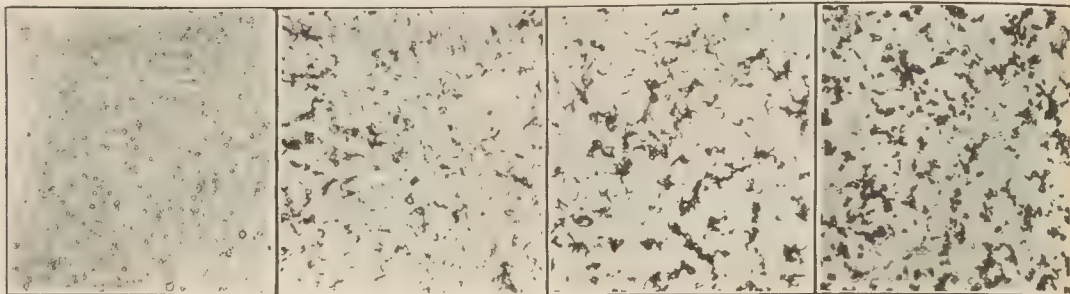


Fig. 8.—Undeveloped.

Fig. 9.—Developed 1 hour in 1% rodinal.

Fig. 10.—Developed 1 hour in 10% rodinal.

Fig. 11.—Developed with solution containing silver bromide.

Grain in thinly coated emulsion of silver bromide.

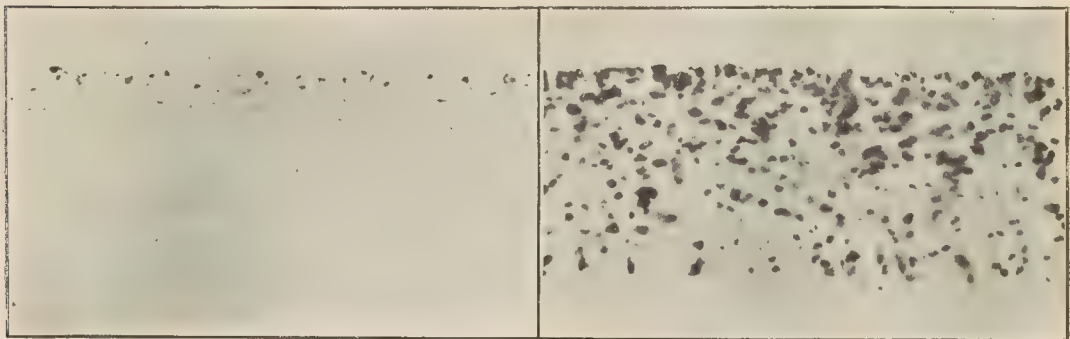


Fig. 12.—Early development.

Fig. 13.—Full development.

Sections through a film in different stages of development.

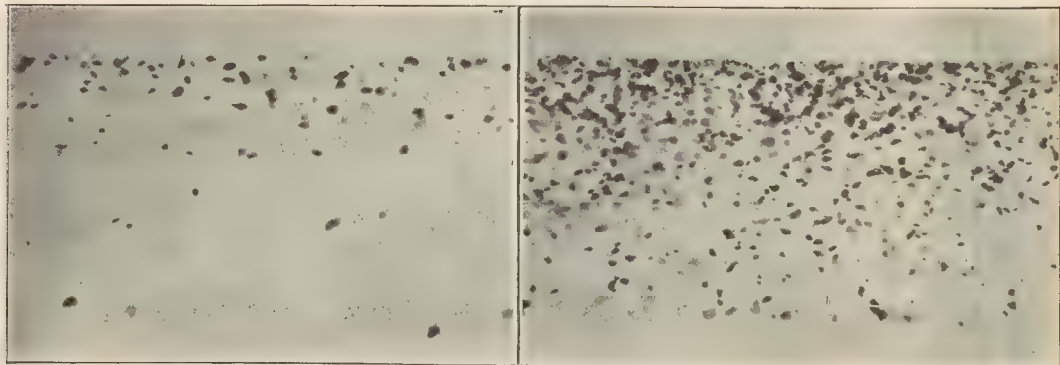


Fig. 14.—Short exposure.

Fig. 15.—Long exposure.

Sections through films which have received different exposures.

the filament is hardly visible even with the highest power oil-immersions, but the small body, apart from the grain, and the grain itself are only connected by the trace of a shadow.

Fig. 7 shows a further stage of the development. The fine germs are changed into more or less clumsy bodies, which rest upon the original grains and have partly grown round these. At any rate these researches show that the germs at which the

immersions and with a fully open condenser. They behave like stained bodies—for example, stained microbes.

Figs. 8 to 11 show a very thin coating of silver bromide in gelatine. Fig. 8 is undeveloped. Fig. 9 is developed for one hour with one per cent. rodinal solution. Fig. 10, the same with a ten per cent. solution.

The grains obtained with the one per cent. solution are



partly considerably larger than the undeveloped grains, partly equal in size and some are smaller. The ten per cent. solution has produced larger grains than the one per cent. solution. There can be seen some original grains in fig. 9 upon which rest developed masses. Also in fig. 10 there are to be seen some original grains which are not quite covered. Upon these rest much larger developed grains. Figs. 8 and 9 show that

are rendered much fainter. By this they are somewhat less clear in the microscope, but by suitable illumination they can easily be made visible. Apparently, in this case, the bromide of silver dissolved in the developer is an obstacle to the dissolution of those grains which do not take part in the development. It is interesting that in fig. 11 the developed grains are much clumsier than in fig. 9 and 10. In preparations like fig. 6



Fig. 16.—Emulsion side exposed.

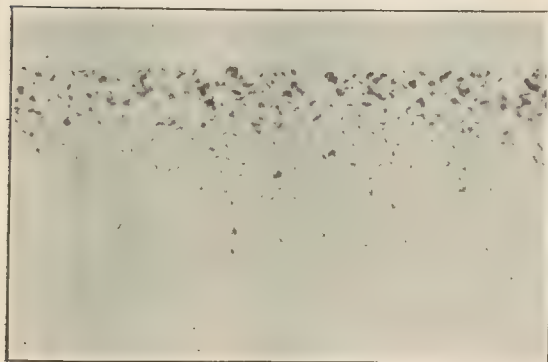
Fig. 17.—Glass side exposed.  
Sections of films exposed from front and back respectively.

Fig. 18.—Emulsion side exposed.

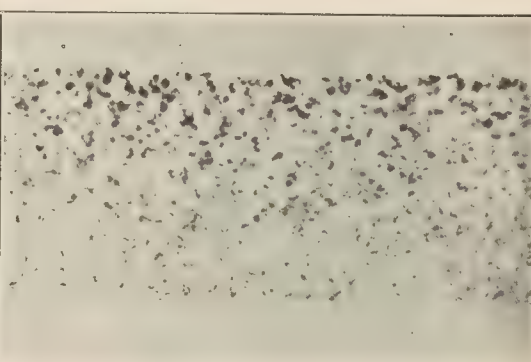


Fig. 19.—Glass side exposed.

*Long development in both cases.*  
Sections of films exposed from front and back respectively.

only a certain part of the grains becomes original grains for the development. The others are dissolved by the developer. Naturally, the plates 8 to 11 have not been fixed. For examining this more exactly some bromide of silver was dissolved in the developer and I developed with this solution.

Fig. 11 shows the result of this experiment. The grains which have not become original grains are not entirely dissolved, but

it can be clearly seen that only a part of the grains become original grains.

Also in preparations like fig. 6 some grains show no trace of having germs round them. The examination of a great number of preparations like fig. 11 shows that probably the number of original grains and the number of those which take no part in the development are about equal in sufficiently exposed plates.

Even if we expose very long it is not possible to make all grains original grains.

Figs. 12 and 13 are sections through a film in different stages of development. In fig. 12 the development has just commenced. In fig. 13 the film is fully developed. Naturally both parts are from the same plate and are equally exposed. In this experiment all the conditions for both parts were the same, and only the time of development was changed. It can be seen from figs. 12 and 13 that not only the size, but also the number in the unit space of the film and the topographical distribution of the grains in the same depend upon the time of development. Figs. 14 and 15 are results of an experiment in which only the time of exposure has been changed. Fig. 14 is a section through a shortly exposed plate, and fig. 15 of a longer exposed portion of the same plate. From these images it can be seen that the number in the unit space and the topographical distribution of the grains in the film depend upon the time of exposure. If a plate is exposed in such a way that by exactly the same exposure one half from the glass side and the other half from the emulsion side have received the same amount of light, and if this plate is developed, then, firstly, the half exposed from the emulsion side commences darkening, viewed from the emulsion side. After a short time also the half exposed from the glass side commences to darken. Viewed from the glass side both halves remain white at the commencement, but soon the half exposed from the glass side appears darker if observed in this manner. Figs. 16 to 19 are sections through films of plates exposed in this way.

In figs. 16 and 17 the back part of the plate was still white. The half No. 17 was much darker than the half No. 16, observed from the emulsion side. Fig. 16 is exposed from the emulsion side; fig. 17 from the glass side. It is quite clear that the half No. 16 must be lighter than the half No. 17, observed from the emulsion side, because fig. 16 has in its upper part less and smaller grains than fig. 17.

This comes from the fact that the part, fig. 16, has received less light in its upper parts than the half, fig. 17. The lower parts have acted as a light-filter for the upper parts of the film in the exposure from the glass side.

In fig. 17 the upper parts of the film have received the whole light, and they acted as a light filter for the lower parts of the film, situated near the glass.

The figs. 18 and 19 are results of a similar experiment, only the development has been carried on so long that the part exposed from the glass side was darker, observed from the glass side. Also this phenomenon is explained quite easily by the fact of the filtering of light. Naturally, the part of the film near the glass has received more light in fig. 19 than in fig. 18. For this reason the developer can reduce more grains and larger grains in the deeper parts in fig. 19 than in fig. 18. It can be seen from figs. 16 to 19 that in all cases the largest grains are situated in the upper parts of the film, and that a part exposed from the glass side has by no means the appearance of a part exposed from the emulsion side, inversed.

DR. W. SCHEFFER,  
Of the Scientific Staff of the C. P. Goerz A. G., Berlin.

ADVERTISEMENT Photography.—Messrs. F. Wetherman and Co., of 15, Fumival Street, London, E.C., and Enfield, Middlesex, have taken over the agency of the Ellsworth-Gross Advertisement Photographs, and have issued a book showing a few of the forcible photographs produced by Mr. Gross.

WORTHING Camera Club.—Readers are reminded that entries for the exhibition to be held from February 25 to 28, inclusive, close on Saturday, February 16. The plaques, of which two silver, ten bronze, besides medals, will be awarded, are of special handsome design. Entry form and particulars will be forwarded on application to the hon. sec., Edmund F. H. Crouch, 11, South Street, Worthing. A special additional plaque is offered in the members' class for the best indoor portraiture not taken in a studio.

#### THE ROYAL PHOTOGRAPHIC SOCIETY. THE NEW PRESIDENT.

In electing Mr. J. C. S. Mummery for their president, as they did at the annual general meeting on Tuesday last; the members of the Royal Photographic Society have recognised the wisdom of honouring that most unhonoured of all qualities in a public man, the steady devotion to the work of a society which is done in the background. Mr. Mummery, apart from his personal charms, has earned the respect of his fellow-members for the unassuming way in which he has lent the most valuable aid to the society in many directions.

For the first time since the presidency of Sir Charles Eastlake in 1856, the Royal Photographic Society has a pictorialist at its head, for Mr. Mummery is probably best known in photographic circles as a clever exponent of the gum-bichromate process, which



Photograph by] MR. J. C. S. MUMMERY, A.R.I.B.A. [T. C. Turner & Co.  
Elected President of the Royal Photographic Society, February 8th, 1907.

he uses with that wise restraint one would expect from one of his high artistic attainments. He has never been party to those extreme absurdities which have brought this process so much into disrepute.

Although everyone would place him amongst our foremost pictorial workers, he does not despise technique, and it is probably this very mastery of ordinary technique which restrains him from committing so-called "artistic" extravagances.

He has been for many years a valued member of the North Middlesex Photographic Society, and served it also as president for four years. There he has shown, too, by his demonstration of various processes, his capabilities as an elementary instructor. As was but natural from the high artistic quality of his work, he has been for some years in constant request as an art judge at various exhibitions, and has also served not only as judge, but also as one of the selecting and hanging committee for the R.P.S. exhibition, and it is an open secret that he has devoted probably as much time and care to the actual hanging as to the selection.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between January 28 to February 3:—

P.O.P.—No. 2,155. Improvements in photographic printing-out papers. William Francis Cooper, 18, Southampton Buildings, London.

P.O.P.—No. 2,156. Improvements in photographic printing-out papers. William Francis Cooper, 18, Southampton Buildings, London.

PHOTO-ENGRAVINGS ON GLASS.—No. 2,291. Photographic process for transferring designs and inscriptions to glass or stone to be engraved by means of a sand-blast. Johann Heinrich Frey and Ernest Frey, 22, Southampton Buildings, London.

BROMIDE PRINTING.—No. 2,349. Apparatus for the automatic, rapid and uniform printing, controllable at will, of positive photographs or gelatino-bromide. Adrien Cottillon, Chancery Lane Station Chambers, London.

CINEMATOPHGRAPHS.—No. 2,350. Improved apparatus for abolishing the flicker of cinematograph pictures. Julius Kopetzky, 61, Chancery Lane, London.

VIEW-FINDERS.—No. 2,359. Improvements in photographic viewfinders. Ratenower Optische Industrie Anstalt, vorm Emil Busch A.G., 77, Chancery Lane, London.

COLOUR-GRAPHY.—No. 2,461. Improvements in the bleach-out process of colour-photography. John Henry Smith and Waldemar Merckens, 65, Chancery Lane, London.

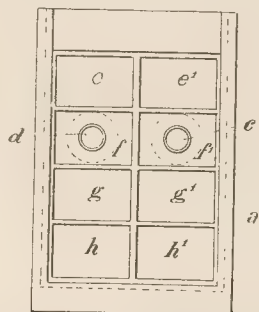
BLEACH-OUT COLOURS.—Improvements in sensitising bleach-out colours. John Henry Smith and Waldemar Merckens, 65, Chancery Lane, London.

SHUTTERS.—No. 2,485. Improvements in focal-plane shutters or other roller-blind photographic shutters. Arthur Lewis Adams, 26, Charing Cross Road, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

MULTIPLE STEREOSCOPIIC CAMERA.—No. 17,989. The claim is for a box camera provided with one pair of lenses,  $d$  and  $e$ , mounted on a panel. The box is divided into a series of compartments,  $e\ c^1$ ,  $f\ f^1$ ,  $g\ g^1$ , and  $h\ h^1$  in the figure, in each of which an exposure

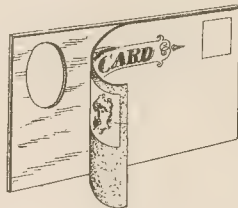


can be made, the lenses being brought opposite the opening on the front. The four (or more) stereoscopic negatives are obtained on one plate. A. J. Boulton, for Antoin Cardon, Avenue de la Gare, Mentone, France.

POSTCARDS.—No. 10,878, 1906. The invention consists of a picture postcard with improved means for attaching thereto a photograph, in such manner that, while the picture is visible from the reverse side of the card, it is thoroughly protected against damage in handling, and may, moreover, be applied directly to the card without the usual delay required to permit the ordinary photographic postcard to dry.

The complete card consists of a card having a display opening

therein, a flap of thin material attached thereto at one end only, and having the other end loose with an adhesive applied to the under side, whereby the loose portion of the flap may be turned back upon itself and have a photograph or picture pasted upon it in position to register accurately with the opening in the card



when the flap is reversed and pasted down on the card. Samuel Aaron Markhoff, 74, North Main Street, Providence, Rhode Island, U.S.A.

REFLECTOR CAMERAS.—No. 3,324, 1906. The patent describes improvements to the construction of the reflex camera of patent No. 25,496, 1906. The details require the figures for explanation, but the following are the items to which protection is granted:—

1. A changer lock, actuated by means of a swinging plate carrying a mirror.

2. A mirror locking device consisting of an auxiliary tongue, connected to or forming part of the mirror lifting lever, working in conjunction with a roller stud or other suitable projection fixed to the plate carrying the mirror.

3. The combination of a double-action shutter formed of twin fan-shaped plates controlled by suitable springs and provided with studs or the like, for the purpose of engaging with various catches or detents, and a spring operated friction arm, the shutter being constructed in such a manner that, when set, both plates are detained clear of the lens aperture to allow of the adjustment and focussing of the subject, and that, when released, successive operations are performed in the following order, the closing of the lens aperture during the raising of the mirror, the opening of the lens, the release of the friction arm, and the final closing of the lens aperture, one movement being dependent on the other in the order named.

4. A bevelled spring-detent acting as a means to prevent erratic movement of the exposed plates, and also as a means of operating a spring catch detaining the mirror in the raised position, the latter operation being effected by the falling of a sheath containing an exposed plate.

5. A photographic magazine camera of the reflector type embodying:—(a). A changer lock. (b). A mirror lock. (c). An improved form of plate detent forming an automatic release for the reflecting mirror by the changing of a plate. (d). An improved form of shutter in combination with a regulating friction arm. Walter Dockree, 227, Vicarage Road, Leyton, Essex, Valentine William Edwards, 38, Brooke Road, Stoke Newington, London, N., and Houghtons Ltd., 88 and 89, High Holborn, London, W.C.

REFLEX CAMERA SWING BACK.—No. 5,673, 1906. This invention consists in the addition of a swing back, fitted to a reflex camera in such a manner that the mirror and top ground glass move together in conjunction with the focal-plane of the plate and always retains the same relative position, the movement being effected by means of a rack and pinion or other suitable means, one method being shown in section drawing, Fig. 1, G. G. G. G. being an inner plate of either metal or wood, preferably of metal, two such plates being required, one for each side of the camera, and these are held firmly together by cross bars, P. P. P. P. P., which may be placed in the position most suitable; preferably at P. P. P. P. P. The frame or inner camera so made swings on pivot A upon the pinion R, which engages with the curved rack E being put into motion. This swing of the inner part of the camera moves the focal plane shutter F. F. F., where used, also the reflecting mirror B, the top ground finder glass C, and the reversing back H at one and the same time. The dotted lines B1, C1, H1,  $f\ f^1$  show respectively the mirror, top ground finder glass, reversing back, and focal plane shutter so

moved. By turning the pinion R to the right instead of to the left, the swing is obtained in an opposite direction.

Drawing Fig. 2 shows a method of fixing the inner frame

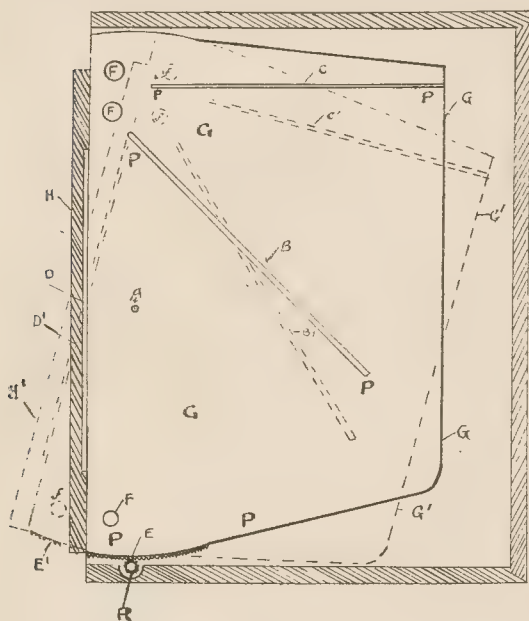


Fig. 1.

to the camera proper, J. J. J. being metal plates screwed to the side of the camera, to which are fitted the screw pivots A and the pinion R. The plate on one side is cut away as shown

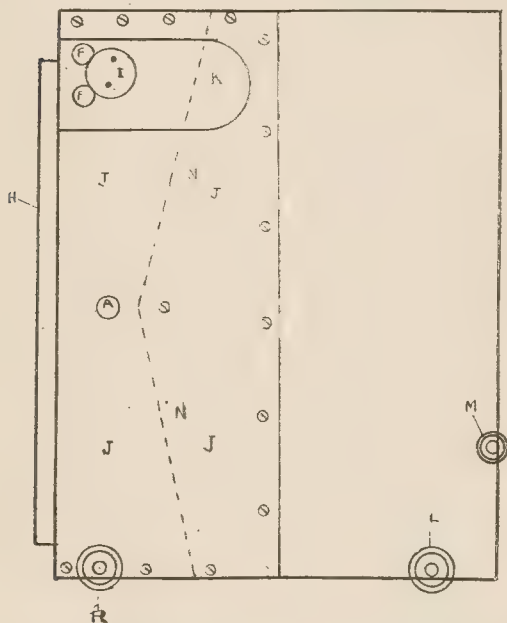


Fig. 2.

at K to allow the setting knob I of the shutter to swing clear, when the pinion R is manipulated.

The dotted lines N. N. show the woodwork of the side of the

camera proper, cut away to allow of a clear swing.—*Ernest Human*, 45, Whitta Road, Manor Park, Essex.

**ROTARY PRINTING MACHINE.**—No. 8,239, 1906. This invention relates to apparatus for the continuous printing of photographs, and has for its object by the employment of a polygonal drum a special construction to obtain an economical utilisation of the web of copying paper without waste between the copies corresponding to the various sides of the drum. The invention further comprises a special screening device which enables the employment at the same time of a water cooling system, and further, a device which frees the plates from floating particles of dust, etc., during their rotary movement, and finally devices for facilitating the introduction of the web into the apparatus.

For a full description of the apparatus the specification should be consulted. The chief claim is for a continuously operating photographic copying apparatus with a rotating drum carrying the negatives, a screen limiting the area of illumination, and a pressing apron or air cushion pressing against the drum, the copying material which is fed in a continuous web, characterised by this that the drum consists of glass under-plates abutting directly at an inclination to each other, and secured only by end discs or plates on which plates are secured, the upper plate carrying the negatives by means of edge straps, in order, on the one hand, to avoid the waste of paper by supporting straps at the meeting edges of the drum, and also to enable rapid interchange of the negatives. *Heinrich Koller*, 5, Darwingasse, Vienna II., and *Samuel Löw*, 7, Czermingasse, Vienna II.

## New Trade Names.

**BRISTLES WITH GOOD POINTS.**—No. 288,229. Photo-engravers sensitive compositions, being chemical substances included in the class. The British Gelatine Works, Ltd., New Bedford Road, Luton, Gelatine Manufacturers. (Nov. 26, 1906.)

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Passe-Partout Binding Strips.

In old days of passe-partout binding (writes Mr. S. L. Conhurst, in "The Amateur Photographer" of February 12), it was usual to cut the paper used for binding purposes and it made the process rather a tedious one, but now we can procure commercially a binding that is perfect in every way, and is the salvation of this method of framing. Dennison's passe-partout binding is the material wanted, and you cannot well do without it for all purpose. It is made in rolls of twelve yards, seven-eighths of an inch wide. It is made of fine pebbled paper, very heavily gummed, and gives not the slightest trouble in sticking. It is made in twenty-two shades and colours, but I think we, as photographers, can be well content with, say, No. 1 black, No. 2 white, No. 3 green and No. 5 brown; some workers may want No. 15 sage green and No. 4 bottle green.

### Relief Photographs.

A print should be made (writes M. Bermann in last week's "Photographic News") on stout platinotype, bromide, or chloride paper—a bust picture of, say,  $9\frac{1}{2}$  by 7 inches. Then a frame is required which can be easily made by a carpenter, of three-quarter inch wood and which should be exactly the size in the opening and look something like a printing frame. The print should be tightly stretched and well glued to this frame, so that the picture is inside.

The print should now be held up against the light, and the outline accurately drawn on the back with a pencil; in fact, everything which is required to be in relief should be drawn in. Then the back should be carefully painted with the following mixture:—

Hot glue ..... 20 parts.  
Amber varnish ..... 4 parts.

This is like a thick viscid oil. A brush should be used, and the part marked with pencil should be painted with this mixture, taking care to keep within the lines. The part painted will become elastic, and now the print should be carefully pressed towards the



front, always keeping within the outlines. The relief thus formed should be left to dry for about ten minutes, then some commercial Plasticine should be kneaded in, soft and flattened out, and the elevations of the picture filled up till the back is quite level with the part which is not raised up. Care should also be taken here not to go beyond the outlines. Then a thin board or stout miliboard should be tightly fastened to the back, and the whole turned over, so that the print is face up. It is now roughly in relief, and is modelled with a tool of hard wood or horn, with which the photograph is outlined and the shadows pressed in.

### A Time-Saving Dodge in Copying.

Whenever it has been necessary to make a copy of some definite degree of reduction in size, say one-third, one-fourth, or one-sixth, it will be found (says "Photography" in its issue of February 12) that a good deal of time is taken up in adjusting the camera. When the image on the ground glass is sharp, the scale of the picture will be wrong, and when this has been corrected, then the image is out of focus, and in focussing it up the scale is again upset. Finally, however, all is ready for the exposure.

Before disturbing the camera, after having so arranged it, let a mark be made on its baseboard with a sharp knife, showing exactly the extent to which it was opened up. The cut so made may have a little lampblack or Indian ink rubbed into it, to make it plainer, and may have marked against it the scale of the reduction. Supposing our picture is one-fifth the size of the original, we mark the baseboard—1.5. Then whenever again we have to make a copy one-fifth size, all we have to do is to employ the same lens as before, to open out the camera to the mark we have made, and then, without further alteration of it, to focus the picture by moving the whole apparatus bodily nearer to or farther from the original. When the picture is quite sharp on the screen, it must be on one-fifth scale.

## New Books.

"Photographic Studios and Dark-rooms." Edited by Paul N. Hasluck. 160 pages, 6½ by 4. London: Cassell and Co. 1s.

Like other handbooks of Messrs. Cassell's "Work" series this volume is largely made up from contributions to one of the firm's weekly journals, and therefore possesses the defects which such a method of book-making necessarily involves, that is to say, it lacks continuity. It does not state the broad principles of studio construction and proceed to their embodiment in practice. What it has to say will be less useful to the professional photographer than to the amateur, to whose perusal indeed, we can cordially recommend the chapters dealing with portable and temporary shutters, the improvisation of studios from other buildings, the making of backgrounds and the planning and fitting of dark-rooms. The illustrations in the books are very numerous—no less than 180 in number, and are well employed to explain the modes of construction recommended, yet we doubt if one amateur photographer in a hundred can profitably employ the assistance offered him in the home-manufacture of dark-room lanterns, sinks, cisterns, and other accessories which in our judgment it will be to his advantage to purchase ready made. In this criticism of the book we are not questioning the correctness of the information, but we are querying the wisdom or necessity of issuing such advice however judicious and well expressed. We are the more inclined towards this view because our perusal of the volume fails to disclose to us the answers to the elementary questions as to length of studio, proportion of glazing to solid construction; proportion of side wall to breadth and height, and the numerous other matters on which we are constantly addressed by our less experienced readers. There is a good deal about battens and joists and rebates, but on the general questions which every photographer has to become familiar with, very little.

We have to acknowledge the receipt from the author of a contribution by Dr. M. von Rohr to the "Zeitschrift für Instrumentenunde," entitled "Zur Erinnerung an Josef Max Petzval." Dr. von Rohr reviews Petzval's career and discusses the optical properties of the celebrated large-aperture lenses first made from his calculations by Voigtländer.

## New Materials.

Satino Carbon Paper. Sold by the James S. Nunn Company, Ltd., 11, Queen Victoria Street, London, E.C.

The appearance of a pigment paper upon the market in which the permanency of the carbon print could be obtained by the simple operations of printing and development will naturally arouse much interest, particularly among photographers who set permanency before other considerations in the choice of a printing process. It should be said at the outset that the "Satino" paper is quite unlike carbon tissue; unlike it, apparently, in composition and totally unlike in it in the treatment which it receives in the operations of development. It resembles carbon tissue in the need of an actinometer, although the claim is made by the makers that, with experience, the stage of correct exposure may be recognised by eye. The paper is sensitised by immersing first for one minute in a bath of methylated spirit, whence, without washing; it is transferred to the sensitiser proper, a solution of potassium bichromate of about 1 per cent. strength. In this it is allowed to remain for two minutes. The paper, after drying, is exposed in the usual way. Development proceeds as follows:—The print is placed in a dish of cold water for a moment, and then rinsed *under a rose* for about three minutes. This treatment is necessary to remove the apparent greasiness of the surface and to allow the water to run evenly over its surface. It is then placed in warm water (about 112 deg. Fahr) in which the image appears. The positive image of full strength is not obtained until applying the rose jet, a very heavy pressure of which the surface of the "Satino" print appears to resist with impunity. The nature of the finished print is seen to be of an extremely fine grain, producing in the shadows a very intense black deposit, and in the half-tone a characteristic appearance, which may be described by "silvery" better, perhaps, than by any other word. The makers in their instructions detail the manipulation of the paper at considerable length, yet there is one point to which, we think, they should draw attention, and that is the extreme delicacy of the pigment surface when the paper is in a wet state during sensitising. In our experience, the greatest care was needed to avoid removing the pigment, and it would seem that with methylated spirit, of the quality which is obtainable in this country, a longer immersion of the paper than one minute may be advised, in order to impart the necessary resistance to the film of the paper.

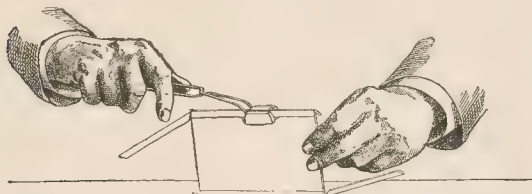
The only other point at which the beginner is likely to make a mistake is in the development. The difference between the behaviour is so great that the inexperienced may be inclined to put a print down as over-exposed, because it is slow in developing, whereas the reason of the slow appearance is probably due to a fear of injuring the surface under the rose. "Satino" is sold in cut pieces, in packets, which are priced on the basis of eight quarter-plate pieces, for 6d. The larger sizes, half-plate and whole-plate, are put up in packets of four pieces.

U-form Binding Strips. Made by the Trocken-Bindstreifenfabrik (Dr. J. Neubronner), Cronburg in Taunus.

Since the reference to the lantern slide binding strips of the above-mentioned firm, we have received, through Messrs. Dallmeyer, an outfit, consisting of the binding strips in the strip and roll form, fixing iron, and lamp. The strips are sold in lengths of two ¾-inch sections, or in rolls of 25 and 50 yards length. In the case of the former a V-shape is given to the ends of each piece, so that when all four pieces have been applied to the slides there is no thickening from overlapping. In addition to this, both the strip and roll binder, which is half an inch in width, is slightly indented on the coated side along two parallel lines 1-16th of an inch apart, down its centre, as a result of which it is easy to apply the binder centrally and uniformly to the slide.

The adhesive preparation on the binder is softened, not by moisture, but by heat, in a manner which, so far as we may judge from the behaviour of the strips in practice, appears to be that of the adhesive tissue of the Derepas patent, controlled in this country by the Adhesive Dry Mounting Company, of Fetter Lane, E.C. Our examination of the binder has not enabled us to say whether

if differs from the adhesive "tissue," but, at any rate, it possesses in practice the good qualities of the dry mounting process, the attachment in the case of the binder being made by a heated tongs, as shown in the drawing, and producing a binding of the neatest



and most permanent description. The price of 100 strips (for 50 slides) is Mk. 1.50 (1s. 6d.), and of the heating tongs, Mk. 3.50 and Mk. 4.0 (3s. 6d. and 4s.).

#### CATALOGUES AND TRADE NOTICES

THE "Camera House Journal" (W. Butcher and Sons), in its January issue, just received, publishes reproductions of the six coloured covers of catalogues which can be supplied to dealers on advantageous terms. Application may be made to Camera House, Farringdon Avenue, E.C.

A 48-page bargain list of apparatus which, though shop soiled, is guaranteed in thorough repair, has just been published by the Tella Camera Co., 110, Shaftesbury Avenue, London, W. A variety of lenses, hand and stand cameras, and other apparatus is offered at greatly reduced prices. The firm makes a special feature of accepting customers' apparatus in part payment for purchases.

MESSRS. SPIERS AND POND send us their very full catalogue of photographic requisites, a copy of which they will send to any applicant.

## Commercial & Legal Intelligence.

**A LIBEL ACTION.**—At the Hertfordshire Assizes on Saturday last, Valentine Crick, a grocer's assistant at Bishop's Stortford, sued a photographer, named Bruxley, of the same town, to recover damages for an alleged libel. The plaintiff's case, which arose from circumstances already reported in THE BRITISH JOURNAL OF PHOTOGRAPHY, was that in December of 1905 he had six photographs of himself taken by the defendant on postcards, for which he paid 1s. 6d. Afterwards he ordered six more, but told the defendant that he was in no hurry for them. He delayed going for them, and in the following June, as he was passing the defendant's shop, he saw one of his (the plaintiff's) photographs exhibited, with the notice attached, "This is the man who puts his hair in curls to have his portraits taken, and then cannot pay for them." This was the libel complained of, the plaintiff alleging that it was untrue to say that he curled his hair, as it curled naturally, and that he had suffered annoyance from the notice. The defendant pleaded justification, though he admitted that he was wrong in putting the notice in his shop window, and said he would have apologised for it if he had been asked to do so. In the result the jury gave a verdict for the plaintiff with a farthing damages. Judgment was entered accordingly, with costs.

**CHARLES TYLER AND ENGLAND BROTHERS, LIMITED.**—Issue on December 6 of £10,000 five per cent. debentures, part of series created by resolutions of April 12, 1902, and December 6, 1906, to secure £20,000. Property charged—The company's undertaking and property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £10,000. This is an amended return, in substitution for that filed on December 19 last, in connection with the registration of the £10,000 debentures dated December 6, 1906. The original return did not mention that the said £10,000 formed part of a series of £20,000, of which £10,000 were already issued.

**INDECENT PHOTOGRAPHS.**—Frederick Griffin, 23a, Clayton Road, Bradford, was summoned last week before the Bradford Stipendiary Magistrate (Mr. C. Skidmore) to show cause why certain obscene photographs should not be destroyed. The Chief Constable (Mr.

J. Farndale) applied for an order of destruction of ninety-eight negatives and 350 photographs. Mr. Skidmore made the order for destruction and an order for costs on the defendant, against whom, it was intimated, further proceedings will be taken.

#### NEW COMPANIES.

**INTERNATIONAL PROJEKTOGRAF COMPANY.**—Capital £200,000 (£20). To acquire inventions relating to the patent ProjektoGRAF, for improvements in projection apparatus for photographs, pictures, etc., and to adopt an agreement with T. Ficker. No initial public issue. First directors (not less than three nor more than seven): T. Ficker (chairman), F. Friedmann, and O. Jammer. Qualification, £100.

**ROMANI MINIATURES.**—Capital £5,000 (£1) (2,500 preference). To acquire the business of a manufacturer and vendor of tinted photographs (framed and unframed) carried on by F. de Paul Romani, at 51, Esmine Road, Ladywell, as the Souvenir Miniature Company. No initial public issue. First directors: F. de Paul Romani, one other nominated by him, and not more than three others to be appointed by signatories. Ordinary qualification, £100.

## Meetings of Societies.

#### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, FEBRUARY 15.

West London Photographic Society. Annual Exhibition of Members' Work. Sutton Photographic Club. "A Chat on Lenses." E. A. Salt.

SATURDAY, FEBRUARY 16.

Aberdeen Photo Art Club. "To Norway o'er the Faem." W. R. Macgregor.

MONDAY, FEBRUARY 18.

Southampton Camera Club. "Legitimate Control in Photography." Demonstration. C. H. Hewitt. Stafford Photographic Society. "Enlarging." G. Wray. Catford and Forest Hill Photographic Society. "Bromide Printing and Toning." A. H. Dunning. Blackburn Camera Club. "Scenes in Holland and Germany." C. L. Fauntleroy. Preston Camera Club. "Among the Dutchmen with a Camera." J. T. Ferguson. Lancaster Photographic Society. "A Holiday Tramp." Illustrated. G. W. Barrow. South London Photographic Society. "A Tour Round the World." C. Marshall. Kings Heath and Moseley Photographic Society. "Dutch Scenes and People." Arthur Marshall. Cleveland Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper." Wilsden Polytechnic Photographic Society. "Stereoscopic Photography." C. P. Goetz.

TUESDAY, FEBRUARY 19.

Royal Photographic Society. "All at Sea with a Hand Camera." F. J. Mortimer. Birmingham Photographic Society. "Photography in Relation to Art." Rev. H. W. Dick. Sheffield Photographic Society. "The Dales and Coast of Yorkshire." Godfrey Bingley. Blyth and District Camera Club. "Intensification and Reduction." W. French. Darlington Camera Club. "With Cycle and Camera in Scotland." W. Wilson. Hackney Photographic Society. Annual Dinner. Worthing Camera Club. "With the Camera in the North." T. Roberts. R.F.S. Redhill and District Camera Club. "S.C.P. Lantern Plate." A. H. Dunning. For Messrs. Wellington & Ward. "Stereoscopic Photography." H. Payne. Heaton and District Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper." Acton and Chiswick Polytechnic Photographic Club. "Telephotography." C. P. Goetz. Otley Camera Club. "What Can be Done with a Hand Camera." C. P. Goetz.

WEDNESDAY, FEBRUARY 20.

Bristol Photographic Club. "Bromide Printing." F. Little. Birmingham Photographic Society. "Enlarging and Printing on Bromide Paper." E. D. Taylor. Hampstead Scientific Society. Annual Lantern Slide Competition. I.C.C. School of Photo-Engraving. "Calligraphy." Edward Johnston. North Middlesex Photographic Society. "Photographic Optics." J. McIntosh. Borough Polytechnic Photographic Society. Fourth Lantern Slide Competition. Everton Camera Club. "Scottish Union Print Folio." Tunbridge Wells Amateur Photographic Association. "A Dive into Belgium." W. L. F. Wastell. Leicester and Leicestershire Photographic Society. "Lantern Slides." W. E. Barton. "Is Photography Justifiable?" J. E. B. Hales. Morphett Y.M.C.A. Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper." Rochdale Amateur Photographic Society. "Theory and Practice of Self-Toning Papers." Wolverton Photographic Society. "Sports and Pastimes with the Goetz-Anschütz Folding Camera."

THURSDAY, FEBRUARY 21.

Chelsea and District Photographic Society. Annual General Meeting. I.C.C. Staff Camera Club. "Mounts, Mounting, and Mountants." P. S. White. Blenheim Club. "Athletics and Sculpture." S. C. Kaines Smith, M.A. Richmond Camera Club. "Hampton Court." T. H. Blythman. Rugby Photographic Society. "Telephotography." Ernest Marriage, F.R.P.S. Liverpool Amateur Photographic Association. "The Sun—Our Luminary." W. Hewitt, B.Sc. London and Provincial Photographic Association. "Modern Printing Processes." Archer Clarke.



andsworth Photographic Society. "Lantern Exhibition—North Eastern Railway slides."  
 North London Photographic Society. "Figure Studies." E. H. R. Hillsworth.  
 Underland Photographic Association. "Enlarged Negatives on 'Kotograph' Negative Paper."  
 Hull Photographic Society. "Gum Ozotype." J. F. Copley.

### PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, February 8. Present, Messrs. A. Ellis, S. H. Fry, H. E. Hull, A. Mackie, Prodder, E. Scamell, Lang Sims, R. W. Robinson (Redhill), and H. C. Spink (Brighton). Mr. A. Ellis in the chair.  
 The draft annual report was read and passed, and arrangements in connection with the annual general meeting on March 8 were discussed.

The Hon. Secretary reported that he was making arrangements with the Fine Art and General Insurance Company in connection with the Employers' Liability Act, and full particulars would be published in the next Circular, to be published in about a fortnight. A long discussion took place regarding a case where a member had been defrauded by an individual, against whom there appears to be many other cases. Eventually it was agreed to take certain steps in view of instituting a prosecution.

### ROYAL PHOTOGRAPHIC SOCIETY.

ANNUAL general meeting held February 12, Mr. J. C. S. Mummery in the chair.  
 The "Progress Medal" for the year 1906 was presented to Mr. Sanger-Shepherd.

The meeting then proceeded to discuss the report of the Council and the balance-sheet for 1906. In reference to the society's financial situation, the treasurer (Mr. John Sterry) announced that since the commencement of the year subscriptions to the amount of £50 had been received, bringing the deficit in the income and expenditure account to £44. Mr. Sterry remarked on the needless expense to which the society was put by members who failed to pay their subscriptions within the year. He estimated that each subscription which was not obtained until after several applications meant a loss to the society of two shillings.

The sections of the report were then discussed paragraph by paragraph, and elicited little comment, until that referring to the society's Journal was reached. Mr. E. J. Wall said that in view of the increasing difference between the receipts from the sale of the Journal and from the advertisements in it and the cost of production, it was necessary to take steps to employ a less expensive form of production, although one which, nevertheless, would equally serve the society's purpose. He thought that an unnecessary amount was spent on the paper for the Journal. At the time it was selected the idea was to print half-tone blocks on it, but the speaker noticed that very few blocks were used, and, in fact, when a block of any kind was employed in the Journal an art paper was inserted to it.

Mr. C. E. K. Mees complained that insufficient supervision was given to the publication of the papers and addresses read before the society. He thought the Journal was conducted with greater laxity than in many similar publications. Its obvious defect, he said, was that it was not edited. Many papers had no business to appear in it, and he suggested that a committee might deal with papers read before the society and published in the Journal in order that much-needed abridgement might be carried out by the author or by a member of the committee qualified to do so.

Mr. George E. Brown said that it should be axiomatic that elementary matters to be found in text-books, as well as lengthy reports of "Lectures," should be practically excluded from the Journal, and that the detailed reports of the Affiliation were of little value. Mr. McIntosh, appealed to by the Chairman, expressed the opinion that an editorial committee could not successfully undertake the selection and prompt publication of the journal.

Mr. Bale Rider begged that the function of the Journal as the organ of the society's proceedings should not be lost sight of.

Mr. W. Thomas thought that previous speakers, in suggesting means to counterbalance the diminished advertisement revenue of the society's organ, disregarded the fact of the greater competition of photographic publications. He would strongly protest against the omission of the Affiliation's proceedings from the Journal.

In the discussion of the exhibition, Dr. Evershed asked what amount had been received as admission money from the sale of Affiliation tickets. The amount was stated to be £95. Dr. Evershed thought that a large proportion of this sum would not have been spent but for the distribution of the tickets in the Affiliation Red-Book.

Mr. Armytage Sanders drew attention to the inconvenience caused to exhibitors at the New Gallery by the want of a telephone service during the exhibition. He thought exhibitors and others would gladly pay for this privilege if it could not be obtained from the management of the New Gallery.

The Chairman then proposed that the thanks of the society should be offered to the retiring President, Major-General Waterhouse, for his constant and valuable services to the society during his two years of office. The proposition was seconded by Mr. Leslie Clift, and carried with much enthusiasm.

A vote of thanks to the council and officers of the society was proposed by Mr. George Scamell, and seconded by Mr. F. T. Beeson. Mr. McIntosh briefly replied. Mr. Sterry proposed a vote of thanks to the honorary auditors, Messrs. Calder, Marshall, Son, and Ibbotson, which was similarly carried, and the Chairman then called upon Mr. W. T. P. Cunningham to present the report of the scrutineers of the ballot. The following proved to be the newly-elected officers of the society:—

PRESIDENT.—J. C. S. Mummery.

VICE-PRESIDENTS.

Sir W. de W. Abney. Sir Joseph W. Swan.  
 The Right Hon. the Earl of Major-General Waterhouse.  
 Crawford.

TREASURER.—John Sterry.

COUNCIL.

A. W. W. Bartlett.	Furley Lewis.
Henry W. Bennett.	Ernest Marriage.
Leslie E. Clift.	Arthur Marshall.
A. R. F. Evershed.	C. E. Kenneth Mees.
T. E. Freshwater.	F. J. Mortimer.
John H. Gear.	C. Welborne Piper.
E. T. Holding.	E. Sanger Shepherd.
Fred Hollyer.	J. Spiller.
C. Lindsay Johnson.	H. Snowden Ward.
Rev. F. C. Lambert.	B. Gay-Wilkinson.

JUDGES IN THE TECHNICAL SECTION.

Thomas Bolas.	E. Sanger-Shepherd.
Chapman Jones.	Sir Joseph Swan.
C. E. Kenneth Mees.	E. J. Wall.
Major-General Waterhouse.	

The report of the ballot was received with applause, Mr. Mummery, on his official election to the presidency, being the recipient of a perfect ovation.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—At a full meeting of the organising committee held at 27, High Street, Lewisham, on Wednesday evening, with Mr. A. Haddon in the chair, it was decided that this society should be known as the South Suburban Photographic Society, and that steps should be at once taken to secure headquarters at Lewisham Junction. The Royal Observatory Camera Club was represented at the meeting by Messrs. H. Furner and P. Melotte; and there were also present Messrs. J. F. Ashby, A. E. Bennetto, P. C. Cornford (ex-secretary of the Borough Polytechnic P.S.), Thos. K. Grant, J. D. Murray, J. Nixson (hon. sec.), H. A. Robinson, and Chas. Stuart (the host of the occasion). The hon. secretary of the Catford and Forest Hill Photographic Society (Mr. W. T. Browne) also attended. Eight new members were added to the committee, including the Astronomer Royal, and Messrs. Vivian Orchard (Town Clerk of Deptford), Francis L. Robinson (Town Clerk of Greenwich), P. C. Cornford, and E. W. Andrew (former secretary of the Bromley Camera Club). The Astronomer Royal was provisionally elected president, and it was resolved to invite the M.P.s and Mayors of Greenwich, Lewisham, and Deptford, Canon Barnes-Lawrence, Rev. W. W. Hough (Vicar of Lewisham), Messrs. C. Welborne Piper, F. J. Mortimer, T. K. Grant, A. Haddon, and other well known amateurs to take office as vice-presidents. Mr. E. W. Andrew, of 12, Old Dover Road, was also elected joint hon. secretary, and as a result of the meeting we understand steps will be taken to complete the organisation as early as possible and to appeal to the photographers of the three boroughs to throw in their lot with the society.

**EDINBURGH PHOTOGRAPHIC SOCIETY.**—Mr. A. Wallace McGregor, a lawn tennis player of some note, read a paper at the meeting last week, on lawn tennis photography. The lecture was illustrated by a variety of slides which Mr. McGregor had chosen mainly for the purpose of showing as far as possible the styles and strokes of most of the best players, as also the varieties of background and light to be met with at many of the leading tournaments both at home and abroad. The grotesque positions in which the camera depicted some of the players in the courts evoked much laughter, and drew forth some comment in the discussion which followed. Mr. A. H. Baird, president, occupied the chair, and conveyed to Mr. McGregor the thanks of the meeting.

**KINGS HEATH AND MOSELEY PHOTOGRAPHIC SOCIETY**, recently formed in conjunction with the Kings Heath Literary Society held their fortnightly meeting on Monday, before a good attendance of members, with the president, Mr. J. Page Croft, in the chair. Mr. A. R. Teague, secretary of the Handsworth Photographic Society, gave an address and demonstration on "Bromide Printing." Mr. A. Roffey in his demonstration on "Gaslight Printing" produced some wonderful effects with papers having a beautiful variety of tints. The Hon. Sec. will be pleased to hear from any lady or gentleman wishing to join. His address is Livingstone Road, Kings Heath.

**CROYDON CAMERA CLUB.**—A discussion on "Easy Printing Processes" took place on the 6th inst., the pros and cons of most printing mediums being considered. Messrs. F. W. Hicks and F. J. Terry ably championed platinotype, Mr. H. P. C. Harpur, carbon; Mr. S. H. Wratten put in a good word for P.O.P.; and Mr. H. T. Dodsworth sent a letter dealing with self-toning papers. The bromide process, curiously enough, remained unrepresented, though it should have been a strong competitor. On the other hand gas-light papers found favour, mainly on the ground that they gave the best translation of the average negative produced by the beginner. That any definite conclusion was arrived at as to the "easiest process" cannot be said, the debate ultimately arousing a feeling of partisanship, hardly conducive to an impartial examination of the subject, though eminently calculated to add to the cheerfulness of the evening. Mr. E. A. Salt showed Messrs. Lumière's "Actinos" paper, a P.O.P. containing no soluble salts, and stated to keep indefinitely and be unaffected by damp. He also fixed a glass negative and a Sandell film in their new "Fixoline," or acid-fixer. Briskly boiling water was then poured on both negative and film without ill effect, except that the gelatine of the glass negative showed slight signs of pitting, which would probably disappear on drying. Users of Sandell films, he thought, might safely dispense with the preliminary formaline bath recommended, and employ the acid-fixer to attain the same end. For the rapid washing and drying of negatives and papers, such a bath would obviously be most useful. Dr. Mees then exhibited and explained a series of contrast and other filters for photo-micrographic work (a full account of these, and the principles underlying them, appeared in our last issue.—Eds. "B.J."). Their production, he said, had directly arisen out of a lecture recently given by Mr. Bawcomb at the Croydon Camera Club. Mr. Bawcomb said that all photo-micrographic workers were under a debt of gratitude to Dr. Mees and Messrs. Wratten and Wainwright. Hitherto there had been very little published on the matter; the usual directions given for photographing difficult stained subjects—viz., to employ a filter of complimentary colour to the stain—being very vague and unsatisfactory. Thanks to the sharp spectral cut of the filters now introduced, and the plain directions issued for their use, he had been able to obtain first-rate photo-micrographs of subjects impossible to render adequately before.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—On Wednesday, February 6, Mr. E. Walter Maunder, F.R.A.S., Superintendent of the Solar Department of the Royal Observatory, Greenwich, gave a most interesting lecture on Astronomical Photography. The lecturer, after giving a brief history of early work in photography as applied to astronomy, including J. W. Draper's Daguerreotypes of 1840, described the present uses of photography at the Greenwich Observatory, and showed how very much greater accuracy was obtained when the continual movement of instruments could be recorded. In many cases, the lecturer stated, deflections of the

magnetic needle were recorded which would have probably remained unnoticed had it not been for the constant record. Much of interest was told about sunspots, it being pointed out that they went through their changes in a slightly variable cycle, and that the daily swing of the magnetic needle follows this directly. Many interesting photographs and transparencies were shown representing much of the work of the observatory. Very hearty votes of thanks were passed to the lecturer, and to Prof. W. E. Dalby, M.A., B.Sc., M.Inst.C.E., for taking the chair.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting on Thursday, the 7th, Mr. W. Thomas in the chair, the first of the series of elementary lectures was given by Mr. J. S. Teape, who demonstrated the making of lantern slides. He said that his aim was to explain a system of making lantern slides so as to avoid a waste of plates and materials. The factors to be considered in making lantern slides were: 1, the negative; 2, the light; and 3, the developer. As regards exposure he recommended a test frame which consisted of an ordinary printing frame with a shutter of thin wood marked in  $\frac{1}{4}$  inches, so that a series of exposures could be made, and thus the proper exposure for each class of negative obtained. He also recommended a printing board. The one shown was marked in three-inch divisions, with two blocks of wood at one end of sufficient distance apart to just take the printing frame, the light (a fish-tail gas-burner) being movable, and placed upon the division line in use. He also had a pair of small zinc squares, which were useful for deciding what part of a negative to use for the slide, thus enabling him to put the desired part central upon the lantern plate. A half-plate frame was used when printing from  $\frac{1}{4}$ -plate negatives, cardboard mask to take the negative enabling the worker to square up any line out of truth. Mr. Teape strongly recommended the following developer:

No. 1. Hydroquinone	2 drachms
Sulphurous acid	1 drachm.
Potass. bromide	30 grains.
Water	10 ounces.
No. 2. Caustic soda	2 drachms.
Soda sulphite	10 drachms.
Water	10 ounces.
No. 3. Potass. bromide	2 drachms.
Ammon. carbonate	2 drachms.
Water	5 ounces.

This was used. Nos. 1 and 2, 2 drachms of each, and 1 ounce of water. The formulæ as issued by the makers, he said, often gave bad results with blocked up shadows, and should, when used, be diluted with water. A good yellow light was preferred to ruby in the dark-room when making slides, and the No. 3 solution was only used for coloured or toned slides by development. Slides were then made by the lecturer, and a collection of slides from one negative showed the plates used being Hford "Alpha" and Paget "Slow." Using the first named a fine brown was obtained by 30 seconds' exposure at 6 ins. from a fish-tail burner and with the normal developer: with 60 seconds' exposure a warm brown was obtained, with 60 seconds at 12 ins., black, with the same at 18 ins. a cold black, whilst with 60 seconds at 6 ins. and the addition of 3 minims of No. 3 solution a red was obtained. Using the Paget "Slow" 20 seconds at 12 ins. gave a blue, 40 seconds at 12 ins. with 40 minims of No. 3 a brown; 60 seconds at 12 in. with 40 minims of No. 3 a warm brown; 100 seconds at 12 ins. and 60 minims No. 3 a very fine warm brown; 60 seconds at 12 ins. and 100 minims of No. 3 a red, this latter taking just one hour to develop. It was, he said, a curious fact that the colour appeared much warmer when viewed out of the lantern. For instance a slide apparently of a red colour would be brown when on the sheet. The chairman said the demonstration had struck him as being one by a practical worker, and it was certain that many useful hints had been given. Mr. Freshwater proposed and Mr. Haddon seconded a hearty vote of thanks to Mr. Teape.

Mr. J. E. HODD, F.R.P.S., we learn has vacated his position. Messrs. W. Butcher and Sons, to join the Westminster Photographic Exchange, 119, Victoria Street, S.W., where his long experience in photographic dealing, gained from his managership of Messrs. Spiller and Pond's photographic department, and later of that of the Army and Navy Stores, should be of the greatest service to the Westminster Exchange.



## News and Notes.

**GLASGOW AND WEST OF SCOTLAND AMATEUR PHOTOGRAPHIC ASSOCIATION.**—The annual exhibition of the Glasgow and West of Scotland Amateur Photographic Association, in their rooms, 180, West Regent Street, Glasgow, shows an increase in the number of prints, and a decrease in the lantern slide entries. A non-competitive class gives us an opportunity of seeing some of John Hepburn's genuine subjects. The judges were Messrs. J. Craig Anzan, Maurice Greiffenhagen, and Wm. Goodwin, and bronze plaques were given to them to award at their discretion. In the nine classes, they awarded plaques to Dr. A. Richmond; J. Duncan Leslie, Chas. J. Bryden, James McKissack (2), J. MacWilliams (2), John A. Stewart, John Norman, junior, A. Herbert Brown, A. R. McCormick, A. J. Garwood (2), Richard Prosser, E. T. Goslin, Jas. G. Wilson, D. M. Filshill, John Cuthbertson, John Young, and John W. Downs.

Mr. GRAYSTONE BRID, of Milsom Street, has just scored a century of photographic exhibitions, having been awarded his hundredth medal, or plaque. All these prizes, which include several gold and silver champion medals as well as ordinary silver and bronze medals, have been obtained at exhibitions which are open to all the world, and were awarded for landscape, seascapes, sky effects, out-door genre studies, and especially pictures of children taken in his studio. Mr. Brid has also won about 80 other prizes, a number of which were for hunting and steeplechase pictures. It is few photographers who have secured such a record in 10 years.

A new electric lamp filament has been discovered by Professor F. C. Parker and Mr. W. G. Clark, of Columbia University, U.S.A. The Helion filament, as the inventors call it, gives a very white light and only requires one watt per candle power. Comparison between the luminosity of a Helion filament and the ordinary lamp showed that the former gave three and a half times the amount of light with considerably less energy for the same wave length. This high efficiency was thought to be largely due to selective radiation. The life of the new filament, which consists chiefly of silicon on a thin carbon core, so far appears most satisfactory though conclusive tests are wanting, and the drop in candle power is small even with a run of over a thousand hours. As the ordinary vacuum lamp bulb is used, and about twice the quantity of light with half the consumption of electricity is obtained there should be a big future before the new lamp.

**LUMINOUS EMISSION.**—The fact that a luminous emanation of variable shape will appear in the dark at such points on the surface of the earth below which there are extensive ore deposits at a more or less considerable depth, was recorded in Germany as far back as 1747. Immediately before or during a thunderstorm these phenomena are said to be especially striking. Similar observations have more recently been made in North America in the neighbourhood of ore deposits. Though much should be ascribed to superstition and errors of observation, the fact nevertheless has been confirmed by recent investigation. The electric emanation given off from the surface of the earth (see *Prometheus*, No. 891) has in fact been repeatedly ascertained photographically by Mr. K. Zenger. Plates coated with fluorescent substances were used. It may thus be taken for granted that the emanations in question occur with an especially high intensity at those points of the ground where good conductors of electricity are found in large amounts in the neighbourhood of the surface of the earth, in other words, above ore deposits, which are very good conductors of the electric current. Lignite and coal, especially when containing pyrites, are fairly good conductors. The difference in the intensity of radiation as compared with points free from any ore would seem to be recognised by means of photography, thus affording to geologists a rather simple means of locating ore and even coal deposits.

"The Photographic Department, its Inception and Management," a reprint of a series of articles on photographic dealing by Mr. C. H. Wallsgrove, reaches us from the author's firm, Messrs. Hands and Co., of Bletchley, by whom a copy will be sent free on application. The booklet deals with many points in a dealer's business, such as the stocking of chemicals, mounts, and albums, plates and papers, and apparatus. The author also discusses the management of a dark-room for customers, and the execution of developing and printing orders.

**THE Supply of Platinum.**—The "South African Mines" lately published an article by Mr. William Bettel, a well-known specialist, on the existence of platinum in the Transvaal. As far back as 1890 Bettel had discovered platinum in the sand which came from a mine in the district of Klerksdorp. Only about 50 milligrammes of platinum was obtained, but still sufficient to justify the belief that platinum was to be found in the Transvaal, and not only in infinitesimal quantities. Further research has confirmed this opinion. In February, 1906, Mr. Bettel examined some small quantities of mineral from which gold had been extracted by some prospectors in the neighbourhood of Klerksdorp, and the chemical analysis gave the following result: Platinum, 12 per cent.; iridosmine, 76.17 per cent.; iridium and rhodium, 7.50 per cent.; gold, 1.04 per cent.; sand, 0.65 per cent.; various metals, copper, iron, etc., 2.64 per cent. Again, quite recently, Mr. Bettel analysed half-a-dozen samples of iron chromate minerals which afforded 1.10 to 1.6 per cent. of platinum. Mr. Bettel has not been authorised to reveal the district from which these samples came, but he declares that the platinum in them came from an old volcanic rock, and adds that as the actual price of platinum is higher even than that of gold, attention should be devoted to the discovery of this precious metal.

A report in the "Franklin Institute Journal" gives the following figures for the production of platinum in 1905:—The production of platinum from domestic ores in 1905 was 318 ounces, valued at \$5,320, as compared with 200 ounces, valued at \$4,160 in 1904; with 110 ounces, valued at \$2,080 in 1903; with 94 ounces, valued at \$1,814 in 1902; with 1,408 ounces, valued at \$27,526 in 1901; and with 400 ounces, valued at \$2,500 in 1900. In December, 1904, the price of ingot platinum at New York advanced from \$18.50 to \$19.50 an ounce; in April, 1905, it was \$20.50; in February, 1906, it advanced to \$25, and in September, 1906, it was \$34 an ounce.

**THE Franco-British Exhibition**, to be held in London next year, has been warmly endorsed by the King during his stay in Paris last week. A guarantee fund of £220,000 has already been accumulated.

**SIR JOSEPH SWAN.**—The Council of the Society of Arts attended at Marlborough House on Friday last, when his Royal Highness the Prince of Wales, President of the Society, presented the Society's Albert Medal to Sir Joseph Wilson Swan, F.R.S., "for the important part he took in the invention of the incandescent electric lamp and for his invention of the carbon process of photographic printing."

**THE Scottish Salon.**—This exhibition retains its hold on the affections of Scottish workers. No prizes are offered and no entry money is charged; a place on the walls is the award of merit, and this award seems to be valued, as the entries for this year considerably exceed all previous records. The Board of Selection met on Thursday and had a work of no little magnitude in selecting the pictures for hanging. The opening ceremony will be held in the Art Gallery of the Museum, Paisley on the 23rd inst., at twelve noon, and the official lunch is due an hour afterwards. On the 22nd inst. there will be a private view and reception of delegates. The exhibition will remain open for three weeks, and a full and interesting programme of lectures, music, etc., has been arranged for the evenings.

**FLASHLIGHT.**—An American photographer, Mr. D. G. Archibald, of 119, Miller Street, Newark, U.S.A., informs us that he will be pleased to receive catalogues of flashlight apparatus and materials which will be of use to him in a work on flashlight photography which he is compiling.

**SPEED Test of Shutters.**—Messrs. A. E. Staley and Co., 19, Thavies Inn, E.C., write:—We are enclosing herewith dummy sheet of the test card which we are about to furnish for all shutters sent to us for testing. We shall charge sixpence each for testing, which will include any make of shutters, focal plane or otherwise. A considerable amount of time has been spent on the testing apparatus, and we can furnish a very good chart of the actual speeds. As the representatives of the largest shutter makers in the world (Messrs. Bausch and Lomb), we have frequently been asked if we would undertake the testing of shutter speeds. We now wish to say that we shall be pleased to undertake this work.

**A COLOUR Photography Society for America.**—In reference to the recent formation of the "Society of Colour Photographers" in this country, the suggestion of a body with a similar name in the United

States is made by Mr. F. C. Beach in the "American Amateur Photographer and Camera and Dark Room." Mr. Beach will be glad for supporters of the proposition to address him at 361, Broadway, New York.

**The Lizars Competition.**—The prize pictures in the recent "Challenge" competition will be exhibited at 251, High Holborn, London, from February 21 to 28, when Messrs. Lizars will be glad to see any of our readers who may be interested. Arrangements have been made with the South London Photographic Society to include the pictures in their annual exhibition, which will be held at the Camberwell Baths from March 2 to March 9.

"The American Amateur Photographer" and the "Camera and Dark Room," two of our monthly contemporaries in the U.S.A., which have been under the same management for some years past, have now been united into one publication, "The American Amateur Photographer and Camera and Dark Room." Features of the latter publication are to be retained, and the editorial staffs join forces in the new publication, which is issued by the American Photographic Publishing Co., 361, Broadway, New York.

**W. H. SMITH AND SONS.**—Though Messrs. W. H. Smith and Sons, as bookstall newsagents, have been before the public for nearly half a century, it is news to most people to hear that for little short of that time they have been pioneers in various departments of art printing in their works in Fetter Lane, E.C. They have now established, at No. 95 in the same narrow thoroughfare, under the control of Mr. H. E. Morgan, a gallery, reference library, and consulting rooms, where intending customers may examine an immense variety of styles and design in letterpress and illustrative printing. Our acceptance of an invitation last week gave us the opportunity of seeing some samples of circular and booklet printing such as bear out Messrs. Smith's claims to be able to produce enclosures which require some description more dignified than "printed matter." To single out one circular only, that for Messrs. Rackham and Co., costumiers, of Birmingham, here is a refined production, which a first-rate photographer would feel confident in accepting as a medium of appeal to his public.

At the L.C.C. School of Photo-Engraving and Lithography, Bell Court, Mr. Oliver Dawson lectured on February 7 on "The Bleach-Out Process of Colour Photography." He explained the principle on which the paper, as made by J. H. Smith and Co., was prepared and exhibited a number of copies of coloured originals made on the paper. Mr. R. Reynolds exhibited the results of direct copies of leaves, flowers, and wings of butterflies made on the paper, and Mr. W. Sage referred to the great difference in the exposures in London and the country.

## Correspondence.

\**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed by our correspondents.*

MR. CHAPMAN JONES AND THE R.P.S.

To the Editors.

Gentlemen,—I shall be glad if you will allow me, through your columns, to offer my sincere thanks to those members of the Royal Photographic Society who continue to nominate me to various offices in the society, and to briefly explain my position. In November, 1896, certain changes were determined upon that the president (Sir William Abney) and the hon. secretary (myself) felt would not be for the society's welfare. To avoid the false position that would otherwise have ensued, Sir William Abney and I resigned. Shortly after this I was elected a vice-president. The spirit of unrest continued to assert itself, and matters grew more acute until the election in February, 1902, when the late Mr. T. R. Dallmeyer and I were nominated to the presidency, Mr. Dallmeyer by those who wished for certain changes, and I by those who deprecated the most important of them. The votes showed a large majority in favour of the "reform party," and nearly all the members of the old council were rejected. Since then I have attended no meetings of the society, except that I have continued to serve on two committees at

the special request of the new council. In each of the five ensuing years, however, I have been nominated to the positions of president, vice-president, and ordinary member of council. Each time I have cancelled my nominations to the presidency, because it was obvious that some one else was desired, and I have always done my best to avoid a competition for the presidency, as tending, in my opinion, to compromise the dignity of the society. I have also cancelled nomination as ordinary member of council, because it seems to that election to such a position would not be sufficient evidence that the society wished me to again take an active part in its affairs, but I have allowed my nominations to a vice-presidency to stand. I trust that those who have nominated me during the last five years will consider this a satisfactory explanation of my conduct and accept my best thanks for their continued confidence.—Yours, etc.,

CHAPMAN JONES.

February, 1907.

### SULPHIDE TONING OF BROMIDE PRINTS.

To the Editors.

Gentlemen,—Under the above heading, "Dolphin" asks a question which no doubt interests a good many of your readers. Personally I have never been troubled with the particular difficulty which your correspondent raises, but I have experienced instances which were most perplexing of bromides which refused to bleach in the ferricyanide bath, or which bleached unevenly. After making many experiments to endeavour to fix the moment in the process at which the defect arises, my experience has been that sulphide toning always takes place regularly if development and fixation are quite normal. This is to say, that, given a correct exposure to suit a normal development and this followed by proper fixing, the sulphide toning will present no difficulties. That the ultimate colour obtained depends mainly upon the character of development, I think, is a statement of a generally observed fact, this also being in its turn influenced by the character of the deposit in the original negative; but toning to same colour always in my hands follows good dark-room practice.

In your reply you properly ask for further particulars of "development if aluminized or not, etc." It would be interesting to know if the cards were really bromide, as I have found some of the gaslight papers—presumably not coated with an "all bromide" or silver emulsion—work very differently compared to first-class makes of bromide paper. A bromide print, to tone well and to a good colour, especially if there be deep shadows, should be made upon a paper with a fairly heavy deposit of bromide and silver, and not too heavily coated with the gelatine vehicle. It may be that your correspondent has ventured upon the course of using a special chemical in bromide cards, the profits in such work, as he says, lean small; but, so far as one can judge from the particulars he gives, should be much more inclined to look, in the first instance, into the dark-room and ascertain if his dark-room arrangements for development and fixation were adequate, especially as he mentions that a large watch was being made.—Yours truly,

A. PROCTOR.  
[Our correspondent now writes that the prints were upon "Chessa bromide, developed with metol hydroquinone (Somerville formula) were aluminized (with two washes before and after), fixed for ten minutes, and washed for thirty-five minutes. The sulphide solution was freshly made. Not only did the cards refuse to darken in the sulphide, but the application of a developer failed to restore its intensity. The bleaching solution of ferricyanide and potassium bromide had been used only once or twice previously. We shall be glad to hear of other correspondents' experiences.—Eds. B.J.]

To the Editors.

Gentlemen,—In reference to the query of a correspondent last week as to bromide prints, bleached in the usual mixtures of ferricyanide and halide, which will not tone or darken in sodium sulphide solution. I have been experimenting with the process, and so far have been unable to succeed with this failure; that is, I have been unable to produce a print that will not darken in sulphide. May I take the liberty of asking any of your readers who have met with this may meet with this trouble, to kindly send me some prints or cards not more than six of each required, with full details, if possible, follows:—

Maker's name:  
Bromide or gaslight:  
Developer:



Plain or acid hypo:

Alumined or not:

Formula of bleach, and whether freshly mixed or not:

Formula of sulphide solution; also whether freshly mixed or not:

Whether prints were bleached in day or gaslight, or subsequently exposed to the same before sulphiding:

Length of washing after bleaching.

Some of these details may at first sight appear puerile and unnecessary, but as I have tried nearly every make of bromide and alight paper with ferrous oxalate, adurol and metol-hydro developers, without meeting with this failure, I want to obtain as many factors as possible so as to trace the cause of this particular trouble if I can.

I shall be pleased to pay postage on prints in all cases, and should I be able to find anything out will naturally communicate the same.—Yours faithfully,

E. J. WALL.

North View, Lansdowne Road, Sidcup.

#### PHOTOGRAPHIC PACKING PAPER.

To the Editors.

Gentlemen,—This heading called to mind a recent experience, and one in the last century. It has been often said that photographers are conservative. The following will prove the truth of that saying in regards trying every new plate or paper that comes along. A few years ago I received a sample of two half-plates made by the Beernaert company; like some others they were placed on a shelf in the dark-room, doubtless to wait for a convenient season. Clearing the shelf in November last they came to light with others. I was curious to see their appearance after so long. I found these were packed without dry paper between them while others had a fine tissue, the latter bore evident signs of deterioration from contact with the paper; the former (B.'s) looked in good condition.

Having many years ago proved to my own satisfaction, and then a well-known maker's fallacy of placing any paper in contact with the sensitive films, I felt a suitable occasion had now arisen to test the effect of plate-keeping without it, and so I copied a photograph I had to do on one of the two plates referred to, and another the same time on a perfectly new plate by a well-known firm. I sent one print from each, and shall be glad to hear your opinion of them. I did not know at the time that the Beernaert company had ceased to exist, and so for accuracy I wrote to Mr. Holzig, their agent, to ask whether he could furnish me with the date of the batch number. He then wrote me that the company had ceased to manufacture early in 1900; but for this fact I could have withheld the name lest it should appear I was advertising a certain make. It, however, was conclusive proof that they had not packed some years. I would emphasise: no paper between, or cards at edges, but film to film in close contact. I do not know why some firms will still persist in placing tissue between their plates; not only does it seem to me risky on the ground of deleterious matter in the paper, but it allows more air to pass between them, which has an injurious effect on the film, and in any change of temperature it also tends to the absorption of damp more or less equally. I can quite expect anyone saying we do not want to keep plates five or six years, and preferably not as many months, but the point is: Should not plates be packed in the way least likely to cause deterioration? It would be interesting to hear the experience of others on this.—Yours,

W. POUNCEY.

Dorchester, February 11, 1907.

[We do not think it would be possible to say without very careful examination, that the prints sent were from different negatives. With regard to the use of paper between sensitive films, it is possible to obtain a specially pure paper, known as the "Teapot" brand, made by Robert Fletcher and Sons, which is largely used by silver-plate makers for wrapping silver goods, and this has been proved to be without any effects on sensitive emulsions.—Ed. B.J.]

#### PYRO AND SODA DEVELOPER WHICH WILL KEEP.

To the Editors.

Gentlemen,—Your recent editorial notes and the articles and correspondence on this subject have called attention to a matter which is of very great interest to a large number of your readers. As one of your correspondents has aptly quoted, "An ounce of practice is worth a ton of theory," perhaps you will allow me to give the results of a few tons of practice, extending over a period of about fifteen years.

1st. As to keeping the pyro solution without deterioration, I have never been able to do this satisfactorily in combination with neutral or alkaline sulphite. The addition of a large excess of sulphurous acid (or metabisulphite) improves matters; but I have always found that in any case the solution deteriorates more or less rapidly from the time it is mixed. On the other hand, I find that metabisulphite of soda alone acts as a perfect preservative, a solution containing equal weights of pyro and metabisulphite appears to retain its good properties indefinitely; it will certainly keep in good condition for at least four years. After keeping two years or more, it works equally as well and as quickly as when freshly mixed. There is absolutely no difference in the results. If made with good and fresh pyro and distilled water the solution is quite colourless, and remains so to the last drop.

With regard to the alkaline part of the developer, I have never found any ill effects from mixing the sulphite and carbonate of soda in one solution. With equal parts of the two salts in a fairly concentrated solution it keeps perfectly, and, like the pyro solution, is always ready for use. I have tried various proportions, and for several years past have used the following, which I find excellent for all-round work:—

No. 1.	
Pyro .....	1 oz.
Metabisulphite of soda .....	1 oz.
Distilled water, to .....	80 ozs.
No. 2.	
Sulphite of soda .....	10 ozs.
Carbonate of soda .....	10 ozs.
Water (distilled), to .....	80 ozs.

For use, mix equal parts of No. 1 and No. 2. The mixed developer may be used full strength or diluted, according to the density required in the negative. For studio work it usually works best at about half strength. Development is complete at 65 deg. Fahr. in about five or six minutes. The addition of bromide increases contrast, but does not materially prolong the total time of development. There is no pyro stain. The negatives are neutral black in colour, and the solution may be used if desired for several plates in succession.

It will be seen that my experience coincides with that of Mr. H. W. Bennett, and is at variance with your own. The causes of the wide difference may not be far to seek, and, as you suggest that the manner of mixing may have something to do with it, I append a few details, in the hope that they may be of some help to you in solving the problem.

In the first place, all my solutions are made with cold distilled water. For the pyro solution the metabisulphite of soda in crystals (not powder) is completely dissolved in the water before the pyro is added; provided the pyro is not already spoiled by keeping, the solution will be quite colourless, and, as I have stated, it will keep so for years. In mixing the alkaline solution, the soda carbonate and the sulphite of soda in crystals are placed together in cold distilled water, and shaken until dissolved. This takes a little time, but I never use hot or warm water for dissolving the sulphite.

The above operations are so simple that it is difficult to see how one can go wrong; of course, it is essential that the sulphite be of good quality. I am inclined to think that herein lies the cause of most of the trouble. It is well known that different samples of sulphite vary considerably. I have met with some that were worse than useless. Also, I consider it essential to use pure water; a trace of iron would inevitably cause the pyro solution to become discoloured.

With regard to the metabisulphite, I do not know that there is any great difference between the potassium and the soda salt. I invariably use the latter, which I am in the habit of employing in the fixing bath, as it answers so well in the developer, and I do not see the use of mixing the bases. The chemistry is simpler by using the soda base all through. In connection with this there is one other point which may be worth notice. It will be seen that in my formula I have an excess of acid sulphite in the pyro solution, so that when the carbonate is added the free sulphurous acid is neutralised, and a corresponding quantity of freshly formed sulphite of soda is set free in the developer at the moment of mixing the two solutions. I feel sure that this has a beneficial effect. If so, it is entirely lost by the method of mixing the sulphite with the

pyro, as in your own formula. You will perhaps be able to test this in the course of your experiments, the result of which is no doubt awaited by many of your readers.—Yours, etc., B. J. EDWARDS.  
Ealing, February 9, 1907.

#### LIMELIGHT CALCULATIONS.

To the Editors.

Gentlemen,—Could you see your way to give a paper on limelight jets for the mixed gases, stating candle power obtained with a jet of a certain size when using a certain pressure measured in inches of water? For instance, assuming a thoroughly well-made jet, with a bore of, say, 20 standard wire gauge under a pressure of, say, 10 inches of water, what candle power can be obtained? Again, assuming the bore to be the same, but the pressure reduced to 5 inches of water or increased to 15 inches, what candle power would be obtained? Compressed gases in cylinders are out of the question here. Although I have read about Beard's and other regulators, I have never seen one, or have I ever seen it explained as to how many inches of water they are set to. This question of candle power of limelight jets seems to me too much rule of thumb. I cannot imagine why, with a certain size bore and with a certain pressure, one should not get a certain result. As a mechanic, I can tell the result of a flow of water and what effect to expect, provided I know the head, length of pipe, and size of jet, and also know how many candle power can be obtained from a Welsbach mantle burning under certain conditions, as tables have been laid down for these, then why not for the limelight burner, either blow-through, mixed, or ether? Any information on these subjects would be greatly appreciated by yours truly,

Bowmont Street, Invercargill, N.Z.  
December 3, 1906.

JAS. STEWART.

Mr. R. R. Beard, the well-known lantern expert, of Trafalgar Road, London, S.E., to whom we submitted our correspondent's letter, writes as follows:—

To the Editors.

Gentlemen,—Many papers have been written on limelight and tables prepared, but not in the form suggested in your correspondent's letter, and as regards candle power it must certainly be a case of rule of thumb, as so much depends upon the operator and the construction of the jets.

The suggested table of low pressure would be of no use under the present system of high pressure gases in cylinders as used here.

The outlet pressure of Beard's regulator can be modified by inserting springs of various intensities, from  $\frac{1}{4}$  lb. to 5 lb. per square inch in the ordinary form, and from the high pressure from 5 lbs. to 15 lbs. per square inch, the latter pressure being used with the injector form of jet.

With a jet constructed upon Hardwick's form—i.e., with a mixing chamber of about three-quarters of an inch diameter and 1½ in. long, and a pear-shaped vertical section, the gases entering at the base through a  $\frac{1}{8}$ th hole, and from the apex through the bent tube to the nipple, which is 18 gauge, and working the pressure of the gases at 10 inches, a Nottingham lime 3-16ths from the nipple will give, as near as possible, a candle power of 500.—Yours faithfully,

R. R. BEARD.

10, Trafalgar Road, Old Kent Road, London, S.E.

#### THE USE OF FLAMING ARC LAMPS IN PORTRAITURE.

To the Editors.

Gentlemen,—We have read Mr. A. Gascoigne's letter in your issue of February 1 with interest. As manufacturers of both flame arc lamps and enclosed arc lamps for photographic work, we may be able to supply some of the information Mr. Gascoigne desires. The colour of the flame arc is produced principally by the introduction of calcium and sodium salts. The spectrum of this light consists of a faint continuous spectrum on which are superimposed the very brilliant bands in the red, yellow, and green, characteristic of the calcium and sodium compounds, the visible spectrum being somewhat similar to the spectra given in your issue of January 11 on a Wratten plate without a filter, the extra amount of light in the yellow and green portions of the spectrum giving the arc its characteristic colour.

The spectrum of the Jandus enclosed photographic lamp shows a faint white light spectrum with intense bands extending over the violet and probably into the ultra-violet portion of the spectrum.

There is no definite ratio between the actinic and visual qualities of the two lamps, as by varying the proportions of the chemicals and the size of the carbons, etc., the light given by the lamps may be confined almost wholly to the yellow or violet portion of the spectrum as may be desired.

In an enclosed photographic lamp it is naturally important to confine the radiation as much as possible to that portion of the spectrum having great actinic value, nearly the whole of the energy being then available for photographic work.

We have used the term "photographic work" to indicate the effect of the actinic rays on photographic plates or papers. The usual term of "light" or "photographic light" is rather confusing, as the best forms of modern enclosed arc lamps can be arranged to give a large portion of their energy in the form of invisible radiations in the ultra-violet portion of the spectrum.

The following tests made in our laboratories may give some idea of the ratio of exposure. They are for four lamps, all taking the same electrical energy:—

	Visual Light, Giving Power Measured by Photometer.	Actinic Printing Power Measured by Darkening of P.O.P.
Jandus flame arc lamp .....	50	10
Open arc lamp .....	10	10
Ordinary enclosed arc .....	8	20
Jandus enclosed photographic lamp .....	4	50

These figures are approximations from the mean of a large number of tests. Variations in the current, varieties of plates and papers, and many other factors will influence results largely, but the figure are a guide for general use.

The relative actinic values will necessarily be altered very much if light filters are used, as these cut off a large quantity of the most actinic rays.

The results are fairly constant for printing work, and may easily be verified with a piece of P.O.P. by anyone who has access to both flame and enclosed photographic lamps.—Yours faithfully,

THE JANDUS ARC-LAMP AND ELECTRIC CO., LTD.  
(A. Denman Jones, works manager.)

Hartham Works, Hartham Road, Holloway, London, N.

#### PHOTOGRAPHS BY TELEGRAPH—A NAME FOR PROFESSOR KORN'S PROCESS.

To the Editors.

Gentlemen,—The general Press has during the past week devoted a good deal of space to descriptions of Professor Korn's process of photography by telegraph. Unfortunately, however, the word "telephotography" has been used to describe it, and although philosophically and scientifically correct, there is likely to be great confusion in terms if the use of this title is persisted in.

Since 1891, when the late T. R. Dallmeyer patented the first practical telephotographic lens, the word "telephotography" has been used by all our readers know, in every-day use to express the method of obtaining images on an enlarged scale by means of a lens which comprised an amplifying element in its construction and more particularly a lens composed of a positive and negative element, with a means for modifying the focal length by varying the separation. As there is already quite a literature on the subject, comprising volumes by Mr. T. R. Dallmeyer, Dr. Deller, Mr. Ernest Marriage, the Rev. F. C. Lambert, Mr. Beck, and others in all of which the word "telephotography" forms an important part of the title, we think it only fair that the newcomer should find a distinctive title in which, if possible, the electrical nature of the invention should be expressed. May we suggest "photo-telegraphy," which would clearly show that an actual telegraphic process was indicated. We have a precedent in "micro-photography" and "photo-micrography," the distinction between which is well known.—Yours faithfully,

J. H. DALLMEYER, LTD.

(C. F. Lan-Davis, secretary.)

Denzil Road, Neasden, London, N.W., February 12, 1907.

[Our objection to Messrs. Dallmeyer's suggestion is that, like "photo-micrography," it is a bad index word. Any person searching literature for Professor Korn's process will naturally turn first to "telegraph," and, therefore, a word commencing with "tele" or "tel" is, from an indexer's point of view, preferable to any other. "Electro-photography" or "telectrography," suggested in a previous issue, seems to us to meet the case, and we should not be surprised to see in future issues of "The Daily Mirror," when that publication



has completed its arrangements with Professor Korn, a page headed "Electrographs."—Eds. B.J.]

#### PHOTOGRAPHS BY AMERICAN PROFESSIONALS.

To the Editors.

Gentlemen,—Before the American Professional Exhibition at your gallery comes to a close, permit me this opportunity of counselling other professionals who have not yet seen it to take advantage of the remaining days, and your kind welcome. Many photographic exhibitions are interesting—this one is instructive also—and I think we have excellent reason to feel obliged to the exhibitors and the organisers of this little show for the pleasure it brings to professionals in this country. The work has the stamp of prosperity about it, and it is always a cheering thing to look at strong studio portraiture which one instinctively feels the public wants, and will pay for. We need not sympathise with the talk of decadence in British professional work, nor with the assertions of some critics who believe that artistic portraiture is only produced among clever amateurs here.

But this exhibition proves that the Americans represented are clever men and deserve all the prosperity which is said to prevail among them. Cannot we be up and doing to make another exhibition just as attractive for ourselves?—Yours faithfully,

Regent House, Anlaby Road, Hull. T. C. TURNER.

February 12, 1907.

## Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- Miss E. Hargreaves, Millom, Cumberland. Photograph of the Rev. F. Pascoe.
- H. Midwinter, 48, Park Street, Bristol. Three Photographs of Blind Child Vocalist, Eva Lombottom.
- J. C. Long, 22, Portland Road, Worthing. Four Photographs of Interior of St. Andrew's Church, Worthing.
- Mac Perkoff, 186, Commercial Road, London, E. Photograph of Mr. Z. Feinman, Famous Jewish Actor.
- Tallis, 2, King Street, Sparkbrook, Birmingham. Photograph of Wreaths on the Tomb of Bill Green, Superintendent of City of Birmingham Lamp Dept.
- Treanor, 21, Inglis Street, Inverness. Photograph of the Rev. M. MacKenzie.
- Photograph of the Rev. J. J. Black, L.L.D.
- Burton and J. W. Burton, 3, Haymarket, Leicester. Photograph of Sir A. Hazerigg, Bart.

H. (Nottingham).—The apertures of lenses do not necessarily vary with the size of the stop. With two lenses of 16in. and 14in. focal length the apertures may be of the same and the stops of different sizes, or vice versa. All depends on the front lens of the combination. You should measure and compare the "effective apertures," as defined by the R.P.S.

MS QUERY.—I have an old lens by Dallmeyer, marked on mount No. 1a, Patent 9669. The lens mount is 1½in. diameter, about 2in. long, single combination in back and front, small rotating stops. Can you identify it for me? The back combination appears to be incomplete. There is a little cell which fits close to the front of lens, from which it appears to me there is a lens missing. I find on focussing I get on the ground glass a white flare spot in the centre of the picture, just about the size of a stop or a little larger. Is that caused by the front lens being missing? Can you tell me what focus the lens should be, and rapidly?—A. J. F. BOND.

The lens, by its number, is of very old make. Your description answers to that given in an old catalogue we have, of the No. 1A patent wide angle landscape lens, and is intended for 5 x 4 pictures. It is a single combination, and of 5½ inches focus. Its aperture, we think, is about f/15. If you send the lens to Dallmeyer's they will tell you whether it is complete or not, and for what work it is intended.

BACKGROUND MATERIAL.—I should be glad if you could inform me where I can obtain canvas for background painting in distemper.

—ARTIST.

Unbleached sheeting, obtainable from large upholstery warehouses, up to 8ft. and more in width.

PROFESSIONAL.—So long as the prints are kept separate and constantly exposed to clean water, a mechanical washer is superior to hand washing, supposing also that it does not tear the prints. For prints of fairly small size, up to half-plate, there are several washers—e.g., the "Godstone," the "V.H.," which will be satisfactory, but we know of no washer which will satisfactorily treat numbers of large prints. The principle of one made by Messrs. Marion, in which each print is kept in a separate tray, is the best.

PHOTOGRAPHS ON METAL.—(1) You were kind enough to answer an inquiry of mine some few weeks back re "Carbon Transfer on Metals." I find, on following your instructions, the adhesive preparation you advise (chrome alum and gelatine), will not give it a hard support, as on passing a shears through the metal the tissue is liable to strip. I tried Japan varnish, but that seems only to prevent moisture attacking it. Can you suggest another method. (2) Stoving it. How should I proceed? (3) Is there any book that would give me the method of working ceramics—the full details?—F. R. O.

(1) The trouble, no doubt, arises from the metal not being thoroughly clean in the first instance. The slightest trace of grease would quite prevent the adhesion of the substratum to the metal. If the metal is highly polished we should suggest that you slightly dull it by immersing it for a minute or so in water to which a little nitric acid is added, just sufficient to give it a sour taste. That will afford a better tooth for the substratum.

(2) Without suitable appliances you are not likely to be successful with this. We should advise you to put the work in the hands of a practical japanner, who will have suitable ovens for the purpose. (3) "Photo Ceramics," by Ethelbert Henry and Snowden Ward, 1s. Dawbarn and Ward, 6, Farringdon Avenue, E.C.

A. K.—(1) The rough sketch shows quite a different thing from Adamson's compressor, though we do not see why it should not answer your purpose. Personally, we have had no experience in making compressors, and therefore can express no decided opinion on the merits of the one you propose to construct. Indeed, its efficiency can only be proved by a practical trial. (2) To speak candidly, we cannot congratulate you on either the lighting or posing of the specimens you submit. They are all illumined too much with direct front light. (3) No. 2 of the "Photo Miniature" (Dawbarn and Ward, 6, Farringdon Avenue, E.C. 6d.).

FINGER PRINTS.—Do you know of a book on finger-print photography, same method as used by the police? If so, would you inform me where I could obtain a copy? If no book published, what is the best method to get a negative from a faint impression?—THE MB-NAIL.

There is no work published on the subject. If the finger prints you have to photograph are on paper, copy them in the camera in the ordinary way. If they are on glass they will yield a better result by being copied by transmitted light. For the negatives use slow plates, giving good density—e.g., a photo-mechanical plate.

"VENUS" TONING BATH. — I should esteem it a favour if you could give me the Venus toner for P.O.P. I have written to the firm who used to manufacture that brand of P.O.P., but letter has been returned, marked "Gone away."—W. BRISTOW.

Potass. chloroplatinate .....	2 grs.
Sodium chloride (common salt) .....	30 grs.
Citric acid .....	30 grs.
Distilled water .....	20 ozs.

The above (1900) is the latest formula we have been able to turn up. We may add that Messrs. Burroughs and Wellcome sell a tabloid chemical made up for the "Venus" paper.

RECOVERY OF DEBT.—I made an oil painting for a customer, from a copy he gave me. The eyes were not exactly the same size on the copy. I made it according to the copy. He would not have it, because one eye was smaller than the other. He asked me

to alter it. It has been altered. Now he will not have it at all. Can I make him pay for it, and in what way?—W. H. R.

If the enlargement in the first instance was like the original it ought to have been satisfactory. If it was afterwards altered to your customer's order, you are not responsible for that. As a rule when alterations, such as this, are made from the original the result is seldom satisfactory. The only way to recover the debt is to sue for it in the County Court.

**FLASH POWDER.**—Please publish a reliable formula for flash powder in your next issue.—REX.

Potass. nitrate .....	12 parts.
Potass. perchlorate .....	12 parts.
Magnesium powder .....	16 parts.

We advise you to employ the ready-made powders, as the mixture of the constituents is a rather dangerous operation.

**YACHT PHOTOGRAPHY.**—(1) I have been located in this place nearly four years, and I am not satisfied with the amount of work I have obtained from the yachting people. I have taken several fairly decent pictures of yachts sailing, with the ordinary T.-P. shutter, but the results are very uncertain. Now, could you tell me of any special apparatus? (2) I am adapting a half-plate camera for instantaneous work by attaching a focal-plane shutter. Will you please tell me what is the best view-finder of reasonable price to use?—C. T. HUMPHREY.

A twin lens or reflector camera is used a great deal for this class of work. We knew one very successful photographer of yachting subjects who had a miniature camera, about 5 x 4, fitted to his 15 x 12 camera, the focusing gears of the two being arranged so that the subject was focussed in the smaller by moving the pinion of the larger camera. This is simply the twin-lens system modified to reduce bulk. The exposures are usually 1-200th to 1-500th of a second—i.e., with a focal-plane shutter. We may add that successful yacht photography involves a steam or motor launch, in which to follow the craft and catch them at the required angle. You will find some most useful hints on the subject in "Photography on Tour" (Dawbarn and Ward, 1s.). (2) Our own preference is for one of the direct vision type of a good size, say, with a lens 2½ x 2 inches. The cost is about 10s.

**IODIDE FOCUSING SCREENS.**—On page 713, of your "Photographic Almanac," 1907, you give instructions for making focussing screens with iodine or potassium iodide. Will you please inform me in your journal the amounts of iodine and potassium iodide to use?—J. HARTLEY ELLIS.

The exact strength is not of importance. You can use one containing about 10 grains of iodine and 100 grains of potassium iodide in 10 ozs. of water.

**PHOTOGRAPHS OF FLOWERS AND ANIMALS.**—Herewith I beg to ask you whether you can give me some addresses of flower and animal photographers.—F. O. KOCH.

For flowers try: Erdman and Schanz, 109, Bedford Hill, Balham, London, S.W.; Valentine and Sons, 32, Charing Cross, London, W.C.; Henry Irving, The Rowans, Great Elms Road, Bromley, Kent; Taunt and Co., Oxford; Colonel Taylor, St. Agnes, Cobham Road, Norbiton, Surrey; Charles Hodges, Hexham Northumberland; T. Andrews, 15, High Street, Budleigh Salterton; W. W. Burnard, West Street, Poole, Dorset. For animals: Chas. Reid, Wishaw, N.B.; G. W. Wilson and Co., 2, St. Swithin Street, Aberdeen; O. G. Pike, The Elms, Winchmore Hill, London, N.; Jas. Auld, Ellon, N.B.; and Gambier Bolton, care of Autotype Company, 74 New Oxford Street, W.C.

**"IRIS" MOUNTS.**—Will you please give me the address of the makers of the "Iris" mounts series?—GEO. WOOD.

We see the mounts listed on page 666 of Fallowfield's catalogue, but we do not know the makers. We shall be glad to hear from you on the other matter.

**COPYRIGHT.**—I produced a series of local views of Fishponds and district for postcards. I supplied local stationers with them. Finding the profits so small with this kind of work I discontinued to supply them, and intended to sell them at my own shop at 2d. each. It has just come under my notice that a local company has copied my photographs, imitating photographic cards, and selling them at 2d. each. Every imitation card bears my

name, saying it is a photograph by me. What can I do in this matter? It is affecting my retail sale.—C. F. B.

You cannot take action in respect of infringement prior to registration of the copyright in your photographs. Apparently you have not registered any. You had better do so at once, and you can then stop the sale of further copies.

T. W. S.—Try the Tress Company, or the Halifax Photographic Company.

A **CONSTANT READER.**—1. The card is probably a matt surface bromide, and any make would give you similar results to the which you enclose. A good developer is:—

Metal .....	35 grs.
Hydroquinone .....	50 grs.
Sodium sulphite .....	2 ozs.
Sodium carbonate .....	14 ozs.
Water to .....	20 ozs.
Potassium bromide .....	5 grs.

2. With regard to the bleaching solution, if you use that given on p. 988 of the ALMANAC, 1907, you cannot fail to get good results. You can also use the one you enclose, but it will, of course, intensify the prints.

**ENLARGING LENS.**—I have a lantern which I bought second-hand and wish to use it for enlarging. When I got it home I found the original back lens had been replaced by, it seems to me, one from a pair of field glasses. I have tried to use it, but can only get the subject in focus at a distance of about 18 inches from the lens. It was then not very sharp, so I made a stop to fit in front of lens, and have got a passable picture with it. I would like to know if the combination of the lens is right. The lens is composed of two plano-convex lenses. Diameter of front lens 40 m/m, and back one 44 m/m. The diopter of front lens is 5.2 and back one 5.75. The distance from back lens to negative when lens is fully extended is 115 m/m. The distance between the lenses is 60 m/m. If you can give me the information from the above description I shall be glad. The stop I used fixed on the front of cap of lens, and the aperture is 11 m/m.

If your lens consists only of two plano-convex lenses it is no use for enlarging. Are you sure they are not cemented combinations? In any case, the stop should be between them, not in front. If a central stop and properly adjusted light will not give good focus the lens is useless, and you had better replace it by your camera lens. That should work satisfactorily. Remember that adjustment of light affects focus, and that adjustment must be varied for different scales of enlargement.

A. B. (Bagshot).—1. Rubber type can be purchased from M. Lindner, Fleet House, Farringdon Avenue, E.C. The neatest way, however, to title postcards is to obtain the lettering in the negative by photographing a proof of the title, stripping the film, and transferring to the postcard negative. 2. "A Treatise on Photogravure," by Herbert Denison (London: Iliffe and Co., 4s. 6d.).

R. M. CLIFFORD.—It can if provided with the usual focussing scale. As the camera has to be held about at the chest level, a reflex finder is the most suitable. Adams and Co., Charing Cross Road, W.C., can offer you a variety.

H. HOPPERTON.—You had better send it to be repolished. We do not suggest no other plan.

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## The British Journal of Photography

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## SUMMARY.

The exhibition of photographs by American professional photographers at the "E.J." offices) closes to-morrow, Saturday, at 2.30 o'clock.

Workmen's compensation and photographers. We draw attention to the terms of the Act which comes into force on July 1. (P. 135.)

A revised draft of the proposed Copyright Bill shows the Artistic Copyright Society to be still disregarding the interests of photographers. (P. 134.)

Note-paper with half-tone illustrations is recommended as a possible sideline for photographers. (P. 133.)

American photo-engravers' business methods and book-plates as a possible side-line occur in "Photo-Mechanical Notes." (P. 144.)

A review of modern mounting methods by Mr. Hector Maclean appears on page 141.

Experiments on the latent image have led unmistakably to a new process for red and blue tones on bromide paper. (P. 136.)

MM. Lumière and Seyewetz, as a result of testing the exhaustion of fixing baths, have drawn up rules for the maximum number of plates to be fixed in a bath of given formula. (P. 138.)

New hints on the ozobrome process appear in the new issue of the official instructions. (P. 140.)

The catatype process of chemical printing (without light) has been demonstrated in Berlin. (Pp. 134 and 143.)

Pigmented bromide paper for the direct production of carbon engagements is the subject of some notes by a German writer. (P. 139.)

A non-splash dish is among the patents of the week. (P. 145.)

Society proceedings of the week deal with shutters, stereoscopic photography, and wet-collodion lantern-slides. (P. 148.)

## EX CATHEDRA.

### Half-tones on Note-paper.

Only a little time ago we commented on the business to be done by a studio in the supply of note-paper bearing a heading of a photographic nature. The idea is quite an old one, of course, but with the increased interest, amounting almost to a craze, in all kinds of pictures, photographers who may have dismissed the proposition years ago as having nothing in it may find to day that it will pay them to take it up. Among all classes of their customers—the dweller in a country house, as well as the mother of a pretty child—there is the opportunity to put forward the illustrated note-paper as a novel specialty of one's own, and it will be found that not only in the upper social strata of a provincial public, will it be the means of putting money into the photographer's pocket. One point of practical importance may be mentioned. It will be found that many papers which will take a pen properly will not do justice to the half-tone block. A paper possessing both qualifications is not easy to find, and therefore we may mention a new introduction of Messrs. Lindenmeyr's, the "half-tone writing paper," which should be noted by those entertaining our suggestion for application to their own businesses, or, as one or two firms might well do, by those proposing to supply and print the blocks for the photographic profession.

\* \* \*

### Libel or Criticism?

Colour photography of all subjects has been disturbing the law courts of far Singapore, where a firm of photographers have sued the proprietor of a newspaper in respect of a letter appearing in his publication in which adverse reflections were made upon certain specimens of colour photography, shown by the plaintiffs at an exhibition, and also upon the character of the plaintiff's representative. The letter in question was headed "A Dismal Failure," and in it the writer commented upon the imperfections of what we gather to be three-colour carbon prints. These remarks, however, the Chief Justice held to be no libel, but in respect of the allegation as to the character of the plaintiff's representative gave judgment for £20 and costs.

\* \* \*

### The Pyro-Soda Developer.

We are much indebted to Mr. B. J. Edwards for his letter on page 129, and for his valuable suggestions. Our correspondents seem to be about equally divided in their opinions and experiences, which fact alone makes it clear that there is something that we do not generally understand with regard to the compounding of developers. Mr. Edwards says, "Of course, it is essential that the sulphite be of good quality. I am inclined to think that herein lies the cause of most of the trouble." Mr. Edwards uses more sulphite than we do in proportion to the pyro, and if he also uses

a better quality he must have a considerable excess of pure sulphite available. In this case a formula that is compounded on incorrect principles may quite easily work in as cleanly a fashion as one correctly compounded with less sulphite. Though at present we have nothing fresh in the way of information to give, our earlier work showed pretty clearly that the quantity of sulphite could be considerably reduced if it was not kept in solution with the alkali. If the alkali and sulphite were combined, then, with the sulphite we used, stain could not be avoided unless an inconveniently large quantity was employed. The moral appears to be that if one wants the sulphite and alkali to be together, one must use plenty of sulphite of exceptional purity. If, however, one can make a smaller quantity of a cheaper quality serve equally well it appears to us that a considerable advantage is secured.

#### The Hydroquinone Developer.

We have been conducting some parallel experiments with the hydroquinone and caustic soda developer with almost exactly similar results. We found that a formula in very general use, in which the caustic soda and sulphite are dissolved together while the hydroquinone is preserved with metabisulphite, had a useful life of less than three months. It began to work slowly and to give stain after about two months. The sulphite in the alkali solution lost its stain-preventing properties, the alkali deteriorated, and the hydroquinone solution became coloured. A fresh alkali and sulphite solution then remedied matters, but before very long the hydroquinone solution became so deeply coloured and lost so much power as to be useless. We transferred the sulphite to the hydroquinone bottle and modified the formula slightly, the result being a solution that keeps water-white for many months. The caustic soda solution, of course, still deteriorates, and must be occasionally re-made; but otherwise the developer keeps perfectly. It, however, has precisely the same peculiarity as the pyro-soda formula we gave some time ago, in that it works very much more slowly than the old formula at its best. The time of development has to be doubled, and the cause of this effect of restraint is as much a mystery as it is in the case of the pyro-soda developer. A curious feature of hydroquinone is that there is generally a little uncertainty as to what the hydroquinone solution is going to do. Old and well-tried formula sometimes give a solution that turns nearly black in a few days, though in the ordinary way they keep fairly well.

#### Catatype Printing.

If we may judge from the report of a lecture given before a Berlin photographic society, the method of chemical contact printing, invented by Professor Oswald and Dr. Gros some four years ago, has been brought to a practicable commercial stage. In the hands of the Neue Photographische Gesellschaft it has been developed from the laboratory stage to which its inventors brought it, and has now approached the point at which it may be turned over to persons who do not possess the chemical skill of a University professor. We gather that the bromide negative from which the copy is taken by contact only, without exposure to light, has to be on a special paper, and to have special solutions for its development and fixation. From this negative, contact of about two minutes' duration serves to impress on the catatype paper an invisible image formed in hydrogen peroxide, with which substance, in a special form of solution, the negative is saturated. A brown image, convertible into others of different colours, is produced by treating the latent image with a manganate solution, or, as an alternative, the peroxide representing the print may be employed to impart insolubility to bichromated gelatine,

and thus be the medium for the making of a pigment print. We shall await with interest the appearance of this process upon the British market. It is sufficiently different from the now popular ozobrome process of "lightless printing" to create as much interest as the latter, though it can hardly hope to exceed the directness and beauty of Mr. Manly's method.

#### A Colour Process.

We should like to know more of Professor Francis Lyonde, "the eminent French Photographer," who we see has so far descended from his eminence to allow a firm in the United States to sell directions and materials of a process for producing a photograph in colours. From the advertisement of the firm, the Buffalo Distributing Agency, of 17½, East Swan Street, Buffalo, we learn that they are "now able to offer to those desiring to learn the art, full instructions, including material, set of samples, etc., for the nominal price \$5.00." We do not profess any knowledge of the advertiser's process, yet we are of the opinion that twenty shillings is a good deal of money for the materials offered, in view of the fact that "Professor Lyonde's" reputation as a photographer appears to be considerably less in London than it is stated to be in Buffalo, U.S.A.

#### Proposed Changes in Copyright Law.

The deliberations of the Artistic Copyright Society, which for some years past has had in hand the drafting of a Bill amending the present law of copyright, have lately resulted in a revision of the draft which was published in our issue of January 19 last year, and in regard to which we could take no other course than to point out its many inconsistencies, and its inequity in legislating for one class at the expense of another. The later draft is more comprehensible, but no less unjust to photographers. The most obvious alteration is the removal of Clause 7 from the previous issue and the insertion of a clause in Part II. which still more favours the publisher at the expense of the illustrator. We had better place the two side by side:—

Removed January, 1906.

In the case of an artist sending a sketch or drawing to an editor for publication the act of sending this sketch or drawing and its acceptance and payment therefor is to be taken as conveying the copyright from the artist to the proprietor of the publication.

Inserted January, 1907.

If the author shall send his sketch, drawing, or photograph to an editor or publisher of any publication unaccompanied by any prohibition or restriction against the reproduction thereof or by any indication that he does not intend the work to be reproduced without further negotiation, the reproduction thereof by such editor or publisher in his publication shall not be deemed any infringement of copyright of such author or his assigns in such sketch, drawing, or photograph. If no price be named by the author for the use of the sketch, drawing, or photograph, the author or his assigns shall be paid by the user according to the scale of payment of the publication for such work.

We cannot interpret this clause as anything else than the legalisation of piracy on the part of producers of illustrated journals. For what—do the framers of the Bill imagine?—does a man send sketches or photographs to a journal but to sell a limited right to reproduce? This clause makes the title of the Bill, "The Consolidation and Amendment of the Law of Copyright," a distinctly humorous phrase. No alteration from the previous draft is observable respecting the marking of prints necessary to sustain copyright in photographs and in copies of works of fine art. The proposition that any person coming into possession of a copyright photograph not so marked is there-



exempt from action for infringing it, obviously opens the door to all manner of piracy; and, as shown by the working of the same provision in America, virtually destroys the photographer's copyright in his productions.

#### Poison Statistics.

The returns of the Registrar General in reference to deaths by poison in the year 1905 cast some interesting light on the difficulties which attend the restriction in the facilities for obtaining poisonous substances. The scheduling of tartar emetic, anhydrous ergot of rye, and savin has doubtless been the cause of the total absence of these drugs from the list of fatalities, but, on the other hand, carbolic acid has been scarcely affected by the scheduling of it in 1900. Out of 10 deaths, a total of 379 are due to mineral acids, oxalic acid, carbolic acid, and potassium cyanide, a fact which shows the inefficacy of scheduling as a means of preventing poisons from coming into the hands of would-be suicides.

#### Chlorate or Flashlight Powders.

A note by Dr. R. Gartenmeister in the "Chemiker Zeitung" draws attention to a point in the chemical control of mixtures of chlorate and combustible bodies which may well be recorded for the benefit of those employing the former substance in the manufacture of flashlight powders. In the case of several explosive mixtures where the explosion had taken place spontaneously, it was found that the chlorate which entered into the composition probably contained hypo-chlorite or some other lower compound of chlorine, capable of easily disengaging a lower oxide of chlorine. The presence of this impurity was found by adding to the cold solution of the chlorate a little solution of starch and potassium iodide. The iodine liberated by the oxide of chlorine showed its presence by the immediate darkening of the starch from the formation of iodide of starch. A faint reaction of the same kind was observable in other samples of chlorate in which there was no complaint, but the phenomenon was probably due to the presence of traces of iodic acid in the potassium iodide used for the test. The behaviour of the chlorate does not seem to be absolutely identified with its response to this iodide test, but the latter may nevertheless be borne in mind by those who have occasion, as in flashlight powder manufacture, where the conditions are most of the same, to employ the substance in admixture with a combustible body.

#### PHOTOGRAPHERS AND THE WORKMEN'S COMPENSATION ACT, 1906.

On July 1 of this year the Workmen's Compensation Act, 1906, becomes operative, and the changes which it will involve are of such a serious nature that it is essential for every employer to consider his position. Whether the legislators who are responsible for the same actually realised the effects of the Act may be left an open question. We need not discuss that, but attempt to point out some of the possible results.

By this Act the word "workman" is defined in the most general sense; liberal, not in its political significance, but as inclusive of anyone who works. It includes all employees of every description, whether clerks, domestic servants, commercial travellers, shop assistants, tutors, verners, etc., who may have entered into a contract of service or apprenticeship with an employer, whether orally or in writing, provided that the remuneration does not exceed £250 per annum. It includes also those who may only work part time, that is to say, an employee who may divide his time between two employers is by this Act a workman of both. Those who are not included in

the benefits of the Act are such as are casually employed and those who are employed otherwise than for the employer's trade or business. Exactly what the meaning of this is cannot now be stated. It may apply to charwomen, window cleaners, and so on, but until two or three actions have been fought and rulings given on this point it is a dubious one. Out-workers, that is, persons to whom work may be given to do, finish, or ornament at home cannot claim, when the work is done on premises which are not under the control of the person who gives out the materials, etc. Neither can any relative of an employer, if living in his house, claim compensation.

From the above will be seen how extremely comprehensive the Act is, and also, from what follows, that compensation has to be paid, not only to an injured employee, but in the case of death to the deceased's dependants.

An employer is liable for compensation for personal injury caused by accident arising out of or in the course of the employment. But he is not liable unless the employee is disabled from earning full wages for at least one week. Nor is the employer liable if the injury is caused by serious and wilful misconduct on the part of the employee, unless it results in death or total disablement. Should the injury be caused by the wilful act or personal negligence of an employer or of a person, such as a manager, for whom he is responsible, then the employee may claim under this Act or proceed independently. Under the Act the compensation is limited; otherwise it is not.

When an accident occurs notice must be served upon the employer as soon as possible, and claims for compensation must be made within six months of the accident or death.

If the employee leaves dependants the compensation payable if they are wholly dependent on the deceased's earnings shall be calculated on the previous three years' earnings of the deceased, or if the latter had not been for three years in the employer's service at the time of his death, then it shall be one hundred and fifty-six times the average weekly earnings, provided only that the sum shall not exceed £300 nor be less than £150. Partial dependants are to be compensated by a reasonable sum proportionate to the dependant's loss. Should there be no dependants then all reasonable expenses of medical attendance and burial not exceeding £10 must be paid.

"Dependants" is again most liberally defined by this Act. It includes wife or husband, father, mother, grandfather, grandmother, stepfather, stepmother, son, daughter, grandson, granddaughter, stepson, stepdaughter, brother, sister, half-brother, half-sister, or illegitimate children, and it also applies to the parent or grandparent of an illegitimate child.

Total or partial incapacity is to be compensated by weekly payments not exceeding one-half the employee's average wages during the previous twelve months, if he has been that time in the employer's service, or if not, for the time that he has been in his service. The weekly compensation must not exceed £1. Should the incapacity last less than two weeks, no compensation need be paid for the first week. A minor is entitled to the whole of his average weekly earnings, but the weekly payment need not exceed 10s.

The amount earned by an employee is the total amount of his wages for the previous twelve months; but when he has not been in one employ for twelve months, or if he has been only in casual employ, or it is impracticable for any other reason to ascertain his average weekly earnings, then those of another employee of the same grade, either in the particular employer's service, or the earnings of a person in the same grade employed in the same work in the same district shall be taken as the basis of the award.

Further, if an employee has been but a short time in the service of an employer then his average earnings under previous service shall be considered.

An employee working for two firms can claim from either, as compensation for injury, half his total wages. For instance, A works for B from 9 a.m. to 5 p.m. and receives £2 per week; from 6 p.m. to 10 p.m. he works for C and receives 15s. per week; if then he receives an injury whilst working for C, the amount of compensation shall be  $40s. + 15s. \div 2 = 27s. 6d.$ , which he can claim from C.

Any contract or understanding, written or unwritten, between employer and employee to the effect that the latter shall not be entitled to the benefit of the Act is contrary to law and void. This obviously is aimed at an employer who might, when an action or claim was made against him by a deceased employee's dependants, produce a written agreement to prove that the deceased contracted out of the Act.

Should any person undertake a contract for work and lease it out to another person and an accident occur to the latter's employee, then the first person is liable to claim for compensation. As an example, let us take the case of a firm of photographers, X., who undertake a contract for doing the whole of the photographic work of a large engineering firm in London, for instance, and in the course of that contract are required to obtain a photograph of some particular subject at Edinburgh. By the terms of the contract it would not pay X. to send an operator specially to Edinburgh, so they employ a local photographer, Y., to do the work. Y. sends an operator who is injured, then the claim for compensation can be made against X., and the only satisfaction that he has is that he may claim indemnification from Y. The employee can claim against either X. or Y., not from both, and supposing that X. is a wealthy man, and Y. but a man of straw, there is not much doubt

as to what would happen, and in either case X. is in an unhappy position.

Should an accident happen to an employee through the wilful neglect or carelessness of a third party, who is not the employer, then the claim would lie against this third party, and the employer can claim indemnification from him. This obviously means that if a photographer sent an operator to take a photograph at a third person's premises and the operator was killed or injured through the wilful neglect or carelessness of this third party, then the latter is liable to pay compensation, but not both compensation and damages.

Any weekly payment arising under this Act may be reconsidered and ended, diminished, or increased on application by either party, and such weekly payment may be compounded by payment of a lump sum, which shall be sufficient to purchase an annuity from the National Debt Commissioners, through the Post Office Savings Bank equal to three-fourths of the annual value of the weekly payments. So thoroughly have the legislators responsible for this Act safeguarded this compensation, that it is impossible to assign, attach, or charge it, neither can it pass to any other person, nor can any charge be set against it.

We have not thought it necessary to deal with the methods of recovering compensation, although these would be, of course, of considerable interest to the very large body of employees of all classes who are readers of our paper. We trust, however, that we have said enough to convince every employer that it is at once his bounden duty to immediately insure himself against all possible claims under this Act. Many insurance offices have already fixed their tariff of premiums, and for the sake of the few shilling required it is not worth while risking a possible claim which may hang for years round the neck or lead to a serious drain on one's resources.

## EXPERIMENTS ON THE NATURE OF THE LATENT IMAGE AND OF THE NEGATIVE IMAGE.

THE following article from "Photographische Korrespondenz" supplies an addition to the proofs of the compound nature of the latent image. Incidentally, Dr. Homolka's experiments (permanent indigo compounds) on bromide paper.

DURING the last two decades various theories have been advanced as to the nature of the latent image; they may, however, be arranged in two groups: (1) Those which ascribe the formation of the latent image to a chemical change in the silver bromide molecule during exposure—the sub-halide and silver grain theory; and (2) those who deny any chemical change, and assume a structural alteration structure theory, photo-electric ionisation without reduction, etc. Each view has doubtless much to recommend it; neither appears to me to be convincing.

The present state of our knowledge as to the nature of the developed negative image is, however, much clearer, and Lippocramer has proved that the developed negative image is not of a homogeneous nature, but composed of two substances, of which one is most probably metallic silver, the other probably a silver compound.<sup>1</sup>

As regards the chemical development of the latent image with organic developers, Eder says:<sup>2</sup> "The 'chemical' development is characterised by a reduction process, in which exposed silver halide is converted into metallic silver; the unexposed

is, however, left intact. The number of organic compounds which possess this action is doubtless very considerable. . . .

This extract is important as regards the view which generally exists to-day as to the chemical development of the latent image into a negative. It is assumed that only certain organic compounds of special constitution are capable of reducing the latent image to a visible negative, relatively that the substance of the latent image can only exert an oxidising action on the compounds. The question whether the substance of the latent image is an oxidiser in the wider sense of the word, that is to say, whether it can oxidise not only the so-called developers but also other organic compounds, has, according to my thinking, never yet been investigated, although the answer would doubtless be of considerable importance, not only to the theory of the latent image, but also for that of the negative image. I have therefore approached this question from the experimental side.

Organic chemistry of the present day gives us numerous compounds which are more or less easily oxidised; yet the great assortment is considerably narrowed down by certain requirements which must be given to those compounds chosen for the work in question. The product of oxidation must first be chosen so that it—especially under the peculiarly difficult

<sup>1</sup> Phot. Korr., 1905, p. 319.

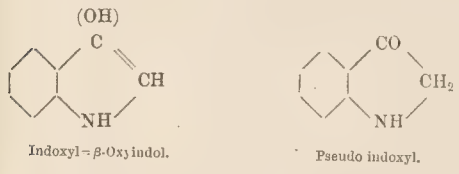
<sup>2</sup> Handbuch der Photographie, 5th edit., Vol. III, p. 289.



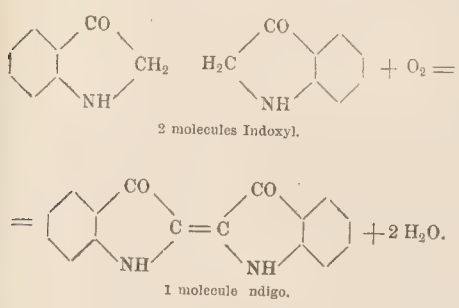
perimental conditions—can be easily and certainly observed ;  
at is to say, it must be coloured. There are a great number  
organic compounds, themselves colourless or nearly so, which  
re strikingly coloured oxidation products. Notable are the  
called leuco-bases of the diphenylmethane, triphenylmethane,  
diphenylamine series, which, by oxidation, are converted  
to the well-known brilliant aniline dyes. Simple con-  
sideration of these will at once teach us that they are unsuitable  
for exact experiments in the desired direction ; they all contain  
one or more amino or oxy groups, or the two together, in  
combination with aromatic benzene nuclei, and may therefore  
be suspected of being capable of acting as photographic  
"developers" in the usual sense. In the case of a few—e.g.,  
leucindamine and leucoindophenole—ordinary developing  
experiments can be proved without difficulty. The use of these  
substances might, therefore, easily lead to fallacious conclu-  
sions. Finally, it is desirable, if not absolutely essential, that  
the coloured oxidation product of the substance used should  
be insoluble in water, and, therefore, remain at the place  
of its formation ; in any case, the observations would be made  
much easier by this property.

With these facts in view, I have examined a great number  
of organic compounds as to their behaviour towards the latent  
image, and finally found two which satisfy the stated require-  
ments. These are indoxyl and thioindoxyl ; the latter is closely  
related to the former in chemical behaviour.

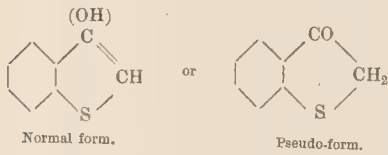
Indoxyl, which is the intermediate product in the production  
of indigo from indol, exists in two forms—in the normal form  
β-indoxyl, and in the so-called ketonic or pseudo-form :



It dissolves freely in water with a faint yellowish colour and  
greenish fluorescence, and this solution is completely and  
instantaneously oxidised to indigo by the very mildest oxidiser,  
according to the equation :

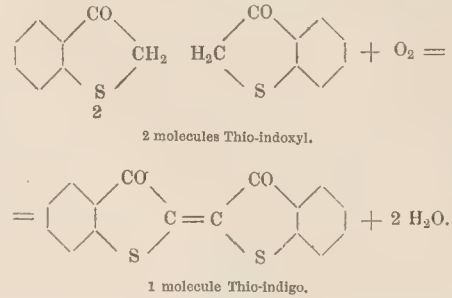


The so-called thioindoxyl :



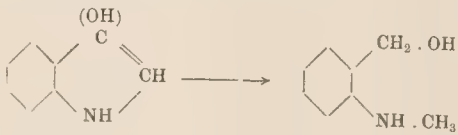
The pseudo-form, is slightly soluble in water, but dissolves easily

in dilute alkalis. In these solutions it is converted by oxidis-  
ing agents into red thio-indigo, according to the equation :

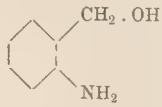


Experiments have now proved that indoxyl, as well as thio-  
indoxyl, is oxidised by the substance of the latent image or  
a certain part of the same, to the corresponding indigo dyes.

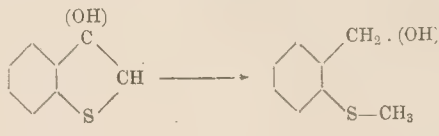
Before any theoretical importance is attributed to this fact,  
one must try whether the two indoxyls cannot act as developers  
in the ordinary sense. This question can be definitely denied  
according to the present state of our knowledge of the con-  
nection between chemical constitution and developing power.  
At any rate, one might imagine that indoxyl had developing  
properties, for one can imagine—at least, for the meantime,  
only on paper—that it could be split up into a methyl-o-amino  
benzyl alcohol :



which could always act as a developer. The simple o-amino-  
benzyl alcohol :



possesses, as I have proved experimentally, no developing  
power ; therefore, such is not to be expected with methyl-o-  
aminobenzyl alcohol. The behaviour with thio-indoxyl is much  
more favourable ; this can—also only on paper—be thought to be  
resolved into the following substance :



which lacks every sign of a developer.

The latent images necessary for this experiment were obtained  
by exposing gelatino-bromide plates with 3 per cent. of silver  
iodide, behind a Chapman-Jones photometer scale to a standard  
candle at 305 mm. distance for thirty seconds. After develop-  
ment with amidol, the plates showed a sensitiveness of 22 deg.,  
corresponding to 12 deg. Scheiner.

**The Action of Indoxyl and Thio-indoxyl on the Latent Image.**

If an exposed plate is placed in about a 2 per cent. aqueous  
solution of indoxyl, a visible image appears. An addition  
of sodium sulphite to the developer accelerates development ;  
potassium bromide, even when added in considerable quantities,

does not slow it, and keeps the plates very clean. The following developer is therefore recommended:—

Sodium sulphite, 6 per cent. sol. ....	100 ccs.
Potassium bromide .....	5 gms.
Indoxyl .....	15-20 gms.
Water .....	1000 ccs.

In this the plate will be thoroughly developed in from five to eight minutes; it should then be rinsed with water and fixed in the ordinary way in an acid fixing bath.

The same phenomena appear if thio-indoxyl is used instead of indoxyl.

The following developer should be used:—

Normal soda lye* .....	100 ccs.
Sodium sulphite, 6 per cent. sol. ....	100 ccs.
Thio-indoxyl .....	15 gms.
Water .....	1000 ccs.

### Examination of the Image Developed with Indoxyl and Thio-indoxyl.

Examined by daylight, the image developed with indoxyl appears green, that with thio-indoxyl orange-yellow. Both show a strong metallic lustre by reflected light. Superficial observation at once shows that the images are not of a homogeneous nature, but consist of indigo or thio-indigo and metallic silver. Both images—the “indigo image” and the “silver image”—can be separated one from the other without difficulty.

\* Strong solution of caustic soda.

If the plate developed with indoxyl, after washing, fixing, and hardening with alum, is transferred to a solution of potassium cyanide, the silver image will dissolve, whilst the indigo image which is now pure blue, remains behind. In the same way there can be obtained from the plate developed with thio-indoxyl the red thio-indigo image. If, on the other hand, plates are immersed in a weak solution—3 to 5 per cent.—sodium hydrosulphite ( $\text{Na}_2\text{S}_2\text{O}_4$ ), the indigo image is reduced and goes into solution as colourless indigo white, leaving the silver image behind. The latter appears brown by transmitted light; by reflected light, white, with metallic lustre similar to the physically developed image on a wet collodion plate. From the used hydrosulphite solution blue flocks of indigo or red flocks of thio-indigo separate out on exposure to the air.

The plates developed with these two substances can be bleached with mercuric chloride in the ordinary way. Naturally, only the silver image is bleached; the indigo or thio-indigo images remain unchanged. If the bleached plate is placed in sulphite or ammonia solution, the silver image is blackened in the usual way.

Solarisation phenomena can be carried out with the indoxyl developers; the results are far more certain than when an ordinary developer is used. Excellent duplicate negatives can be prepared by this method.

Both for transparencies and bromide paper beautiful results can be obtained by means of these developers; the method is obvious from what has been said above.

DR. B. HOMOLKA.

## THE EXHAUSTION OF THE FIXING BATH.

WHEN a number of plates are successively fixed in a solution of hypo, a time comes when, before complete exhaustion of the solvent power of the bath, it is advisable to reject the solution, because the plates fixed under these conditions may subsequently, if insufficiently washed, show various changes, and particularly a brown stain.

The question is to know within what limits the bath should be used in order to avoid these changes. Gaedicke attempted to elucidate this point by an interesting study,<sup>1</sup> starting from the principle that there was identity between the discoloration of badly washed plates which had been fixed in a partially exhausted bath, and the browning very rapidly obtained on exposing, to air and light, paper impregnated with hypo solution with a sufficient addition of silver nitrate. By determining experimentally the minimum quantity of silver nitrate which must be added to a given solution of hypo to cause the commencement of yellowing and converting these results into silver bromide, Gaedicke deduced the limit of the use of a fixing bath.

Assuming that one admits that the same double salts are formed when sodium hyposulphite acts with silver nitrate as with silver bromide, the conclusions drawn by Gaedicke seem rational, but the principles on which the experiments were based not appearing to us to be quite precise, we proceeded to verify them.

For this reason we have repeated Gaedicke's experiments, and substitute bromide for nitrate of silver—that is to say, we have worked under conditions practically identical with those that occur in practice, and have also investigated the influence of the concentration of the fixing bath, and that of the various additions, such as sodium bisulphite and alum.

In all our experiments we have added increasing weights of silver bromide, well washed and pure and prepared in the dark to the same volume of solution of hypo.

A first series of experiments were made with solutions of hypo

from 5 to 45 per cent., so as to determine the influence of the strength of the hypo solutions on the use of the bath.

In a second series of experiments we added to a normal solution of hypo, 15 per cent., the usual quantities of sodium bisulphite and chrome alum, and we have tested whether these additions exert any action on the phenomena.

For each test a drop of the solution was placed on filtering paper and then exposed to the air and light.

We have determined in every case the maximum weight of silver bromide which can be dissolved in each solution of hypo without producing the brown discoloration.

The results of our tests are given in the following tables:—

A.—The Effect of the Strength of the Hypo Solution.

Strength of the hypo solution.	Weight of silver bromide which can be dissolved in 100 ccs. of the solution.	Maximum weight of silver bromide which can be dissolved without causing subsequent yellowing of the negative.	Ratio between the maximum weight of silver bromide dissolved and that which will cause subsequent yellowing.	Weight of silver bromide calculated as necessary to form the compound $\text{Na}_2\text{S}_2\text{O}_3 + \text{Ag}_2\text{S}_2\text{O}_7$ .	Ratio between the maximum weight of silver bromide dissolved and the weight which corresponds to the compound.
5 per cent.	2 gms.	1.25 gms.	62 p.c.	3.8 gms.	33 per cent.
15 „	6.3 „	3.8 „	60 „	11.4 „	33 „
45 „	20.5 „	5.6 „	24 „	34.2 „	15 „

B.—Action of Sodium Bisulphite with and without Chrome Alum

15 per cent. hypo + 1.5 per cent. acid bisulphite	6.3 gms.	3.8 gms.	60 p.c.	11.4 gms.	33 per cent.
15 per cent. hypo + 1.5 per cent. bisulphite	6.1 „	1.65 „	27 „	11.4 „	14.5 „
15 per cent. hypo + 0.5 per cent. chrome alum	5.9 „	2.2 „	38 „	11.4 „	20 „

<sup>1</sup> “Eder's Jahrbuch,” 1906, p. 64.



These results, compared with Gaedicke's, proved that it is possible to add considerably more silver bromide than silver nitrate to a solution of hypo. Gaedicke found, in fact, that in order to entirely avoid subsequent yellowing, a 15 per cent. solution of hypo would not stand more than one-tenth of the total weight of silver nitrate without obtaining a precipitate. According to Table A, it will be seen that to a 15 per cent. solution of hypo no less than 60 per cent. of silver bromide corresponds to saturation.

It will be seen, moreover, that all conditions being equal, dilute solutions permit one to use the hypo solution more, and at for the same concentration the solutions acidified with sulphite cannot be exhausted so completely as those not acidified. The proportion of hypo that can be used is reduced in this case from 60 to 27 per cent., but the latter figure is raised to 38 per cent. by the addition of chrome alum.

If one calculates from these results the number of 9 x 12 cm. plates that it is possible to fix, without having to fear subsequent yellowing, with a litre of 15 per cent. solution of hypo without the addition of bisulphite and chrome alum, we shall obtain the following results, assuming that each 9 x 12 cm. plate gives to the fixing bath about 0.3 gms. of silver bromide:—For 1 litre of 15 per cent. solution of hypo 100 plates 9 x 12 cm.<sup>2</sup>

For the litre of 15 per cent. hypo plus 1.5 per cent. of sodium sulphite lye about 50 plates 9 by 12 cm.

For 1 litre of 15 per cent. hypo plus 1.5 per cent. bisulphite plus 5 per cent. chrome alum about 75 plates 9 by 12 cm.

In comparing the weights of silver bromide necessary to saturate the solutions of hypo with those which correspond to the formulæ of the double salts which are supposed to be formed on fixing, it will be found that the quantities of the first are considerably lower than the second.<sup>3</sup>

One hundred 9 by 12 c.m. plates corresponds practically to 1678 sq. inches.—"B.J."

It is admitted that the following three compounds may be formed in fixing a plate when using increasingly small quantities of hypo in proportion to the silver salt: 1. Double hyposulphite of soda and silver  $\text{Ag}_2\text{Na}_4(\text{S}_2\text{O}_3)_3$  with three molecules of hyposulphite of soda to two molecules of silver bromide. 2. Double hyposulphite of sodium and silver  $\text{Ag}_2\text{Na}_2(\text{S}_2\text{O}_3)_2$  with two molecules of hypo to two

Thus 100 cc.s of 15 per cent. solution of hypo, that is, 15 gms. of the crystallised salt, dissolve 6.3 gms. of silver bromide. This saturated solution, being made in the presence of an excess of silver salt, ought to form  $\text{Ag}_2\text{Na}_2\text{S}_4\text{O}_6$ . But this salt theoretically requires 11.4 gms. of silver bromide for 15 gms. of hypo, or almost double the quantity corresponding to saturation. This saturation takes place, moreover, without the formation of a white precipitate insoluble in water, easily decomposable into silver sulphide, which characterises the precipitated salt  $\text{Ag}_2\text{Na}_2\text{S}_4\text{O}_6$ , which is obtained on adding silver nitrate to sodium hyposulphite.

The relative weights of silver bromide and sodium hyposulphite in the solutions saturated with silver bromide to any of the formulæ for the substances which have been so far considered to be formed in the solution.

The reactions which are produced in the fixation of bromide of silver plates do not appear to take place as is generally indicated. This question we propose to study in a subsequent research.

### Practical Conclusions.

To avoid subsequent yellowing of negatives on gelatino-bromide plates, it is advisable:—

1. Not to fix more than one hundred 9 x 12 cm. plates in 1 litre of 15 per cent. solution of hypo.

2. Not to fix more than fifty plates in a 15 per cent. fixing bath plus 1.5 per cent. of bisulphite.

3. Not to fix more than seventy-five plates in a 15 per cent. fixing bath plus 1.5 per cent. bisulphite plus 0.5 per cent. chrome alum.

4. One can practically recognise the moment when the fixing bath should be thrown away by placing a drop of the bath on paper and seeing whether the spot turns brown when it is exposed for some time to light and air.

A. AND L. LUMIERE AND SEYEWETZ.

molecules of bromide. 3 Silver hyposulphite  $\text{Ag}_2\text{S}_2\text{O}_3$  with a small quantity of hypo for an excess of silver salt. The first salt is white, insoluble in water, soluble in hypo. The second is white insoluble in water and hypo. It slowly decomposes in light giving sulphide of silver. Finally the third salt is decomposed almost as soon as formed, and gives silver sulphide.

## DIRECT CARBON ENLARGEMENTS AND OZOBROME.

In our issue for April 20, 1906, page 305, we published an article by Dr. Hiecke, of Vienna, describing his method of making direct enlargements on gum-bichromate paper. In the current number of the "Photographische Mitteilungen" Herr Hans Schmidt describes the use of a new paper by means of which enlargements can be made direct on to carbon tissue.

The author points out that the majority of work at the present time is, certainly for outdoor exposures, done on small plates; and whilst these small sizes are very convenient, the prints are too small for decorative purposes, therefore enlarging comes more and more to the front.

The two methods most usually adopted to obtain large prints are direct enlarging on to bromide paper, and indirect enlarging, in which a positive is first made by contact, and then this is enlarged on to a dry plate or negative paper, and the large prints obtained then by contact printing.

Enlargements in carbon have nearly always been made by the indirect method, and if all the delicacy of the carbon process is required it is essential to use glass negatives. If there was a simple method of enlarging direct on to carbon tissue the enlarged negative would be done away with, and thus considerable trouble and cost be saved.

This has now become possible by the two following processes:

### Carbon Enlargements with Silver Bromide Pigment Paper.

As in the ordinary process of bromide enlarging the paper used for this process must be manipulated in the dark room. Any daylight or artificial-light enlarging apparatus can be used, and the focussing, etc., is as usual.

The light-sensitive film is, as the name implies, nothing more than an intimate mixture of the two films of silver bromide and carbon papers.\* The silver bromide pigment paper has the dark appearance of ordinary carbon tissue, and the light-sensitiveness of a bromide, and this explains the necessity of manipulating the same in the dark room.

The method of working is as follows:—The exposed paper is immersed in an iron developer, without preliminary soaking in water, and with correct exposure development will be complete in about five minutes. With the lighter-coloured tissues the progress of development can be easily seen, especially when a bright red or deep yellow dark-room lamp is used. Develop-

\* Compare Koppmann's silver bromide carbon process in Vogel's "Das Pigmentverfahren," 5th edit., p. 85. In our issue for November 25th, 1904, will be found Riehensahn and Posselt's patent for a similar tissue, and an addition thereto is recorded in our issue for May 12th, 1905, p. 367.—EDS. "B.J."

ment may, however, be done according to time if careful attention is paid to the constant composition and temperature of the developer.

The ferrous oxalate developer should alone be used, because other developers always more or less tan the gelatine, and therefore make the subsequent development with warm water impossible. When development is complete, the paper, without washing, is immersed in water acidulated with acetic acid for about half a minute, and then washed for two or three minutes in running water.

The washed paper is then immersed in the following bath, which can be repeatedly used, for three minutes:—

Potassium bichromate, 4 per cent. solution ..... 100 parts  
Alum, 10 per cent. solution ..... 5 "

It is then washed for about three minutes in running water.

By treating it with the bichromate bath, the following change takes place:—The silver image produced by development acts on the bichromate and the new compounds formed tan the gelatine in proportion to the amount of silver present. If the paper is then placed in warm water the unhardened gelatine dissolves, and with it the imbedded pigment is carried away. In order that there may be no loss of fine details, the silver bromide pigment paper must be developed on a transfer paper as in the ordinary carbon process. Either single or double transfer may be used. If single transfer is used the print will be laterally reversed of course, but this can be put right in the enlarging of the negative.

### THE OZOBROME PROCESS.

As the principles and practice of the Ozobrome process are no doubt article by some extracts from a new edition of the instructions for additional hints thus published will be appreciated by those who have

Ordinary acid alum fixing baths for the bromide or gaslight print are not recommended, but a very useful formula for chrome alum fixing and hardening bath is given below.

There are two methods of bringing the plaster and print into contact, and it is important to bear in mind that any excess of pigments solution beyond that which has been absorbed by the gelatine film of the plaster might injure the delicate tones of the resulting picture. It is, therefore, necessary to remove or disperse any superfluous solution remaining on the surface of the plaster before it is brought into contact with the print. This is accomplished by drawing the soaked plaster once or twice along the surface of clean cold water.

#### Squeegeeing for Small Work.

Lift the soaked plaster from the pigments bath, allowing the excess of solution to drain off. Now draw the plaster, face downwards, across a surface of cold water (the water in which the bromide print is lying will do) and, after draining, bring it at once into contact with the print under the surface of the water, then lift the two papers, clinging together, out of the dish and squeegee them into contact upon some smooth hard surface, such as a sheet of plate glass. Any adjustment of the papers should be done immediately after removal from the water.

#### Possible Difficulties.

*Loss of Detail in High Lights, Patchiness in Skies and Dark Marks.*—If the soaked plaster is taken direct from the pigments bath and brought immediately into contact with the bromide print, the excess of solution on the surface of the pigment plaster will most probably act upon the image before the film of the pigment plaster can be brought into close contact. This gives rise to patchiness, dark marks and loss of delicate detail. Always remove the superfluous pigments solution by drawing the gelatine surface of the pigment plaster over clean water before bringing it into contact with the bromide print.

Another possible cause of general softness of the gelatine film and consequent washing away of high-lights, may be that the working pigments solution has become contaminated with gelatine dissolved out of the plaster. In this case the addition of alum is necessary, thus:—Add 15 to 20 minims of a 5 per cent. solution of ordinary

The prints after development have a somewhat milky appearance, which is caused by the imbedded silver bromide. To remove this the print should be immersed in a 1 : 5 hypo solution for about five minutes. This gives the prints great brilliancy and a rich colour. After this the print can be brought out into full daylight; weak daylight or lamplight can, however, be used after the chromate bath has been applied. Only the first manipulations must be done by dark-room illumination.

When the pigment print is thoroughly fixed it should be washed in cold water, hardened, and dried. It is then ready for mounting and retouching.

The carbon print thus obtained is quite permanent, notwithstanding the metallic silver imbedded in it. If, however, it is considered desirable to remove this silver image, the ordinary hypo and ferricyanide reducer should be used instead of the fixing bath. The print naturally becomes brighter than as the dark silver image is dissolved. This is one way of making a picture which is too dark somewhat brighter. Conversely, by intensifying the silver, a print that is too light may be made darker.

It is obvious that contact prints can also be made by contact printing. The process is precisely the same as outlined above, with the advantage that carbon prints can be quickly prepared by artificial light. For contact printing the negatives should have a safe edge, and in order to avoid laterally reversed prints film negatives should be used and printed with the celluloid next the tissue; exposure can be made to weak day or lamplight.

familiar to our readers, we may appropriately supplement the above the Ozobrome process issued by the Ozotype Company. The additional hints thus published will be appreciated by those who have

alum to each ounce of concentrated pigments solution contained in the working bath. An excess of alum gives flat pictures.

N.B.—It is strongly recommended to add the above quantity of alum to a pigments bath that has been used for about eight whole plate pictures, or their equivalent in surface.

*Pictures are Flat and Difficult to Develop.*—This trouble may arise from hypo remaining in the bromide print. One remedy is to soften the gelatine so that the development may be easier. This can be effected by adding acetic acid to the working pigments bath in the proportion of two to three drops of glacial acetic acid to each ounce of concentrated solution contained in the working bath. A difficulty in development may be caused by keeping the plaster too long in contact with the print or transfer paper.

*Frilling.*—The edges of the plaster frill up during development. This may be caused by using a plaster smaller than the bromide picture. See that the plaster completely covers the picture with a margin to spare. No safe edge is required when the above precaution is taken. All the Ozotype Company's pigment plasters are cut to allow such a margin.

Frilling may also be occasioned by the plaster being saturated with water when transferring, in which case it fails to adhere firmly to the transfer paper. With very rough papers, lack of pressure after transferring, or allowing insufficient time between transferring and developing may give rise to the same trouble.

If the plaster backing is stripped before the gelatine commences to dissolve at the edges, frilling at the corner may be experienced.

*Specks and Airbells.*—In all stages of the process look out for airbells and remove them. Bear in mind that all surfaces should be brought together either under water or with a layer of water between them, and that the water itself should be free from airbells. The critical moment to look for airbells is after stripping the plaster from the bromide print. The transfer paper lying in the same dish is very likely to catch a crop of small airbells, which, of course, must be removed before bringing the papers into contact. It is a good plan to strip the plaster in a separate dish of cold water.

#### A Fixing Bath for Bromide Originals of Ozobrome

Should the plaster, through loss of moisture in dry weather, assume



obstinate curl, pass a sponge (dipped in cold water and squeezed) over the gelatine surface, and after a minute or two it will become flat and pliable. In this case the plaster should remain in the mounting bath a little longer time.

Thick and thin transfer papers require to be soaked 10 to 20 minutes before the application of the pigment plaster.

A hardening and fixing bath combined is very convenient when using bromides for ozobromes, and the following bath has been found to work very satisfactorily.

#### HARDENING AND FIXING BATH.

Water .....	80 ozs.
Hypo .....	12 ozs.
Potass metabisulphite .....	1 oz.
Chrome alum.....	1 oz.

## MODERN METHODS OF PHOTOGRAPHIC MOUNTING.

(A paper read before the Sutton Photographic Club.)

THROUGH the remarks which follow I have mainly in mind the requirements of the ordinary amateur who occasionally wishes to show his prints in public at exhibitions, to hang them on his walls, to send them in to competitions, some of my observations will, I venture to think, be not unhelpful to those professionals who realise that they may at times do better than abandon their prints to the tender mercies of the "stock" mount.

I also confine myself mainly to prints whose size and character do not demand the employment of close framing. I cannot do better to commence with than remind you of Alfred Stevens's well-known dictum: "A picture, like a pretty woman, needs ornament." The next reminder is that all present methods have been derived from previous ones. The most prevalent theory of photographic mounting was at one time what may be termed the "in-the-wall" one. According to this, the beholder was supposed to regard the print as being seen through a rectangular other shaped opening in a wall. This idea was in harmony with the "hold-the-mirror-up-to-Nature" notion of what was formerly considered first-class photography. But to-day the trend of opinion is to treat the mount as part and parcel of a decorative unit, of which the chief feature is the photograph. Before coming to some general principles which are more or less universally accepted by those who know, let me interpolate that when I first began amateur photography there were two maxims almost universally accepted: 1. That the four margins should be equal.

2. That an Indian tint plate-sunk mount should be used. Both these canons are now considered to be anathema—the mark of the ignorant.

If you want to be modern—in touch with all that is most asserted—you must, above all things, avoid the centre of a mount. If you want to indicate that you are not ignorant of the elementary principles of æstheticism, beware of using the India tint and the plate mark for photography. They are both in the nature of fads, and are, therefore, odious to all cultivated people. The plate mark is the product of printing an etched or engraved design upon plate paper. Obviously it is a meretricious pretence to mount a photograph, which is essentially not produced by pressure, as if it were a line, mezzotint, or stipple engraving. For a similar reason, the "India tint," which is associated with an engraving, becomes a fraudulent incongruity if used round a photograph. After a while, the India tint mount gave way to the plain white, the cream colour, or the "neutral" tint mount. These, although originally "safe," were considered bare and bald. Besides which, a fashion set in for "all dark" prints; pictures in which the lights are in inverse ratio to what the ordinary observer would picture as natural. At this period the mount almost completely disappeared—least, from exhibition work—prints being framed close, often in oppressively heavy dead-black mouldings.

#### Healthy Variety.

Against this funeral fancy we are now enjoying an acceptable reaction. Moreover, to a large extent, leading amateurs now display

Lumière's "Fixolene" is also strongly recommended for this purpose.

No further hardening of the bromide print is required after these baths.

On stripping the plaster from the bromide print, in Method II., black patches of unchanged silver sometimes remain in the very deep shadows. As a rule these make very little difference in the resulting picture, but they can be avoided by using a stronger pigmentsing solution.

It is most probable that the development in hot water removes all traces of the pigmentsing solution from the print, but, in order to make quite certain, a 5 per cent. alum bath may be used immediately after development.

a liberty of action which indicates that they do not, as of yore, mount their prints entirely according to the prescription of the moment, but employ taste and knowledge to do their best for each individual picture.

That this is a wise practice no one can gainsay, when it is remembered that the photographic print varies almost without limit as regards the vigour of its rendering and the colour of its image.

We can all obviously realise that a red-brown P.O.P., a black platinotype, and a sea-green carbon each ask for a different treatment as regards mount. Those who are adepts at mounting are able to distinguish just as clearly what are the precise shades of tinted papers which each particular brown, or black, or green, or red demands. For instance, there are possibly as many as twenty distinguishable browns in common use for photo-printing purposes. If it is required to fit these with surrounds which shall be absolutely harmonious, not one nor two, but maybe a dozen different tints of brown paper will be called for. The colour sense is, however, not so highly developed in most people as to make it possible for them to thus ring the changes.

But many will be well able to discriminate between such differences as the "plummy" brown often met with in gold-toned matt silver papers, the vandyke-brown seen in the carbon, and in some measure in the "Japine" paper, and the sepia-like brown which carbon and toned bromide papers at times exhibit. In so far as one can distinguish between one print and another, so may one hope to be sufficiently colour-sensitive as to make a harmonious selection of mount to go with the print. Here let me interpolate two maxims which will at least prevent the tyro from making serious blunders:—

1. The mount should be neither as dark as the print's deepest shadow nor as light as its chief high light.

2. The scale of contrast between one part of a mount and another, or between mount and frame, should be less than that which exists in the print.

EXCEPTION.—In case of some undesirable violence of black and white in a print, an excess of similar contrast between the frame and mount may be serviceable in diminishing the harshness of the print.

#### Harmony or Contrast.

Speaking broadly, there are two courses open in all mounting schemes—viz., to choose a surround which, as regards colour, forms with the print a harmony or a contrast.

A complete contrast is that afforded by the juxtaposition of complementary colours. For instance, a ruddy-brown print surrounded by a cool green would be a case in point. Obviously, the occasions when a direct contrast will be desirable are likely to be few and far between. It is then in the direction of harmony that we must turn for a satisfactory scheme of mounting.

An attribute of good mounting which should always be borne in mind is that the beholder should not be so much struck by the mount that it is found to be more attractive than the print. Indeed, it is a sound maxim that the system employed should be

so unobtrusive that one should not be able to remember what the mounting was like. This I have more than once found to be a reliable test to apply to the question. For instance, I recently wanted to refer to the method adopted by that talented amateur, Mr. Alvin L. Coburn, but although I had several times studied his prints at the Royal Photographic Society and at the Salon for journalistic purposes, I could not for the life of me remember what he had used, beyond that his works were hung *en passe partout*. On subsequently taking special notice of those at the Salon, I found that he used a sober neutral tinted paper having a tonal value about half-way between the high lights and shadows of his prints, with a binding strip, but very slightly darker. There was little or nothing to catch the eye and distract attention from the print, and, by the same mark, there was nothing to fix the pattern, colour, or depth of the mount in one's memory.

### American Mounting

So far most of my remarks have had reference to what may be termed plain or single mounting. During the past few years ornamental or multiple mounting has become very popular. The employment of multiple mounting has, so far as photography is concerned, been ascribed to the Americans. Although they did not exactly invent it, they seem to have had a chief share in bringing it into notice or favour.

Multiple mounting consists in fastening two or more sheets of variously tinted paper of different sizes one on the top of the other, so that they show two or more margins of different tints surrounding the print. These margins may vary from 1-16 in.—in which case they may be termed lines—to any width that the mount will allow. As may be imagined, they permit a great play for fancy and for taste, for which reason the multiple mounting system is favoured by the æsthetically-gifted, and disliked by those who feel that it only opens the way to them for a series of blunders.

If I were not addressing an audience highly endowed with decorative instinct I should advise them to give multiple mounting a wide berth. But as it is, inasmuch as this method not only at times helps the effectiveness of the print, but also indicates the cultured taste of the amateur, it is certainly worth while to give careful attention to this refinement of mounting.

### The Choice of Tints.

As regards the tints and surfaces of the paper employed in mounting, I can only spare time for a few words.

As a general rule, the choice of paper will, or should, be governed by the colour of the high-lights of a print, although in some cases it is necessary to give first consideration to the half-tones and shadows. For instance in mounting a print made upon cream-tinted paper it is well that the mount should contain some proportion of such a tint rather than consist of a cold blue-white or a cold grey tint. On the other hand, a pure black-and-white print—such as an amidol-developed bromide on snow-white paper—will, as a rule, not be well served by being pasted upon a cream-tinted mount.

In the not uncommon case of a brown print upon white paper, it will usually be found that a brown-hued mount which is considerably lighter and cooler in tint than the lighter shadows of the print will be the best expedient. Some amateurs have a great fondness for colour in their mounts; occasionally a tolerably bright-tinted mount if there be not too much of it may be advantageous, but its employment needs the taste of one whose colour sense is almost infallible.

In this regard it is well to bear in mind that the larger the surface of the mount, the less pronounced should be its colour and its deviation from half-tone. Hence it is that it is permissible to use a fine white or black, or even bright red, green, blue, or other coloured line surrounding and enclosing a print. Personally

I do not care for the passing fancy of putting a line between the mount and the print, although there are at times sufficient reasons to warrant it.

### Objectionable Shams.

I have already given my opinion about the impropriety of using a sham India-tint mount. Of late, a fashion has sprung up of printing upon sensitised thin cream India paper, or on what is much the same, viz., Japanese tissue, in such a way that there is left a clear margin, so that when the photograph is mounted on any suitable paper, it, as regards "tint," presents much the appearance of an engraving. To thus treat one's print cannot well be cavilled at. The "tint" is not a sham one, and, moreover, the print itself is impressed upon the tint; but when the amateur goes a step further, by so displaying such a print as to make it superficially imitate an old mezzotint, or etching, it should have the strong disapproval of all who dislike deception. Let me explain what I mean. At an exhibition now open are several such prints, which have one edge badly jagged. This imitates the condition of a print which (1) has been torn from a book, or (2) has been mounted without trimming, as it came from the engraver's press. That is, I consider, bad enough. But it is worse still when this affectation is carried to the extent of mutilating part of the actual print, so that the impression may be conveyed that the modern photograph is an old, rare, and precious fragment of some fine etching. This is not art, but chicanery.

### Mounting Materials and Apparatus.

Closely allied with the question of mounting is that of the employment of the *passee-partout* in place of the German—other—moulding. Personally, I much like the *passee-partout*. It emancipates one from the frame-maker, saves the pocket, and permits of the exercise of considerable personal taste. Without dwelling upon the principles which should control this convenient way of binding up print and mount, I should like to briefly refer to some few of the modern facilities for carrying out the practical work of mounting which are at our disposal.

As to mountant. First in my affection stands Higgins' "photo mounter," which has never played me false. For a home-made article nothing beats a light starch jelly, but it only keeps a short while, and many people cannot make it properly. One of the greatest of boons recently introduced is without the shadow of doubt the dry adhesive mounting system. Many of my photographic acquaintances who have adopted it speak most enthusiastically of it, and at least one important firm—viz., the Platinotype Co.—specially recommend it to all their customers. Some people think that it must be difficult to manage. All I can say is that I procured one of the hot presses (which are now obtainable for a few shillings), and with only a printed slip of directions to guide me straightaway dry-mounted a P.O.P. An important matter in mounting is that of trimming a print. To carry out this, knives, cutters, cutting shapes, set squares, cutting boards, and similar contrivances which out end are provided. I show a selection of such articles, which explain themselves. But what I now use, to the complete exclusion of all the above more or less troublesome odds and ends is Merrett's trimming desk. I find it cuts prints more accurately, in about one-tenth the time needed when using the knife, etc. As regards paper on which to mount, I can say that those of you who are in dead earnest should do as many others do before you have, viz., get from twenty to thirty or more sheets of paper of such various delicate tints and tones as are likely to best accord with your prints; then, when you are mounting a picture for exhibition or for the wall of your room, try to harmonise what texture and what tint or tints will be most harmonious and effective. I can suggest no simpler course than this.

HECTOR MACLEAN, F.R.P.S.

THE TWENTY SECOND ANNUAL EXHIBITION of the Birmingham Photographic Society will be held from the 23rd inst. to March 4 at the Royal Society of Artists. The exhibition promises to be of great interest. In addition to many well-known English workers, the list of exhibitors again includes many entries from abroad, fifty-seven names figuring in this section, and the work reaching a very high average of merit. The educational value of such a collection is beyond question. Apart from the pictorial section, technical photo-

graphy is well represented by (among others) a series of photographs illustrating the application of the camera to the detection of crime (by Dr. Reiss, of Lausanne), another set taken from a balloon at varying altitudes, and a third (sent from Bombay) illustrating Indian characters and buildings.

ERRATUM.—The Jandus Arc Lamp and Electric Company ask us to correct an error in their letter of last week. The visual power of the Jandus flame arc should be 20 instead of 50.



## NON-AQUEOUS MOUNTANTS FOR PRINTS.

(From "Deutsche Photographen Zeitung.")

The ordinary paste of wheat or rice starch can be made but slightly soluble in water, and not completely insoluble by astringents.

The cheapness of starch paste and its great adhesiveness are the chief reasons for its general use, not only in photography, but also for many other purposes. Its only disadvantage for mounting prints on cards is the curling or distortion of the cards in consequence of the middle being damped, whilst the edges and back remain dry.

The quicker and more evenly the starch dries the more even and flat will be the cards when dry; the damper they are the more they will be distended. The best way is to mix the two kinds of starch thus:

Purest wheat starch .....	40 parts
Purest rice starch .....	20 parts.

They should be finely powdered and thoroughly mixed in a mortar. The following solution should then be made:

Gelatine .....	5 gms.
Water .....	250 c.cs.

Allow the gelatine to soak in water and then dissolve by boiling. The solution should be fairly thin and quite clear; then it should be cooled down to 68 deg. F., and the mixture of the starches added in small quantities, with constant stirring, till a milky mixture is formed.\* It should be now slowly heated to boiling point, and with constant stirring evaporation continued till about one-fifth of the

\*The writer omits to say what weight of the starch mixture is to be added, but may be supposed that he intends "parts" written in the first formula to be read grammes.—Eds. "B. J."]

liquid has evaporated. Finally, to the mixture which becomes thicker and thicker should be added—

Alcohol (60 deg.).....	20 c.cs.
Oil of cloves .....	2 c.cs.

and the mixture allowed to cool. This keeps in well-closed tubes or vessels perfectly for a long time without going bad or acting prejudicially on the prints. The adhesive power of this mountant is very high, and with careful preparation is perfectly uniform throughout.

All these pastes can be made less soluble in water by adding, as already pointed out, astringents such as alum, formaline, etc., in small quantities. After such additions, the paste, when once dry, dissolves much less readily; but this can hardly be considered as an advantage in the face of the disadvantage that such additions may act on the prints.

As regards insolubility in water, resinous compounds should alone be considered, which should either be dissolved in suitable solvents or rendered liquid by heat, so that the resin forms a connecting film between the print and card.\*

C. HARTMANN.

[\*The writer proceeds to give directions for the preparation of an adhesive tissue, apparently in ignorance of the fact that the process is that covered by the Derepas patent and owned in this country by the Adhesive Dry Mounting Company, Limited. It should be understood that the use of a shellac or other tissue (for mounting purposes) employed with heat constitutes the patent in question.—Eds. "B. J."]

## FOREIGN NEWS AND NOTES.

### Daylight Development.

DR. B. SZILARD and M. PASZTOR, of Budapest, have taken out a German patent for the use of a solution composed of 2 parts chloroxy-phenylchinoxalin, 3 parts of phenolphthalein in 50 parts of alcohol and 50 parts of glycerine. A few drops of this, added to an alkaline developer, produces at once a deep red colour. In the case of an acid developer a few drops of caustic soda should be added to the above. The developer must be at least four-fifths of an inch deep above the surface of the plate. The progress of development can be watched without the use of a dark-room or removing the plate from the dish. Any coloration of the film is removed by subsequent washing, and, if necessary, the use of an acid bath. We presume that the use of these two particular compounds is alone patented, as in 1889 and 1892 the use of a mixture of colouring matters was patented in England, and more recently still we have had the preparation sold as "Coxin."

### A Reducer for Gum Bichromate Prints

MR. G. SCHWEITZER states in "La Revue de Photographie" that he has found eau de javelle—about 2.3 per cent.—an efficient reducer for over-exposed gum-bichromate prints. It can be also locally applied with excellent results. Apparently it attacks the underlying parts and not the surface of the image if allowed to act too long. The use of this solution as well as that of chloride of lime and of chlorine water was suggested by Wharton Simpson in 1868 for reducing carbon prints. To some enthusiastic gum workers, the use of any chemical as a reducer will probably savour of heresy as being too scientific, and will not replace mechanical attrition.

### Catatype.

At a meeting of the Deutsche Gesellschaft für Freunden der Photographie last month, Herr Hans Schmidt gave a demonstration of this process, which is based on the discoveries of Professor Ostwald and O. Gros. ("B. J.," 1903, pp. 43, 144, 464.) The materials for the process have been introduced commercially, after four years of research, by the Neue Photographische Gesellschaft, of Berlin. The negatives have to be made on special bromide paper, and developed and fixed in special baths. They are then rubbed over with "Perisol," a special solution of hydrogen peroxide, and placed in contact with a special positive paper, and left for two minutes under pressure.

In the positive paper when stripped, there is a positive consisting of hydrogen peroxide, which, when immersed in a solution of a manganese salt, reduces the latter and forms a brownish yellow material image. Dozens of prints can be obtained from the one negative, and by the use of various solutions they can be toned to different colours, such as olive, light and dark green, reddish and bluish violet, brown, black, etc. These are stated to be permanent and capable of considerable variation to suit the class of negative. Variations in gradation of the prints is possible by suitable treatment of the negatives.

By squeezeing the peroxide negative to carbon tissue containing a cobalt salt, the latter is acted upon by the peroxide and tans the gelatine, the subsequent treatment of the carbon prints being as usual.

THE ANNUAL EXHIBITION of the Club des Amateurs Photographes de Belgique will be held at the club's premises, La Maison du Livre, Rue Villa Hermosa, near the Place Rozale, Brussels, from the 1st to 18th March.

TRADING BY STAMPED POSTCARDS.—In "Trading Made Easy," a pamphlet which is also a petition to the Postmaster-General, Mr. Charles A. Houfe suggests that the public should be allowed to affix the address side of a postcard stamps to the desired value (as the

custom grew, stamps of larger denominations would be used) in payment of an order written on the letter side—the stamps being cancelled by the sender writing his name across them, but the recipient receiving credit for the amount. The author contends that trading between persons 300 miles apart would thus be as simple as in a shop, and he meets various objections that might be raised to his scheme. The Government could (if it chose) take its usual commission from the recipient of the spoiled stamps.

## LANTERN ILLUMINANTS.

The estimation of the intensity of a light is generally made by the ordinary person by the mere visual brightness, but as pointed out by Herr W. Süss in "Die Photographische Industrie," this is by no means a guide as to the value of the light in the lantern. An important point in a lantern illuminant is its area, and not only as regards height and breadth, but also depth. Only those rays emitted by a source of light in the focus of the condenser are really utilised in the projection of a lantern slide, and those rays, which are considerably beyond or outside the focal point of the condenser, are practically lost. The less the area of a light the more its rays are utilised in projection.

The construction of the condenser has also to be taken into account. The most general form consists of two plano-convex lenses with their convex surfaces together; frequently, too, a triple condenser is used, in which the lens nearest the light is a meniscus. This form has a somewhat shorter focus than the ordinary plano-convex form, and therefore actually gathers up more of the light. If the source of light is considered as the apex of the angle of rays emitted, the closer this is placed to the condenser the more rays will be utilised. The advantage of the triple condenser is particularly seen the closer the source of light approaches the form of a point.

The difference in the intensity of the most usual forms of lantern illuminants with the ordinary and the triple condenser, is well shown by the accompanying table. They were first tested burning free, that is not in the lantern, and then in the lantern, the objective of which was invariably placed at the same distance from the photometer as the naked light was. The lens used was in all cases the

same, and a Hefner amyl-acetate lamp was used as a standard. The results obtained with the lantern are naturally only relative as com-

Light.	Naked light.	In lantern with double condenser.	Percentage of light utilised.	In lantern with triple condenser.	Percentage of light utilised.
Petroleum 3-wick lamp .....	68	46	63	59	87
Stock's Patent lamp .....	100	54	54	69	69
Spirit incandescent light .....	237	178	75	194	82
Benzine .....	93	78	84	88	89
Incandescent (small mantle) gas .....	85	59	69	59	69
Acetylene 2 burners .....	118	118	100	123	104
Acetylene 4 .....	186	115	62	133	72
Acetylene 2 burners with reflector ..	178	150	84	138	75
Acetylene 4 .....	263	214	81	214	81
Acetylene 4 .....	705	680	96	792	112
Line light .....	400	290	73	332	83
Nernst Projection lamp .....	237	178	75	171	72
Electric incandescent with reflector ..	237	190	80	277	117
Weak arc lamp .....	1210	840	69	1176	97
Strong arc lamp (alternating) .....					

pared to those of the naked light, as in the use of lenses of shorter or longer focus, the divergence of the light rays will be less or greater. Another factor which must be taken into consideration is also the greater or less pressure of gas or the strength of the electric current. The unit adopted here is the Hefner amyl-acetate candle. The standard candle = 1.14 Hefner.

The results show conclusively the advantages of the triple condenser.

### IMPORTS INTO GERMANY FROM THE UNITED KINGDOM.

	1901.	1902.	1903.	1904.	1905.
QUANTITY.					
Optical glass in the rough .....	Kilogs. 300	Kilogs. 300	Kilogs. 400	Kilogs. 2,800	Kilogs. 4,300
" " finished, &c. ....	70	—	100	200	300
Optical photographic apparatus, &c. ....	1,200	1,900	1,300	1,900	1,300
Plate glass, mirror glass, dry plates, &c. ....	77,200	40,300	30,000	346,600	794,200
Photographic paper .....	5,800	10,600	33,300	27,700	28,800
Coloured prints, photographs, &c. ....	87,200	89,100	98,500	142,600	128,500
VALUE.					
Optical glass in the rough .....	Marks 1,000	Marks 1,000	Marks 2,000	Marks 29,000	Marks 39,000
" " finished, &c. ....	9,000	—	1,000	2,000	3,000
Optical and photographic apparatus, &c. ....	54,000	85,000	67,000	85,000	59,000
Plate glass, mirror glass, dry plates, &c. ....	57,000	42,000	31,000	244,000	600,000
Photographic paper .....	66,000	64,000	231,000	234,000	236,000
Colour prints, photographs, &c. ....	959,000	989,000	1,172,000	1,711,000	1,542,000
Total Value .....	1,146,000	1,172,000	1,544,000	2,305,000	2,479,000

\* Dry plates were not distinguished in the returns used in this country prior to 1903.

THE FUNERAL took place at Normacot churchyard, Longton, last week, of Mr. Arthur Bott, photographer, of Market Street, whose death occurred at the early age of forty-five.

MR. R. H. BOW.—The Royal Photographic Society has sent Mr. R. H. Bow its congratulations upon his eightieth birthday, and has expressed its appreciation of his early researches in the field of photographic optics, and especially of his investigations into the aberrations of photographic lenses.

SEQUEL TO THE FAKED PHOTOGRAPHS CASE.—It was inevitable that the recent lawsuit brought by Miss Gertie Millar should be re-echoed on the stage of the Gaiety Theatre. The echo takes the form of a song in "The New Aladdin," entitled "My Photographic Girl" and sung by Miss Millar.

## Photo-Mechanical Notes.

### The American Photo-Engraver.

LECTURING at the L.C.C. School of Photo-engraving, Bolt Court, on Thursday, February 14, Mr. William Gamble gave some impressions of the American photo-engraver gathered during a visit to the United States. He confined himself chiefly to the business methods of the process firms in the United States, and mentioned, as the chief cause of their economical working, the astute management of the staff, under which every man was kept fully employed. "Hustle" in America did not mean hurry or bustle: it meant uninterrupted work. The actual time taken on a job was not less than in England, but in an American shop there were no loiterers to be found, and if the work did not keep the whole staff employed those not wanted were promptly "fired." The workmen in the States accepted this state of things as a natural condition of business life. The machinery of an American process shop had to move in time with the "hurry up" clerks of the firms ordering the work. Blocks were hurried up with the same energy by these clerks specially appointed for the purpose, whether wanted immediately or months later. As a result, the photo-engraver has a boy in each shop whose sole duty it was to know the progress of each individual job, and to have the information ready at once, in response to the telephone from his chief's office. The business and travelling side of the business are equally well looked after, and the principals, as in other American houses, are on the spot at 7.30 in the morning, and have their travellers on their rounds before nine o'clock. One traveller informed Mr. Gamble that he called on several firms, who would not see him after 9 a.m.

### Book Plates as a Photo-Engraver's Specialty.

"The American Printer," in its February issue, quotes the experience of a firm of photo-engravers, the Eclipse Electrotone and Engraving Company, of Cleveland, in supplying designs and blocks for book plates. The result, it appears, of constantly pushing this small side-line of the photo-engraver's business has been to get orders for the larger and regular supply of half-tone and colour blocks. The Eclipse Company write:—

"As a matter of very cold fact, we derive less revenue from book plates than from any other single feature of our business. Too much time is always spent over the designing and preliminaries that is not charged for—crankiness, hobby, or sentiment, we don't know



which, but can't reform. Nevertheless, as an attractive feature to exploit, I believe it pays to thus 'play up' to the existing fads and requirements of the plate-buying public. It all helps to 'get 'em coming' for all classes of work.

"Some collectors have two ex libris plates—one for the library major and one for the library minor—pamphlets, scrap books, etc. not bad.



A Book Plate of the Eclipse Electrotype and Engraving Company.

"Another thought; labels are book insurance—not so liable to be stolen or go astray; sort of freemasonry signed by a label.

"Some go still farther and have a plate for every subdivision, as one for historical books, one for belles lettres, one for fiction, one for verse, one for science and philosophy, and so on—but that seems to be riding a hobby too hard.

"What we said about prices at the outset must be taken generally. Sometimes we can make a lower price, and often do, even after quoting a higher; sometimes we must ask more in the first place, but in this case, if it costs us more to turn out, we never bill you higher than quotation.

"If one likes copper-plate effects, but does not care to go to the expense of copper engraving and printing, we can approximate with unusual fidelity by using a special paper and a special ink, of which we know. The only handicap is that such labels cannot well bear library numbers, as some writing inks spread badly on this paper. The cost, however, is very little greater than ordinary half-tone work.

"Dry point etchings on copper are a luxury, specially appropriate for libraries of fine bindings, of collections on art, and artistic objects."

#### PHOTO-MECHANICAL PATENTS.

The following patent has been applied for:—

**GREEN GEAR.**—No. 3,194. Improved construction of appliances for indicating and placing in the proper position Levy or similar screens with regard to the sensitised plates or films for photographic purposes. Ernest Howard Farmer, 173, Fleet Street, London.

**LA REVUE DES SCIENCES PHOTOGRAPHIQUES**, the French journal dealing with the scientific aspects of photography, has been amalgamated with "La Photographie." The combined magazine is published by M. Charles Mendel and Co., under the editorship of Dr. Dwenglowski.

**THE PHOTOGRAPHIC STUDIO** in Reid Street, Millport, Scotland, owned by W. Fergus, was totally destroyed by fire last week. The studio and contents were entirely consumed.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between February 4 and 9:—

**CINEMATOGRAPHS.**—No. 2,778. Improvements in mechanism employed in the production of cinematograph and microscope pictures and dark slide for carrying sensitive photographic plates for taking impressions. Henry William Hamblin Palmer, 43, St. Martin's Lane, Charing Cross, London.

**PHOTOGRAPHY.**—No. 2,862. Improvements connected with photography. John Smith Raworth, Queen Anne's Chambers, Westminster, London.

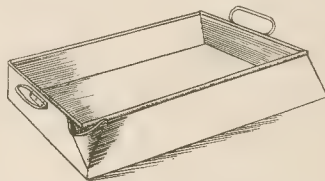
**LENS HOODS.**—No. 2,912. Improvements in making hoods for cameras. Julius Daniel Garfield and Charles Bauer Harris, 40, Chancery Lane, London.

**CINEMATOGRAPHS.**—No. 3,119. Moving picture machine. Enoch J. Rector, 18, Southampton Buildings, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**DISHES.**—No. 1,883. 1906. The invention consists of a dish or tray, the sides being made to slope inwards, making an angle of about 15 degrees with the vertical, instead of being upright, or being made to slope outwards. A dish or tray measuring 15 x 12 inches at top would measure about 16½ x 13½ inches at the



bottom, and the sides of all other sizes slope inwards in a similar manner, the benefit being an absence of splash or waste. Each dish or tray will have a lip at one corner, and all sizes over 9 x 7 inches, made in metal, will have a swing handle at each end. Samuel Dawe, 12, St. Andrew's Road, Southsea; and James Cook Thompson, 23, Elm Grove, Southsea.

**CINEMATOGRAPHS.**—No. 18,962. 1906.—The invention, which is an improvement on the apparatus described in Letters Patent No. 25,625, of 1897, has for its object a means of transmitting a positive movement of the driving pins into and out of the perforations in the photographic film, and includes a cam to give a vertical reciprocating movement, and an eccentric to give a horizontal movement, to the said driving pins. William Cecil Jeapes, 154, Charing Cross Road, London, W.C.; and Percy Henry Bastie, Greenland Place, Camden Town, London, N.W.

The following complete specifications are open to public inspection before acceptance under the Patents Act, 1901:—

**BROMIDE PRINTING.**—No. 2,349. Apparatus for the automatic rapid and uniform printing, controllable at will, of positive photographs by gelatine-bromide cottillon.

**COLOUR PHOTOGRAPHY.**—No. 2,461. Bleach-out process. Smith and Merckens.

**SENSITIVE COLOURS.**—No. 2,462. Sensitising bleach-out colours. Smith and Merckens.

#### New Trade Names.

**DIAMALTY.**—No. 284,957. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives.

Henry Algernon Taylor and Douglas Day Taylor, trading as The British Diamant Company, 13, Southwark Street, London, and Sawbridgeworth, Hertfordshire, manufacturers. July 27, 1906.

GRIPON (design of two linked figures).—No. 288,855. Chemical substances used in manufactures, photography, or philosophical research. Pinchin, Johnson, and Co., Ltd., 23, Billiter Street, London, E.C., varnish colour manufacturers. December 15, 1906.

CYCLOPS.—No. 289,179. Lantern slides, photographic. Frank Percy Smith, 15, Cloudesley Place, Islington, London, N., civil servant. December 31, 1906.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### The Removal of Abrasion Marks from Gaslight and Bromide Prints.

In an article in "Photography," of February 19, on "Economy in Bromide and Gaslight Printing," the Rev. A. E. Bloxsome Day recommends the use of the Wellington and Ward iodine formula for the removal of abrasion marks and reduction of density. The prints are fully exposed, fully (i.e., over-) developed, and after fixing and thorough washing, immersed in:—

Potass iodide .....	30 grs.
Water .....	10 ozs.
Iodine .....	3 grs.

until the high-lights turn blue. They are then transferred to a clean fixing bath for five minutes. The reduction in this bath is very great, but if diluted with three times its bulk of water and used for only one minute the bath has no reducing action, and abrasion marks are removed.

### Thickened Developer.

The use of a developing-solution of increased "thickness" (viscosity) is recommended in "The Amateur Photographer" of February 19 by Mr. T. T. Parker, on account of the greater softness and freedom from halation of the negatives. A developer employed with success was:—

Metal .....	$\frac{3}{4}$ gr.
Hydroquinone .....	3 grs.
Sodium carbonate (cryst.) .....	27 grs.
Sodium sulphite (cryst.) .....	12 grs.

These were dissolved in one ounce of water containing 50 per cent., by measure, of treacle.

Other developers, such as rodinal and amidol, have given equally good results, when made up with the thickened solution instead of water. The thickener used has in every case been treacle, of the variety known as golden syrup. . . . The only disadvantages that the writer has found have been, that the time of development is increased, usually by about fifty per cent., and that the dish must be kept rocking; but against these may be put the advantages that the negatives obtained are fine grained, and admirably adapted for enlargement, and that the image, being on the surface of the plate, development is easily followed by the light reflected from it.

### A Backing Hint.

A correspondent sends to "Focus," of February 20, the following account of a simple method he adopts for backing plates. The plates are removed from the wrappers just as they are packed by the makers—viz., film to film. A pair of the plates are then held in the left hand, and the backing is applied to the glass side of one with a camel-hair brush; a mop-shaped brush should be used. Brushing is commenced in the centre of the plate, and the backing worked outwards towards the edges. When one plate is backed in this way, the pair of plates is simply turned over and the other one similarly treated. The plates are then supported until dry. By this means scratches are avoided, and there is no liability of dust settling on the film side.

## New Books.

A UNITED States edition of their 1907 "Exposure Record and Diary" has been published by Messrs. Burroughs, Wellcome and Co., and in most respects similar to the well-known British issue. The monthly tables of light values, however, are calculated for latitude 40 deg. N., and are approximately correct for New York, Chicago, Denver, San Francisco, Washington, Philadelphia, and St. Louis. Light values for use in other latitudes may be calculated by the aid of a table.

## New Apparatus, &c.

The Holos Convertible Wide-Angle Lens. Made by W. Watson and Sons, 313, High Holborn, London, W.C.

Messrs. Watson, whose large aperture convertible "Holostigmat" we were able to report favourably upon a few weeks ago, have now brought out a new lens under the above title, which even in these days of anastigmats of all kinds, may be said to offer the photographer something fresh in the way of optical facilities. That something is the provision in one instrument of (1) a lens of landscape rapidity for average angle work, (2) a lens of extreme wide angle of medium aperture, and (3) two single lenses of about  $f/16$  aperture, double the focus of the complete lens, and covering a plate as long as this double focus. It will thus be seen that the new lens sacrifices something of extreme rapidity in order to provide very exceptional facilities in the way of covering a large plate, and on this account should immediately find favour with architectural photographers to whom great rapidity is of little moment, to whom also a very wide angle lens is frequently a necessity, and to whom, again, and particularly for exterior work, a long focus lens will do what no other could. For these reasons our tests of the No. 8 ( $5\frac{1}{2}$  in. focus) of the new lens were made with some interest and curiosity. The makers list it to cover a whole-plate, and this at the aperture of  $f/22$  we found it to do with excellent definition. As the makers wisely point out, an extreme angle of this kind is to be avoided at all possible, but it is nevertheless satisfactory for the photographer to have the reserve power should it be needed.

The extreme angle that the lens will admit is about 110 deg., which means that with very small apertures it will illuminate as big a plate as is likely to be required. The aperture can be opened out beyond  $f/11$ , but aberration then appears. Tested under trying conditions on a very near object, there was a remarkable absence of distortion on a 12 x 10 plate. With one combination alone, the full marked aperture is  $f/16$ , and with this very good definition was obtained on a 12 x 10 plate. The price, £5 5s., is certainly not out of the way for a lens of such a generally useful type and of such good quality. Very few wide-angled lenses are convertible, and many are of restricted usefulness. The complete lens is an anastigmat. The single lenses show a little astigmatism, but, nevertheless, form very useful landscape objectives.

## New Materials.

"Watalu" Self-developing Plates. Made by Wellington and Warr Elstree, Herts (under license from the Self-developing Plate Company, Ltd.).

These new claimants for the favour, chiefly, we may assume, the amateur photographer, are the outcome of the patents of Messrs. Kelly and Bentham, already recorded in our "Patent News" last year. Unlike the "Amanto" self-developing plate of the Ilford Company, and the "S.D." paper of Marion and Co., the "Watalu" plate has the developing preparation applied to the back after the manner of the Baekelandt water-developing plate which came for a short time upon the British market some fifteen



years ago. But the patentees of the new plate, we imagine, do not put forward any claim to novelty in regard to the backing with a developing composition; their advance consists in the special properties of the composition, which allow it to be preserved intact for a considerable period. As the patents in question were published as early as January of last year it may be assumed that the promoters of the new plates have satisfied themselves of the behaviour of the plates in this respect.

As regards their qualities in practical work, we have taken the occasion to expose a number, and, following the very few directions which are necessary, have found the developer ample for the production of excellent negatives. Although applied to the side of the plate, which is less exposed to the water contained in the developing dish, the white crystalline deposit of developer is very rapidly removed, and is evidently of a highly soluble character. The instructions direct one ounce of water for a quarter-plate, two ounces for a half-plate, and so on, and in the developer which is thus formed the image appears in about a minute, and gradually increases in intensity. The solution shows no signs of staining, in our experience; it was only slightly yellowish after developing six quarter-plates in one dish with six ounces of water.

We wish the new departure every success: it is evidently the result of carefully adjusted manufacturing conditions, and it has besides the great recommendation—namely, that the emulsions in conjunction with which it is sold are those of the well known "Speedy" and "Ortho" plates of Messrs. Wellington and Ward.

**ARTIFICIAL NEGATIVES.**—In reference to the recent article dealing with the making of line negatives by drawing clear lines on an opaque ground of varnish, Mr. James Waddington, of 420, Bolton Villas, Bradford, sends us some specimens of varnish-coated plates applied by him. We find them to be coated with a soft and perfectly opaque varnish which cuts away cleanly under a needle or sharp knife, and permits of drawings or writing being done on the plate with ease. For announcement lantern-slides the plates should be useful to many a lanternist and society secretary. The varnish coating may be protected by applying a shellac varnish.

**MESSRS. A. E. STALEY AND CO.,** 19, Thavies Inn, London, E.C., advise us that supplies of "Defender" papers, bromide, gaslight, and P.O.P., have now reached them, and they are prepared to fill orders promptly. An attractive booklet, dealing very fully with the manipulation of the papers, is ready, and is worth getting, on account of the concise information it conveys on treatment and results. Messrs. Staley, whose announcement appears on page xiii. of this issue, also offer to send a specimen packet of the papers on receipt of two penny stamps.

### CATALOGUES AND TRADE NOTICES

**MESSRS. ROMANET AND GUILBERT,** 26, Red Lion Square, London, W.C., have issued a price list of a variety of telescopic metal tripods supplied by them. They also stock several ball-heads to fit all the tripods.

The 1907 CATALOGUE, which the Thornton-Pickard Company now offer to post to every applicant, is certainly the most comprehensive history of this progressive firm. In particular, it is welcome for its detailed particulars of the new or improved apparatus now ready for the market. Those who secure it may turn with profit to the new "Royal Ruby Triple Extension" (p. 24 to 30), to the P. new 70s. half-plate set (p. 40), to the still lower priced "College" outfits (p. 46), and to the new "Tribune" camera set sold £1 1s. The Company also give specified descriptions of the new series of "Automan" cameras, of the "Folding Ruby" de luxe instrument, and of the "Focussing Rotator."

THE STUDIO of Mr. J. K. Munro, New Row, Dunfermline, was totally destroyed by fire last week.

THE VERDICT OF THE "TIMES."—In the list of new books in its literary Supplement, the "Times" now includes photography under "Art." The two volumes thus dignified in last Friday's "Supplement" are "Development Made Easy," by A. Horsley Hinton, and "Some Portraiture for Amateur Photographers," by Richard Pinlake.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, FEBRUARY 22.

- Loughton Photographic Society. "Photography and Things with Digressions." J. T. Ashby, F.R.P.S.
- Cardiff Photographic Society. "Cycle Touring in Brittany and Elsewhere." H. Farr.
- Photographic Society of Ireland. "The Panoramic Camera—Its Advantages and Disadvantages." Walter Scott.
- Sutton Photographic Club. "Variations in Bromide Printing."
- Plymouth Photographic Society. "Enlarging Simplified."
- Skipton Urban District Council. "Enlarging Simplified."

#### SATURDAY, FEBRUARY 23.

- Edinburgh Photographic Society. "Round Africa with the British Association." Illustrated. Hugh Marshall, M.D., F.R.S.
- Hove Camera Club. "An Idyllic Minister." E. W. Harvey Piper.
- Bishop Auckland Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."
- Southampton Camera Club. "Amateur Photographic Prize Slides."

#### MONDAY, FEBRUARY 25.

- Lancaster Photographic Society. "Tabloid Brand Photographic Chemicals."
- Southampton Camera Club. "A Tyrollese Valley." Illustrated. James Shaw.
- Oxford Camera Club. "Pictures of Far Eastern Life." Sir Walter Hillier, K.C.M.G.
- Bowes Park Photographic Society. "Development of Negatives." Part 2.
- Worthing Camera Club. "Second Annual Exhibition."
- Caterham Institute Camera Club. "Contact Printing on 'Rotograph' Slow Bromide Paper."
- Swansea Camera Club. "Enlarging Simplified."
- Lyceum Photographic and Art Society. "Leading Principles in Velox Manipulation."
- Preston Camera Club. "Intensification and Reduction." Discussion.

#### TUESDAY, FEBRUARY 26.

- Royal Photographic Society of Great Britain. "Half-Tone Negatives and a Suggestion for Securing Uniformity in the Same." E. C. Middleton. "The Action of Oxidisers upon the Development of the Latent Image." John Sterry.
- Burton-on-Trent Natural History and Archaeological Society. "Remedying Landscape Negatives by Retouching." J. Holden.
- Keighley and District Photographic Association. "Yorkshire Union Slides."
- Wallington Camera Club. "What can be done with a Hand Camera." C. P. Goetz.
- Rotherham Photographic Society. "Recent Advancement in Photography." H. Wade.
- Leeds Photographic Society. "A Village and District in the N.W. of Yorks." R. Stockdale.
- Stafford Photographic Society. "Flowers and Fruit" Lantern Slides. E. Seymour.
- Darlington Camera Club. "Preparing the Exhibition Print." C. J. Barthorpe.
- Hackney Photographic Society. "Pinatype." A. Rogers.

#### WEDNESDAY, FEBRUARY 27.

- Edinburgh Photographic Society. "The Hand Camera." J. F. Duthie.
- Central Technical College Photographic Society. "Photography with Beck Lenses."
- Edmonton and District Photographic Society. "Competition in Home Portraits." Demonstrated. Messrs. J. J. Griffin & Sons.
- Margate Photographic and Scientific Society. "Rotary Papers."
- North Middlesex Photographic Society. "Permanence in Photography." H. Stuart.
- Borough Polytechnic Photographic Society. "Carbon Work—Demonstrating a Quick Drying Method of Sensitising." H. C. Inskeep.
- Everton Camera Club. "Slumming with a Hand Camera." K. F. Bishop.
- Leicester and Leicestershire Photographic Society. "Platinotype Printing." R. E. Woolmer.
- Acton Photographic Society. "Enlarging Simplified."
- Tring Camera Club. "Sports and Pastimes with the Goerz-Anschutz Folding Camera."

#### THURSDAY, FEBRUARY 28.

- London and Provincial Photographic Association. "Questions and Answers."
- Hove Camera Club. "An Idyllic Minister." E. W. Harvey Piper.
- Dover Institute Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."
- Blenheim Club. "A Trip Across Lapland." Rev. D. G. Cowan, M.A.
- Richmond Camera Club. "Paper by Mr. Cembrano."
- Windsor Amateur Photographic Association. "Marine Photography." F. J. Mortimer, F.R.P.S.
- Handsworth Photographic Society. "The after Treatment of a Negative." Demonstrated. W. J. Foster.
- Darwen Photographic Society. "Theory and Practice of Softening Papers."
- Brighouse Photographic Society. "Theory and Practice of Softening Papers."
- Windsor Camera Club. "Leading Principles in Velox Manipulation."
- North London Photographic Society. "Photography with a Kite." S. T. Williams.
- Hull Photographic Society. "The Pleasures and Humours of Photography." Garnet Galtrey.
- L.C.C. School of Photo-Engraving. "The Illustrative Art in Recent Exhibitions." Frank Colebrook.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held February 18, Mr. J. C. S. Mummery, president, in the chair. A lantern lecture, "All at Sea with a Hand Camera," was

delivered by Mr. F. J. Mortimer, who, by the aid of a large number of excellent lantern slides, demonstrated the many opportunities for photography afforded by and on the sea. The first part of the lecture was occupied with the photography of ancient and modern vessels of war, the lecturer incidentally drawing some humorous distinctions between the training of the sailor in Nelson's time and that at present in vogue. One example of the modern making of Jack Tar was a photograph showing him occupied in bricklaying. Turning afterwards to yacht photography, the lecturer emphasised the need of a vessel in which to follow the yachts to be photographed. A power boat was an advantage in some respects, but he thought a small sailing boat in competent hands gave the photographer all the opportunity he needed. A high-speed motor boat was useless, on account of the great vibration. The conclusion of the lecture was devoted to photographs of breaking waves, the examples of which obtained by the lecturer, chiefly in the Scillies, elicited frequent and enthusiastic applause.

**SOUTHAMPTON CAMERA CLUB.**—Mr. C. H. Hewitt, F.R.P.S., of the Regent Street Polytechnic, lectured last Monday on "Legitimate Control in Photography." Producing a number of enlarged negatives and positives, the lecturer pointed out the necessities in each case for the handwork upon each. An enlarged positive was then produced, the subject being a vista in Chichester Cathedral, in the foreground of which was a gas standard, spoiling the pictorial effect. With a flexible blade Mr. Hewitt proceeded to work upon the film, reducing it, but the density had entirely disappeared; then, with a retouching pencil, after the medium had been rubbed all over the film to obviate matting, the even tone of the film was restored till the whole form of the standard had disappeared. Subsequently Mr. Hewitt backed another large positive with mineral paper, and showed how, by pencil and stump, the shadows could be intensified, the high-lights accentuated, and the broad effects obtained.

**CROYDON CAMERA CLUB.**—Mr. W. Beck, of Messrs. R. and J. Beck, gave an unusually interesting lecture on "Photographic Shutters" on the 13th inst., the evolution from the crude forms first introduced to modern instruments being clearly shown by means of a series of lantern slides and examples handed round. In early days the "on and off" of the lens cap was frequently relied upon to give short exposures, and with practice satisfactory results were obtainable. The earlier shutters, amongst others, consisted of the "flap," the "drop," the combined "flap and drop," the "rebound," and the "rotating disc." All these were employed in front of the lens, suffered from various drawbacks, and were invariably of most uncertain speed. The "roller-blind" was also early in the field, and still found popularity owing to its good points. Amongst diaphragm shutters, with their equal illumination over the plate, Newman's and Wollaston's would be best remembered. The former, pneumatically controlled, was the first to secure any accuracy of speed, but dust and moisture were apt to alter the readings. The latter, with its crossing sectors, was of high efficiency, and fitted with a highly ingenious friction brake; the exposures had, however, to be estimated by the eye, a most unsatisfactory method for speeds less than 1-5 second. The much-used focal-plane shutters were of high efficiency, but did not give equal illumination all over the plate, and, unless the driving spring was kept constant, inaccuracy of speeds resulted. Its tendency towards distortion was also well shown. The majority of present-day shutters were constructed to work between the lens system, and very beautiful in design and construction some of them undoubtedly were; but, relying on pneumatic regulation, which, as he had already mentioned, was seriously affected by dust and moisture, their marked and their actual speeds differed enormously. In the "Frena" type, including the latest shutter of Messrs. Beck—namely, the "Celverex," the driving tension was kept constant (the spring itself not being made of steel, but of a special metal, having little tendency to alter), the various speeds being regulated by varying the size of the orifice passing close to the diaphragm. These were very accurate, and, relatively to each other, absolutely so. As regards the accuracy of speeds of various types of shutters, Messrs. Beck had tested over 5,000, and a series of such tests were shown on the screen. Taking the highest speeds only, it was instructive to note that with the diaphragm shutters examined, 1-100 second did not in practice realise a higher

speed than 1-50th, whilst those marked 1-250th and 1-300th never approached these figures by one half. Intermediate speeds were generally better, but not invariably so. On the other hand, the roller-blind shutter came out fairly well, the "Celverex" the best of all.

A very brisk and appreciative discussion followed. Dr. Mees, whilst recognising the many good points of the Celverex shutter, said that its efficiency was low at the highest speeds. Exposure might be divided into two classes—(a) the period in which any part of the lens was uncovered, (b) the actual exposures given to the plate, if the efficiency altered with the speeds (a) and (b) were in different ratio. Mr. H. Allen pointed out that the efficiency also varied with the stop employed. Mr. W. H. Smith, speaking as a designer of shutters in the past, one of which fitted to the now defunct Key camera had met with the approval of Sir William Abney, agreed with the lecturer that the method of pneumatic control was extremely faulty, a friction brake generally being just as bad. Mr. F. W. Hicks instanced the splendid work done in the past with shutters of the most primitive description; after all, sound work did not necessarily depend upon elaborate apparatus. Mr. S. H. Wratten well remembered Wollaston's shutter. It worked capitably. Perhaps the simplest shutter of all consisted of a piece of card with a hole in it, passed rapidly in front of the lens by the hand. He had seen some excellent photographs, including slowly moving objects, taken by its aid.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—On Monday, February 11, Mr. H. Creighton-Beckett lectured on "Stereoscopic Photography." In the selection of a camera for this work Mr. Beckett advised one having an adjustable lens panel, so that the separation of the lenses could be adjusted to suit the subject, portraits and near objects being best taken with lenses having a separation of about 2½ inches, while more distant objects and landscapes looked better with a lens separation of about 3½ inches. With a fixed lens panel the most useful separation was one of 3 inches. The lenses should be of about 4½ to 5 inches focus, but lenses of longer focus might be used for distant landscapes. A full exposure should always be given and a soft negative aimed at. A negative with chalky high-lights gave the appearance of snow in the prints. Mr. Beckett gave some useful hints as to printing and transposing. If transparencies were required or a large number of prints he advised the cutting and transposing of the halves of the negatives, but for a few prints the prints were best cut and transposed. In mounting, the best separation of the prints was stated to be about 2½ inches, with about ¼ inch between them, this being the most accommodating in viewing, but the distance between two points should never exceed 3 inches, or eye strain or inability to combine the two pictures would result. A number of excellent slides of Mr. Beckett's own work were shown, and several stereoscopes for the use of members, and a number of fine transparencies, illustrating the work done by the Goerz-Anschütz stereoscopic camera, were kindly lent by the firm of C. P. Goerz.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—Meeting held February 14, Mr. T. E. Freshwater in the chair. The hon. secretary, Mr. H. C. Rapson, demonstrated the making of lantern slides by the wet plate process. His collodion he prepared as follows:—

Low temperature pyroxyline .....	1 oz.
Ether .....	40 ozs.
Alcohol .....	20 ozs.

this making a stock solution. It should be let stand after mixing for a considerable time. Should it get too thick for easy working, it could be thinned down by adding equal parts of ether and alcohol. In winter more ether should be used to obtain equal drying, and in hot summer weather more alcohol. The formula as given above was calculated for a temperature of from 60 to 70 degrees.

His formula for iodising was:—

Cadmium iodide .....	10 grains.
Ammonium iodide .....	80 grains.
Ammonium bromide .....	20 grains.
Alcohol, to make .....	5 ounces.

One part of iodiser was added to 3 parts of the collodion. The cleaned glass was coated by having a small quantity poured in the centre and then run first to one corner and so round the plate, pouring off at the final corner. The plate was gently kept on the rock until the collodion had set, when the plate was ready



transfer to the silver bath, which was one of 30 grains of silver  
trate to the ounce, distilled water being used. Before the silver  
th was taken into general use it was necessary to add a small  
ntity of iodine to it, and this was best done by coating, say, a  
ole-plate and allowing it to stand in the bath for from one to  
o hours. The plate should be gently lowered into the silver  
th by one clean dropping motion. A stoppage was fatal, as it  
ways gave a line at the stopping place. At the same time the  
ate should not be dropped too quickly. For copying from two to  
ree minutes was sufficient to sensitise the plate. The developer

as :—

Iron sulphate .....	1 oz.
Acetic acid .....	1 oz.
Water .....	1 oz.

d just sufficient was taken to cover the plate, afterwards fixing  
potassium cyanide.

Slides could be built up if found too weak, or reduced if too strong  
t ease. The lecturer made, dried, varnished, masked, and bound  
lide, which was shown in the lantern in less than ten minutes.

A series of wet plate slides shown on the screen gave some idea  
the beauty of this process for slide work. A vote of thanks, pro-  
sed by Mr. Freshwater, seconded by Mr. Teape, brought the  
ening to a close

UNITED STEREOSCOPIC SOCIETY.—The London and suburban  
mbers had a very enjoyable evening on Saturday, February 16, at  
e residence of one of the members, Dr. S. Walshe Owen, of Shep-  
rd's Bush. Many unique specimens of ancient stereo-cameras,  
reoscopes, and slides were shown, also a fine collection of hand-  
awn stereographs, produced long before the invention of photo-  
aphy. Before leaving the members awarded Dr. Owen many thanks  
r the evening, which they found most interesting and instructive.

## Commercial & Legal Intelligence.

DISHONEST ASSISTANTS.—At the Highgate Police Court, last week,  
ank Fisher Cuthbert, photographer's assistant, was sentenced to  
o months' imprisonment for stealing from the studio, 80, Stroud  
een Road, Holloway, a camera and three lenses, value £13 15s.,  
e property of Charles Brown, photographer, Truro Road, Wood  
een.—At Bow Street Police Court, on Monday, George Cotmore,  
young man living in Elm Grove, Peckham, pleaded guilty to steal-  
g cameras, etc., worth £19, belonging to Messrs. Houghtons, Ltd.,  
89, High Holborn, by whom he had been employed as a ware-  
useman. The prisoner was sentenced to three months' hard  
ou.

BANKRUPTCY OF AN INVENTOR.—Theodore Brown, 26, Drummond  
ad, Boscombe, appeared for his public examination at the Poole  
nkrupcy Court on February 14, before the Registrar. The  
ement of affairs filed by the debtor disclosed gross liabilities  
ounting to £432 10s. 5d., of which £392 10s. 5d. is expected to  
nk for dividend, and assets estimated to produce £84 8s. 4d.,  
aving a deficiency of £308 2s. 1d. The causes of failure alleged  
debtor were: illness of self, bad trade, and want of capital, and  
enses of advertising. In reply to questions put by the Official  
eiver, debtor first of all explained that he was a specialist in  
ocular affairs in reference to photography, or the science of  
ocular vision as applied to photography. He began in a small  
y at his parents' residence in Salisbury. The Official Receiver:  
u have not confined yourself to the ordinary beaten track, but  
ve tried to take a short cut to fame and fortune by inventing  
orts of clever things in connection with your trade?—Yes. How  
ny patents have you taken out?—About thirty provisional orders,  
I suppose a dozen have been completed and lapsed at various  
ervals. Have any of them taken definite form and shape?—  
s, a few of them. One of my first was an instrument for develop-  
photographs in the daylight. Practically that was a success, but  
merically it was a failure, as the firm who took it up put it on  
market in a form that was not cheap enough for the amateur.  
ntinuing, the debtor said that in 1903 he was joined in partner-  
p by his cousin, and the business was then carried on under the

style of "The Stereoscopic Living Picture Co." His cousin brought  
in £500, "And," added the Official Receiver, "you brought your  
brains and all these wonderful inventions." to which the debtor  
laughingly gave an affirmative reply. In addition to his partner's  
£500 he paid out something like £200 to clear up liabilities, and  
now there was a deficiency of £300. Besides this, he had £400 on  
account of his share in his father's will, so that in two years he got  
through something like £1,400. He had got out an apparatus  
known as "The Theodore Brown Automatic Retoucher," a patent  
which was being worked by a Birmingham firm on a 10 per cent.  
royalty, but he had only received about £10. He was not sur-  
prised to hear that the holder of the patent had refused to give the  
Official Receiver 6d. for it. (Laughter.) He was insured for £250,  
but the bank held the policy as security for his overdraft, and a  
friend was a third guarantee without any security. He was aware  
that by his bankruptcy he had got rid of his interest in his father's  
will, so that the creditors had taken from them any interest in that.  
The examination was closed.

### NEW COMPANIES.

H. KRUGER AND SONS, LIMITED, have been registered with a capital  
of £1,000 in £1 shares, to carry on the business of artists, photo-  
graphers, manufacturers and repairers of cameras and other photo-  
graphic appliances, etc. There will be no initial public issue. The  
registered office is at 26, Queen Street, Huddersfield.

## Correspondence.

\* Correspondents should never write on both sides of the paper.  
No notice is taken of communications unless the names and  
addresses of the writers are given.

\* We do not undertake responsibility for the opinions expressed  
by our correspondents.

### SULPHIDE TONING OF BROMIDE PRINTS.

To the Editors.

Gentlemen,—We were recently toning a batch of Barnet bromide  
prints of various grades. Two of these prints were somewhat dense  
and were slightly reduced in a weak solution of ferricyanide reducer,  
with the addition of hypo. After clearing they were slightly rinsed  
and put into the ferricyanide reducer, together with a number of  
other prints, which had been washed and dried in the ordinary way  
after development. The image of all these prints disappeared in  
the normal way, but on replacing in a freshly mixed sulphide solu-  
tion, the two which had been reduced with hypo and ferricyanide  
quite refused to tone or darken. They were then well washed and  
treated with dilute rodinal developer, but would not re-develop even  
in this.

As the only difference of treatment between these two prints and  
the remainder of the batch (which toned perfectly) was the addition  
of hypo, we think that this may be the cause of the refusal to tone.  
—Yours, etc.

A. DENMAN JONES.

Jandus Works, Hartham Road, Holloway, London, N.

February 16, 1907.

To the Editors.

Gentlemen,—Perhaps, like myself, many of your readers who have  
had trouble with the bleaching—i.e., prints refusing to bleach evenly,  
will surmount the trouble by using the variety of bromide paper  
most suited for the process—to wit, "natural surface."

I have had the same bleaching troubles with all the best makes  
of bromide papers when using the platino-matt variety, but now,  
using same formulæ for developer, fixer (acid or plain), "Wellington"  
formula, or any other bleacher, such as iodine, etc., and sul-  
phide, with a drop or two of hydrochloric acid, I have not had the  
slightest trouble.

"Platino-matt" bromide papers, as the name implies, are made  
to give a "good platinum black," and, unlike the ordinary variety,  
are without the preliminary coating of gelatine, which is a splendid

thing for brightening up the shadows, especially in a toned print. I do not know whether it is this difference that does away with the bleaching trouble, but it is sufficient for me that since using this class of paper I have had no more failures.

So far as gaslight papers are concerned, I only use one kind, "Special Portrait Velox." This, in conjunction with the iodine bleacher, gives a most beautiful tone. I have never had any fault to find with this paper, as far as toning is concerned.

Any of your readers desiring my formulæ and any further information, I shall be happy to address on receipt of a stamp.—Yours faithfully,

S. HALL-DOWNING.

292, South Road, Sheffield.

February 15, 1907.

P.S.—I omitted to mention above that in all cases the prints that failed to bleach all over toned in the parts that did bleach, when flooded with sulphide solution.

### ENLARGING TO DOUBLE AREA.

To the Editors.

Gentlemen,—In the "B.J." of the 25th ultimo a correspondent asks for information as to the size of a plan measuring 9in. x 9in., which he wants to enlarge to twice its size (i.e., area). The following simple arrangement, requiring no calculation, will do what he wants. Take a strip of card exactly 10in. long and about 2in. wide, mark the centre, and then make two clean black lines across the strip,  $\frac{3}{4}$ in. on each side of the centre, that is, exactly 7in. apart. Small pieces of printed matter may be attached at each end, and in the centre, to facilitate focussing, and a few holes for drawing pins completes the arrangement.

In use, pin the strip closely to the copying board and focus sharply, making the two cross lines exactly 10in. apart. The camera is then clamped, and the scale replaced by the plan to be enlarged. The stand carrying the camera is then moved backwards and forwards till the image is quite sharp.

For reducing to half the area, focus the full length of the card strip (10in.), so as to measure 7in. on the focussing screen.

These proportions may be taken as sufficiently accurate for all photographic work.—I am, Gentlemen, yours very truly,

Southfield End, Hanwell, W.

H. J. BURTON.

February 11, 1907.

### PROFITS ON PICTURE POSTCARDS.

To the Editors.

Gentlemen,—I note in your issue of February 8 an extract from "The Amateur Photographer," which "F. M. S." had contributed to that paper. I do not know who "F. M. S." is, but the attitude adopted towards the postcard is practically the same as I had to contend with when first opening with postcards in 1894.

It may interest your readers to know that the first aspect towards the picture postcard was one of contempt, nay, more, defiance. They "would never take on in England," I was told, and stationers to the left and right of me would not touch them. It took not a little persuasion to get the stationery and fancy trade to take up postcards at all.

The attitude of the photographer was always adverse and entirely opposed to the picture postcard, so much so, that in many towns the photographer would not even take negatives for postcard purpose on anything like reasonable terms. The photographer has always turned down the picture postcard as something beneath him, and it is only now, when the business is to a great extent in the hands of large wholesale houses, that he has come to the conclusion that it may be worth his while to do local views and supply them to the stationery trade. However, that anyone should to-day look upon the postcard as not worth doing, is utterly amazing.

Now the question for a stationer to sell 100,000 postcards during twelve months is nothing very wonderful, for a great number of these postcards are sold in sets of six, and this is done, too, in many shops where other articles and goods are sold, and brings into the shop undoubtedly many customers who would not otherwise come in at all. The advantage of such a "bringing-in" line must therefore be apparent to everyone who has anything to do with retail establishments.

My estimate, too, set out of the profit is by no means correct, for

instead of making a profit only of £116 on the penny postcard a turnover of £416 worth of cards, there would be a profit of something like £200, for one lad or junior could efficiently sell postcard and £75 a year for this attendant is not in accordance with what would be paid. This would, at any rate, be reduced by half. Then, again, to charge the whole rent of a stationer's shop, gas, etc., on the postcards, would be absurd. The postcard turnover might represent a quarter or a fifth of the turnover, and thus this £100 would be reduced to perhaps £20.

As to one person having to attend to the buying is absurd. The buyer is generally the principal in these small shops, and takes his share of the profits.

There is no reason why local photographers should not supply stationers with cards, and they are in the very best position to do so, being best able to secure interesting and up-to-date negatives, and if they had only worked intelligently with this end in view, they could certainly have secured the bulk of the local view trade, but have found the local photographer is, as a rule, far from being a smart business man. Of course, he would have to be somewhat speculative, and he might stock some subjects which would perhaps be left on his hands, but the profits he could secure through buying his cards in the first place in the right market, would be ample (with care) to cover his risk, provided, of course, he used sound judgment in choosing his subjects.

As a professional photographer of some many years standing, my sympathies are with the professional. I would be pleased to give any assistance I can to the local photographer by advice or suggestion in an endeavour to get his own back. I am afraid, however, it is an uphill job now—the man in possession is always a difficult man to oust.—Yours faithfully,

F. T. CORKETT.

2, 3 and 4, Cheapside, City.

February 18, 1907.

[While we recognise the force of our correspondent's argument as to the share which the photographer should have taken in the supply of postcards of landscape subjects, we must admit the wisdom of his (the photographer's) hostility to the picture postcard. We may credit him with greater prescience than is due to him, but the development of the postcard trade, particularly that branch of it which includes photographic portraits of celebrities, has undoubtedly cheapened photographs in the eyes of the public, and has thus lowered the prices obtainable by the less skilful professional photographers. Nevertheless, we are glad to have Mr. Corkett's criticism of the figures relating to the sale of postcards, and we shall welcome the views of any readers who have had experience of postcard sales as an appendage to their business.—Eds. "B.J."]

### YACHT PHOTOGRAPHY.

To the Editors.

Gentlemen,—In your current issue is a reply to a querist of "Yachting Photography." As an amateur who devoted many seasons to this work, and developed 12 x 12 plates in his own yacht, and has spent many hundreds in the pursuit, I may say that in filling 12 x 12 plates to the edges with superb negatives of yachts at highest racing speed, and travelling 14 knots, and steaming hard myself, I very rarely made a quicker exposure than 1-50 sec. with aperture  $f/16$ . As this stop is necessary to obtain the required depth of field, quicker exposures are not necessary. I have seen men using 1-150 sec. and obtain images the size of postage stamps, but I worked the size named and 15 x 12, and filled my plates sharply. Yachting photography with large plates is a very special branch, and the most expensive one that I know. When you know how, it is very simple; but you have got to know.—Yours faithfully,

HENRY OWEN (Captain), J.P.

The Quarry, Stourbridge.

February 18, 1907.

THE THIRD ANNUAL Photographic Exhibition and Grand Evening Concert of the Oliver Goldsmith Photographic Society will be held to-morrow, February 23, at the Oliver Goldsmith Schools, Peckham Road, S.E. (corner of Southampton Street). Open at 7 p.m. Concert commences at 8 p.m. Tickets 6d. each. The exhibits will be judged by Mr. E. R. Bull. Tickets may be obtained from the Committee or the Hon. Secretary, J. J. Hearne, 8, Adys Road, East Dulwich, S.E.



## Answers to Correspondents.

\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Bragg, Churchtown, Illogan, near Redruth. Photograph named: "His First Cut." Photograph named: "His only Pair."

T. Watson, 76, Anlaby Road, Hull. Photograph of the Hull City Football Team, 1906-7.

B. Collis, Westgate, Canterbury. Photograph of the late Canon Holland.

B. W. AND OTHERS.—In our next.

ARDBOARD MAKERS.—Could you please tell me addresses (or where I could obtain them) of cardboard manufacturers?—W. G.

Thos. De La Rue and Co., Bunhill Row, E.C.; James English and Co., 4 and 5, Radsworth Street, St. Luke's, E.C.; and Halsey and Davison, 15, Carlisle Street, Soho Square, W. You will find others in Kelly's Trades Directory."

V.—We do not know of a twin lens camera of extension sufficient for your purposes. Of the reflector instruments, there are a number which can be recommended to you, the facilities of the instruments being very roughly in proportion to the price. This does not hold in all cases, but we must leave you to judge of the exceptions. For your requirements we should advise you to consult the lists of Adams and Co., Newman and Guardia, Kodak Ltd., Watson and Sons, J. H. Dallmeyer, Ltd., and Marion and Co., and Ross, Ltd.

SAXES.—(1) J. Blundell and Sons, 199, Wardour Street, London, W. (2) A solution of ferrous sulphate added to one of platinum and the mixture boiled will throw down a heavy black powdery precipitate of metallic platinum. The precipitate may be dissolved in aqua regia, the excess of acid evaporated and potass chloride added. It produces a yellow crystalline precipitate with the platinum. (3) Traces only. Alloys of platinum are attacked to some extent by nitric acid. (4) We should advise you to spend £1 on a provisional protection—particulars from the Comptroller of Patents, Southampton Buildings, London—after which you can offer the device to one or two of the large firms whose advertisements of similar apparatus you will see in the "Almanac."

LIATURE.—The instructions for colouring appeared April 6, 1906, p. 262. The celluloid facing is done as directed in the booklet of "Photo-Button Making," issued by Fallowfield.

LYONS.—Better spend £1 on a provisional protection, and then approach one or two manufacturers of amateurs' apparatus.

J. L.—(1) Not equal to a condenser for negatives on the dense side, but quite satisfactory for thin negatives. For all-round work there is nothing to equal a condenser, with which a light, strong or weak, may be used at will. (2) "Albanine" or "Ullmanine" (Penrose and Co.).

ERAS FOR PRESS PHOTOGRAPHY (in reply to "Old Griffo").—The most usual type of camera is the reflector, in which the image is focussed on the ground glass up to the moment of exposure. There are a number of patterns on the market. We advise you to consult the descriptions in the "Almanac." Most are fitted

with a focal-plane shutter, and are arranged to carry dark slides or roll-holders.

FLATTING BACKGROUND, ETC.—(1) In painting a background in flatted oils I have great difficulty in obtaining a perfectly dead surface; my colour on the second coating dries glossy. (2) When getting work done for photographic exhibitions, is it allowed by the judges to work in figures or any other objects by hand? If so, do you think the judges are prejudiced against such additions?—B. T. HUGH.

(1) The second coating should not dry glossy if the flattening colour were rightly prepared and applied. You do not say of what you made it. It should be composed of the colour only, mixed with turpentine, with perhaps a little japanner's gold size to thicken it. As soon as applied the coating should be stippled over with a dry brush. (2) At some exhibitions such pictures would be rejected, and at others possibly not. We should advise you to get a prospectus of the exhibition you propose to show at, and see what the rules laid down are; then, if you have any doubt on the point, communicate with the secretary of the society.

RETOUCHING, ETC.—(1) Can anyone tell me of a really good book on negative retouching, with plates preferred, either to buy or hire? (2) What is the usual summer holiday for studio assistants? We have a fortnight here in summer, full pay all the time, with the other trade holidays as they come, and about three days at the New Year. Is this generally given in studios? I want to make a change to England.—ST. RULE.

(1) "Retouching," by Arthur Whiting (Dawbarn and Ward, 1s.). (2) In most establishments a fortnight's holiday is usually given in the summer, as well as all Bank holidays. There are, however, no set rules in the photographic profession with regard to holidays. Indeed, in some places none at all are given beyond the Bank holidays. Yours seem to be about the average.

ACCESSORY—SHOW CASES.—(1) Where can I obtain an egg, as used by some photographers when taking children, or how is same made? (2) How can I prevent show cases which I have from steaming? I have bored holes in sides for ventilation, but they simply stream with water. The distances from photographs to glass vary from 1 in. to 3 in. in the different ones I have.—EASTER EGG.

(1) We have no doubt that such houses as Houghtons, Marion's, and others that make a feature of photographic accessories would supply you. Better communicate with them. Such things are usually made of papier-maché. (2) If the cases are well ventilated the steam will soon escape when formed.

BLACKENING COPPER.—1. Can you tell me the best and quickest method of blackening copper by chemical means? 2. Also the proper treatment of iron perchloride for photogravure etching?—PHOTO.

1. A. Copper nitrate .....	200 grs.
Water .....	1 oz.
B. Silver nitrate .....	200 grs.
Water .....	1 oz.

Mix A and B, and place the perfectly cleaned metal in the mixture for a few minutes and then heat it. 2. The usual process is to withdraw about 1-20th of the total bulk of the etching bath and precipitate the whole of the iron with ammonia or caustic soda, and to add this precipitate to the remaining 19-20ths of the bath. The solution thus obtained can, if necessary, be made more active by adding a little hydrochloric acid.

DESTROYING HYPO.—Will prints and plates be permanent if washed in water with a few drops of permanganate until the solution keeps its purple colour? A friend of mine who uses this chemical to test dye waters to find if there is any soda in them says there is nothing better.—A. K.

The method can be recommended for plates, but it is liable to cause brown stains on prints, the remedy for which, if they occur, is a solution of oxalic acid.

HAMISH BELL.—"The St. Louis and Canadian Photographer," 3,210, Locust Street, St. Louis, Mo., U.S.A.

**AVONDALE.**—1. The west light is an excellent one to work with, and as you will only be troubled with the sun on the studio late in the day we should advise you to have plain glass. If you find the sun at all troublesome you can have thin tracing linen on light wooden frames that will slide backwards or forwards as required. 2. Art serge is an excellent material for the curtains, it looks nice, and is not at all expensive. 3. Yes, plenty. 4. No; if the studio is constructed according to the plans, you will have a capital one to work in, which, under the circumstances, cannot be improved upon.

**CRYSTOLEUM.**—Please let me know what paper is the best to print on for crystoleum painting. Have tried P.O.P., but have great difficulty in making this sufficiently transparent. Is there a special P.O.P. paper? If so, what make?—E. C.

Albumen paper should be used. Its thin substance is the only one suitable for the process. See the article on page 823 of the "Almanac," 1907.

**E. J. M.**—The amidol formula of Wellington and Ward is as good as any we know. If the negatives are unduly flat the iodide process of the same firm (p. 1065 of the "Almanac") is the best course to adopt.

**A. S.**—The tone is not perfectly permanent, and is difficult to obtain repeatedly, and we should advise you to employ green carbon in preference.

**J.**—Very little practice is needed to work the limelight from cylinders. A firm, such as Archer, of Dale Street, Liverpool, supplying jet and gas, would instruct you in the necessary precautions.

**CAMERA VIGNETTING.**—Can you tell me how to vignette a bust picture outside a camera to get a soft effect?—**LESLIE STUART**

The cause of the trouble is, no doubt, due to the vignetting mask being placed too near the lens, or, maybe, the edges of it are not properly serrated. On page 50 of the Journal for January 18 last, there is a description of "Gardiner's Universal Vignetter." It is a most convenient piece of apparatus, and we should recommend you to procure one. It is very inexpensive, and is manufactured by Marion and Co., Soho Square.

**BACKGROUNDS.**—Will you inform me the best preparation for painting backgrounds? I have an old background which I want to paint white or cream. Should I be able to make a good job of it myself?—**A. E. H.**

If it is painted it will be necessary to flat it afterwards, or the surface will be glossy, and to get an even surface in flattening requires a certain degree of knack. We think, as you appear to be quite a novice at the work, you will be more successful with distemper colour than flattening. You will find an article on the subject on page 82 of our issue of February 1 last, to which you are referred.

**METOL-HYDROQUINONE DEVELOPER.**—Please oblige by saying why every now and again gaslight developer, made as below, should have a brown tinge as soon as mixed and be jet black a few hours after use; whereas on other occasions other lots are water white, and after use have remained for twelve hours open in a dish and only shown a brown stained appearance. Everything kept strictly clean.

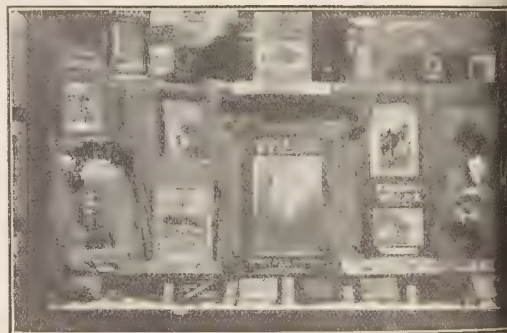
Metol .....	3 drachms	1 scruple	} in 200 oz. water.
Hydroquinone .....	11 drachms.		
Sulphite soda.....	16 oz.		
Carbonate soda.....	16 oz.		
10 per cent. bromide potass.	2 oz		

Procedure as follows:—Everything strictly dissolved in the rotation as given in formula. I dissolve the fresh metol Hauff (no discoloured stuff) in 10 to 20 oz. warm water (in a clean enamelled pan kept for this purpose only), then the hydro (purchased in 1 oz. bottles from local chemist; condition, white clean powder, but no maker's name; still, when the solution has been perfect the same make of hydroquinone was used), dissolved in about 10 oz. warm water and added to the metol solution, then the sulphite added from a stock solution (originally dissolved in boil-

ing water, 1 in 3), then carbonate added from a stock solution (1 in 2), then the bromide, and then made up to 200 oz. with distilled water. The same system is followed approximately every time and yet every now and again a make-up goes wrong, as above described. Is it possible the metol and the hydro come together in a too concentrated form, or that the sulphite is not a sufficient preservative? Is there anything wrong in the stock having been made with boiling water, or is it a myth that it loses a lot of power made up thus? I rather fancy this last time it did not colour till the carbonate (ordinary washing-soda always used) was added.—**PIONEER.**

The trouble probably lies either in the use of common distilled water or else the washing-soda, and is due to iron. Distilled water should be used and the sulphite added to the metol, then the hydroquinone. The sulphite should not be dissolved in boiling water, but only warm, and it is advisable to use as much water as possible, otherwise in concentrated solutions the chemical compounds, metoquinone, may be thrown down. Washing-soda is about the last thing that should be used for a one-solution stock developer, as it is never pure, and very frequently contains iron as an impurity. If distilled water and sodium carbonate crystals be used there will be no trouble.

**A VELOX WINDOW-DRESSING COMPETITION.**—Messrs. John J. Gurney and Sons, Ltd., send us the names of the winners in a competition recently organised by them for the best window display of their goods and showcards. The photographic dealers gaining prizes were:—1st Prize, Mr. S. Kitley, 73, Lodge Road, Southampton.



Photograph of the Window Display to which Second Prize was Awarded.

five guineas; 2nd prize, Mr. E. P. White, Park Road, Worthing, three guineas; Mr. Mallinson, 104, Cheriton Road, Folkestone, Mr. E. Ward, of Oxford Road, Manchester, sharing third prize, two guineas. We reproduce a photograph of the second prize display. Mr. Snowden Ward acted as judge.

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## The British Journal of Photography

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## SUMMARY.

Professor R. W. Wood has applied orthochromatic photography the "intensification" of paintings in a way which suggests their scenic possibilities. (P. 156.)

Some important conditions as to the use of flame arcs for portraiture are mentioned on page 154.

Some figures and diagrams showing the comparative cost of lighting are given on page 157.

Ammonium hyposulphite has been introduced for fixing in place of the well known "hypo" (sodium hyposulphite), and is said to be preferable in combined baths. (P. 153.)

A device for examining slides at the lantern was shown last week at the Croydon Camera Club. (P. 158.)

Instructions for making backgrounds by the old but little known "wider" process are given on page 155.

The Scottish Salon and the Birmingham Exhibition are reported on page 159.

Something which "has ceased to be photography and has not yet begun to be art" is Mr. H. M. Spielmann's description of some modern photographs, uttered in reference to the recent exhibition at Bond Street. (P. 156.)

## "COLOUR PHOTOGRAPHY" SUPPLEMENT.

Notes on the practice of three-colour print making with carbon are given on page 17.

Dr. E. Stenger, from experiments on the connection between the rate of development and colour rendering, pronounces in favour of ten minutes as the maximum time of development. (P. 19.)

Some further practical notes on photography in colours by the automatic dispersion appear on page 18.

Multiple three-colour back which accommodates changing boxes has been patented in France. (P. 23.)

Some data as to the permanence of pinatype colours appear on page 23.

## EX CATHEDRA.

### Platinum Residues.

The question raised by Mr. G. T. Harris in our issue for February 8 as to the collection of residues, induces us to mention some directions given by Professor Lainer in the current number of the "Photographen Zeitung. Dr. Lainer advises the heating of the old platinum developing solutions and addition of potassium carbonate till litmus paper is only just tinged red; excess of acid is thus neutralised. To the hot solution should then be added ferrous sulphate plus potassium oxalate solutions in the proportion of one of the former to three of the latter. The mixture should at once become black through the separation of platinum, and after allowing some of the precipitate to settle, some of the clear supernatant liquid should be tested with the ferrous oxalate to see whether there is any platinum still in the solution, if so more should be added to the bulk. In chemical laboratories platinum is usually reduced by heating with caustic potash or alkali and alcohol, whereby spongy platinum is obtained. This, together with the use of formate of soda, which is also sometimes used instead of alcohol, is probably, however, far too costly for general photographic purposes. A cheaper and more satisfactory method is that with zinc and acid, as already given in our pages. The process requires no attention beyond an occasional stir up of the solution so as to ensure complete precipitation of the platinum. Magnesium powder has also been suggested instead of zinc, but the latter is, of course, much cheaper.

\* \* \*

### Ammonium Hyposulphite.

Although sodium thiosulphate, or, as it is more familiarly called, hypo, has held its own as a fixing agent ever since its introduction, attempts have not been wanting to find substitutes, which, whilst equally efficacious, should not have the accompanying disadvantages. Most of the suggested salts were, however, either too dear or else did not possess sufficient solvent action on all the silver halides; for whilst one might be perfectly satisfactory as regards the chloride, it would prove but of little use for the more stubborn bromide and iodide. This is very clearly seen from the table of the solubility of the silver haloids, which will be found in the ALMANAC. In 1868 Mr. John Spiller suggested the use of ammonium hyposulphite on the ground of its greater solubility in water and consequent more rapid elimination from both prints and plates. The use of this salt was also suggested by M. Labarre in 1892. The chief obstacle in the way of its general adoption has been, however, its high price, this being approximately about twenty-four times that of the sodium salt. From the above-mentioned table it will be seen that its solvent powers are practically the same as the sodium salt. We now learn, from a brief note by Baron von Hübl in the "Wiener Mittheilungen,"

that it has been introduced, commercially, at a low price both in Germany and Austria. One of the chief advantages emphasised by von Hübl is the rapid fixation in combined baths, one of the most important points as regards permanency of the image.

\* \* \*

#### Lenses as an Investment.

Fifteen or twenty years ago, it was a somewhat common observation that a lens by a first-rate maker was always worth a very good proportion of its original cost. That was in the days when, for all-round work, the rapid rectilinear or rapid symmetrical reigned supreme. The modern anastigmatic equivalents of these lenses have no doubt an equally good second-hand value within a few years of purchase. Improvements in lens design and construction are now so rapid, however, that many of the earlier anastigmats are already as obsolete as the rectilinears of the best makers. drawn. The effect of this progress in design and construction must naturally be the decrease in value of such older pattern lenses as are in the hands of photographic workers or dealers. At the same time, progress is a law of life, and the admirable lenses placed at one's disposal by all the great optical firms are almost universally appreciated. While there may be a depreciation in the second-hand value of certain lenses, there is, of course, no decrease in their utility. What they have done for their owners in the production of negatives they will continue to do. Further than this, many of these older patterns may be obtained, in some cases quite new, at substantial reductions, excellent lenses thus being brought within the reach of the worker who possibly has hitherto had to deny himself the advantages their use confers.

\* \* \*

#### The Effect of Lights on the Sitter.

As we pointed out more than once, the effect of the light upon the sitter is a very important matter, and one frequently overlooked by those who have no practical acquaintance with portrait work. The effect is two-fold, the actual comfort of the sitter, and the appearance of the sitter as seen by herself, and, more particularly, her friends. The strong yellow light of a flaming arc is, without doubt, more trying to the sitter than the enclosed arc light or even the open arc, and a trying light is more or less certain to influence expression and thus to militate against the success of the portrait. Also the appearance of the sitter during the sitting has a very great effect on the degree of satisfaction which will be subsequently felt when the proof copies are submitted. This is a purely psychological matter and the ordinary open arc undoubtedly scores here, for the effect is always to enhance the appearance of a pretty sitter and a pretty dress. The sitter's feminine friends make complimentary remarks (without in the least meaning them) and will observe what a loss the stage has suffered, and, thus, thoroughly pleased with the whole affair, the sitter is prepared to like the proofs. For this reason the mercury-vapour lamps can hardly be used satisfactorily unless with them is employed a cluster of ordinary incandescent glow lamps to supply the orange and red rays, in which the lamp is deficient. This is quite an easy matter, and we have recently seen a mercury lamp with tubular incandescent lamps placed between the mercury-vapour tubes.

LIVERPOOL A.P.A.—The annual report of the Liverpool Amateur Photographic Association shows that energetic body to have added forty-two members to its roll during the year, making a net increase of twelve in the number of members. The Society has held a series of "one-man" and other exhibitions during the year, and shows a balance on the year's working for the first time for several years past, and has increased its reserve fund from £22 in 1905 to £40.

#### FLAME ARCS FOR PORTRAITURE.

THE idea of using a yellow light for portrait work, employing with it a plate sensitised for the yellow and orange rays, is by no means new. Variations in the character of the light, either by the use of coloured glass in the operating room, or by the employment of artificial light of one form or another, have been experimented with many times. It is therefore not at all surprising that in view of the increasing popularity of the flame arc lamps for street and shop-front illumination, it should have occurred to some that they might be used for portrait work with colour sensitive plates.

To suggest this use for flame arc lamps, however, and to work out the details for actual practice, are two very different matters. The one is obvious, the other will require close attention to many points, and in all probability many actual improvements, or at all events modifications, in the lamps themselves, before they are suitable for installation in a portrait studio. As this matter has recently been referred to in our columns, it may indicate some of the points in the flame arc lamp which will need attention if they are to be adopted for this special character of work. One of the advantages of these lamps is that, broadly speaking, they will run well through a considerable range of arc voltage, and the various makers supply substitutional resistances, transformers, and other accessory apparatus, so that flame arc lamps may be used on most circuits, frequencies, and pressures. It is therefore possible, as our contemporary "Electrical Engineering," points out, to burn as many as twelve lamps across 460 volts, and a single lamp of less than 50 volts, or, per contra, nine or ten lamps can be put on the 460 volts, and will work with longer average proportionately higher candle power.

This capability of running on a low voltage or running in series in such a way that there is the minimum of loss through absorption of energy in the resistance means that economical working as far as current goes is obtained, but it also means that the light is very apt to flicker unpleasantly. For instance, slight variations in the composition of the carbon, which are almost unavoidable, have very little effect where there is considerable reserve of energy, but when the lamp is running on a minimum the light is constantly fluctuating. It is conceded by electrical experts that flame arcs are as yet too unsteady for indoor illumination, and a light which is not pleasant enough for use in rooms is hardly likely to be considered steady enough for the rather more nervous trying occasion of a portrait sitting.

Another important point to which the attention of photographers must be called, especially those whose studios or operating rooms are small, is the extent of fumes and dust produced by these flame arc lamps in general. The acid gases are likely to have a serious effect on the mechanism of the lamps themselves, notwithstanding the arrangements provided for the ventilation of the lamps. The earths employed in the manufacture of the cored carbons very readily volatilise, and as readily resume the solid form, hence the dust and dirt. We have referred in "Ex Cathedra" to the increased carbon consumption with flame arc lamps, and to the generally high cost of flame arc carbons, so that we need not now emphasise this.

Our readers will see, therefore, that much more needs to be considered; the matter can be summed up under the economy of current and gain in colour-rendering. Steadiness and pleasant quality of light, and freedom from dust and dirt in the studio, are certainly desirable, while depreciation of lamp mechanism and the necessity for special ventilation will naturally increase the cost of running a flame arc installation.



## BACKGROUNDS BY THE POWDER PROCESS.

[In the following article instruction is given in the use of a process for the preparation of backgrounds, which is little known at the present time, but which may be found of service by photographers requiring to extemporise a background quickly, or provide one of a special character.]

In a previous article the method of making backgrounds by the distemper method was fully described. It was there mentioned that a certain knack in working was necessary in order to avoid streaks or brush marks that may show strongly when the work is finished. It may now be added that the worker need not be disheartened should he not succeed in his first attempt, he will naturally recognise the cause of his failure and be able to avoid it in the future. I here propose to describe another method of producing backgrounds that is far more simple than the previous one, yet it seems to be but little known amongst photographers, who may desire on occasion to make their own backgrounds. It goes without saying that by whatever method backgrounds are made, more trouble and mess are involved than purchasing them ready-made; and good ones are now to be had at a very low price as compared with that charged for them some years ago.

### An Old Secret Process.

The method now to be described was some years ago sold as a secret process by one of the leading London photographers—wit, the late Mr. Robert Faulkner. It is sometimes called the powder process, inasmuch as the pigment is applied to the canvas in powder form. By it graduated, or cloudy, effects are easily produced, which is no easy thing for the novice to do either the distemper or the flatted oil methods. With the powder system the novice should succeed in his first essay, if the instructions are followed.

For the fabric, that which was recommended for the distemper method is the best—namely, unbleached sheeting.\* It is well, however, to have a thicker quality than is really necessary for distemper. The frame upon which the fabric is strained need not be of the same substantial character as advised in the former article, as there will be less shrinkage in the canvas when dry. In fastening it on the frame, for that reason, it should be strained somewhat tighter than is permissible with distemper. The canvas does not require sizing; indeed it must not be sized, will presently be seen. The background being thus far prepared we take common whiting and drop black, with or without some Venetian red, in powder. The latter is to give a warm tint, should that be preferred to the cold grey given by black and white alone. No definite proportions can, of course, be given, as they must depend entirely upon the colour required. When a mixture of the desired colour is arrived at, about one-third to one-half its weight of common dextrine is added, and the whole again very intimately mixed together. It is well to pass the mixture through a sieve, to ensure the removal of any small lumps of either the white or the black, which, if present, would cause trouble when the colour is applied. The colour, being thoroughly mixed, is ready for use.

### To Apply an Even Coating.

To apply it, the canvas must be evenly wetted all over; not merely damped, but made thoroughly wet. The best way of doing this is to lay the frame on the ground and then water it with a garden watering pot. The frame is then reared up on end, and the superfluous water allowed to drain out. This part of the work is best done out of doors, so as to save mess inside. After excess of water has drained away the background is taken

inside and laid flat upon the floor. The dry powder is then pretty evenly distributed over the surface: this is best done by sifting it over from a sieve. All that now has to be done is to work the colour well into the canvas with a stiff brush. The most suitable brush for this purpose is an ordinary clothes-brush with a handle. The brush should be used with a broad circular motion, working the pigment well into the fabric. If, when the brushing is finished, any portion should appear thinner of colour than the rest, a little more of the powder should be sifted on those parts, and the brush vigorously applied again. If, when the background is dry, should any unevenness show (which will not be the case if the directions have been followed), all we have to do is to wet the canvas thoroughly again and repeat the brushing, with perhaps a little more colour. It may possibly happen that the background, when finished, proves a little darker, or maybe lighter, than anticipated; but that is easily altered by once more wetting it and sifting over some darker or lighter powder, and then repeating the brushing.

### Shaded and Hatched Backgrounds.

So far, we have assumed that a uniform flat background only is required. We will now suppose a shaded or clouded one is desired—say for vignettes. In this case, after the colour for what may be termed the ground work has been prepared, two or three others are mixed with different proportions of white and black. Then, while the canvas is still wet, some of the darker grade is sifted on where the dark colour is required, and some of the lighter where it is desired that the tint should be lightest. The tints are then blended by brushing as before.

One of the objects of the invention of this method of making backgrounds was the production of scenic ones, and well adapted it is for the purpose in the hands of those with a certain amount artistic ability, and, of course, some knowledge of drawing. The process is carried out as follows:—Several grades of colour—black and white—with dextrine are prepared. They are then kneaded into a stiff dough with water, and made into thick sticks or rude crayons and allowed to dry. Then while the canvas is still wet, or it may be re-wetted if already dry, the design is sketched in with the dry crayons. The sketch-in lines are then softened with the brush, lightly used and with a circular motion.

A clouded background for vignettes of the Richmond head style, introduced by the late Mr. Sarony some years ago, may be readily made by hatching some bold black lines with charcoal or black crayon, made as described above. In this case it is not desirable to soften the lines by brushing, as they should, of course, appear somewhat pronounced in the picture. The background, being out of the focus of the lens, is sufficient to prevent extreme harshness. Should a background, made by the powder method happen to be wetted, say, from a leaky roof, it is not necessarily spoiled, as a distemper one might be. All that has to be done to repair it is to wet it evenly all over and then give it a good brushing, with the addition, perhaps, of a little more of the powder colour. In conclusion, I would emphasise the point that in making backgrounds by this method the pigments should be worked well into the substance of the fabric, and not be confined to the surface only.

WILLIAM MICHELL.

\* "B.J." February 1, p. 82.

THE LATE MR. B. BARRY.—The death is announced at the age of seventy-seven, of Mr. Bartholomew Barry, of 11, Barking Road, Canning Town. Deceased, who carried on business as a photographer,

had had a long and painful illness. He had had a varied career, in the Navy, and afterwards in the Mercantile Marine Service. He was a member of the Municipal Alliance in Poplar.

## THE OPTICAL INTENSIFICATION OF PAINTINGS.

THE following article by Professor R. W. Wood, of the John Hopkins University, Baltimore, which we quote from the *Scientific American*, suggests a new application of orthochromatic photography which has obvious possibilities in the effective presentment of paintings such as is commonly done when a striking work of art is sent on tour round the country.

One of the great difficulties which the artist has to contend with in representing scenes in which great contrasts of luminosity occur is the comparatively narrow range of luminosity obtainable on canvas with pigments. According to Aubert, the whitest paper is only fifty-seven times as luminous as the darkest black paper, and this probably represents about the range obtainable in paintings. Contrast with this the enormous range of luminosity in a sunlit landscape, where the high-lights are many hundred times brighter than the deep shadows, to say nothing of sunset views, where the disc of the sun itself is to appear in the picture. As is well known, the colours of natural objects change in tint as the illumination is increased, green becoming yellowish, for example; and artists, by taking advantage of this circumstance, consciously or unconsciously, are able to suggest a high degree of illumination without actually reproducing it. Pictures are sometimes improved by strong local illumination; anyone who has spent much time in sketching must have frequently noticed what pleasing effects are sometimes produced when a ray of sunlight, filtering through the trees, falls upon that portion of the canvas which represents, say, a sunlit meadow. Noticing effects of this kind so frequently, I have been led to experiment with carefully graded illumination, and have obtained results of remarkable beauty. If we can produce a strong illumination on all of the high-lights of the picture, and a feeble illumination on all of the shadows, we shall obviously greatly increase the range of luminosity. This may be done by a very simple means. We have only to take a photograph of the painting on an orthochromatic plate, preferably on a red-sensitive plate with a suitable ray filter, make a lantern slide from the negative, and project this picture, not on a white screen, as is usually the case, but upon the original painting. The experiment is to be made in a darkened room, of course.

Effects of a very startling nature are produced in this way, especially in the case of moonlight and sunset pictures with fine cloud effects. The most striking, and artistically the most pleasing, subject which I have yet tried is a little pastel of the market-place in Concarneau (Brittany) by Bullfield, which is a wonderfully sunny picture. Under the graded illumination of the lantern the picture becomes filled with a perfect flood of sunlight, and we feel at once that here for the first time we are looking at a picture in which the enormous luminosity contrasts of nature are really approached. If after looking at the picture illuminated in this way for a few minutes we remove the slide from the lantern, allowing a uniform illumination to fall upon it, we feel a decided shock. The picture

looks as if it had not been dusted for ten years, the sunlight leaves it, and everything looks flat. As we become accustomed once more to the usual illumination, the appearance of the picture gradually improves. It is most curious, however, to note how a short view of the painting under the light of the lantern educates us at once to a higher standard of luminosity contrast, so much so, in fact, that when we change suddenly to ordinary illumination the picture at once strikes us as a very feeble attempt at anything like correct values. The effects are very different, according to whether we take our negative on an ordinary or on an orthochromatic plate, especially if there is much blue in the picture. We can in this way alter the relation of the values in the picture, and study the effect.

It is my opinion that if the values are correct in the original painting, they will hold under the graded illumination produced by the lantern. If they are not right, the errors will be glaringly magnified. As yet I have not had an opportunity to experiment with many pictures, but the method is so easily carried out that anyone having a good lantern can repeat the experiment.

If the picture contains patches of bright, pure red, and a red-sensitive plate is not available, it is a good plan to touch up the negative, as otherwise the illumination of these patches will be too feeble. Any desired effect can be secured by local reduction or intensification of the negative or lantern slide. We can in this way experiment to our heart's content with a painting, altering the values at will without injuring it in the slightest. A most curious effect is obtained if the negative itself is projected upon the painting. This, of course, lessens the contrast, and if the negative is a fairly dense one, it may destroy the contrast almost entirely, making the picture look like an almost flat wash of chocolate. This experiment is instructive only as showing how completely the values in a picture can be controlled by local illumination.

The method is, of course, of very little practical importance, though a small exhibition of suitable pictures illuminated in this way would be well worth attending. Each picture would have to be illuminated by a separate lantern, of course.

In repeating these experiments, the only difficulty which will be found is getting the lantern picture "into register" with the painting. In taking the negative, care should be taken to have the painting exactly vertical, and the lens of the camera directly in front of its centre. The same conditions should obtain during the illumination of the painting. It takes some little practice to get the projected picture exactly the right size. The best plan is to select two conspicuous objects, and note whether their distance apart is greater or less in the projection than in the painting. If the former is found to be true, the painting should be brought nearer to the lantern, the focus being changed, of course.

Very likely scenic effects on the stage could be heightened by employing this method of illumination, or some modification of it.

R. W. Wood.

### PHOTOGRAPHY AS AN ART.

AN echo of the recent exhibition of "modern photographs" in the galleries of the New English Art Club is supplied by the article in the "Morning Leader" of February 21, wherein Mr. H. M. Spielmann compares the products of the camera with the painters' art.

"Now, this exhibition is very interesting—as photography. We have superb portraits by Mr. Craig Annan and the rest which, if we don't want to know the colour of skin and hair and eyes, are invaluable as giving with perfect accuracy the man or woman as seen by the camera's one eye. As seen, mind, in front of the lens; not as the artist sees the sitter, seizing the finest and most characteristic expression as it flits across the face at a transient moment, during, or, maybe, before or after, the formal sittings, and then quietly laid upon the canvas. Thus Watts painted portraits; thus the finest photographer cannot take them, unless—no thanks to him—he be lucky and the sitter an accommodating genius. We were told in "The Colleen Bawn" that "the photographic apparatus cannot lie"; but think of the splendid negatives taken of yourself—splendid as photographs—which you have nevertheless denounced as "not a bit like." Why, Mr. Coburn's fine photograph here of

Mr. Bernard Shaw shows him as a serious-minded man, incapable of writing "pour épater les gens" and scorning to pull the public's leg. You can't depend upon the photographic process. At the same time, as photographs, there are portraits here by Mr. Holland Day, M. Demachy, and Mrs. Käsebier, which, if we assume them to be good likenesses, are hardly likely ever to be surpassed in the qualities they display.

"But think of the head of Christ by Rembrandt in the Louvre, with its real, its vivid expression of profound and far-away vision, and then look at "The Seven Words," by Mr. Holland Day, with their make-up of crown and thorns—and give the answer yourself. The made-up pictures are devilish clever, no doubt; so, too, are the tricked-up landscapes and the like, with composite printing, their suppressed bits, their double printings out of register, and so on, and sometimes tampering with natural light and shade; but while we may admire the results and offer the meed of our well-deserved applause, we cannot escape the feeling of insincerity in the whole, so far as these passionate claims to consideration as Fine Art are concerned.

"It is, of course, natural enough that the pendulum should swing back, and that, after the period in which painting has derived so much advantage from photography, photography should imitate



inter-methods and aspire to a place near, if not beside, painting. Not satisfied with its unchallenged claims to truth, accuracy, perfection of detail, and authenticity, it is now demanding to be considered as an art, and to claim artistic individuality for its practitioners, who would be accepted as artists capable of impressing the genius of their personality on the bichromate-gelatine process.

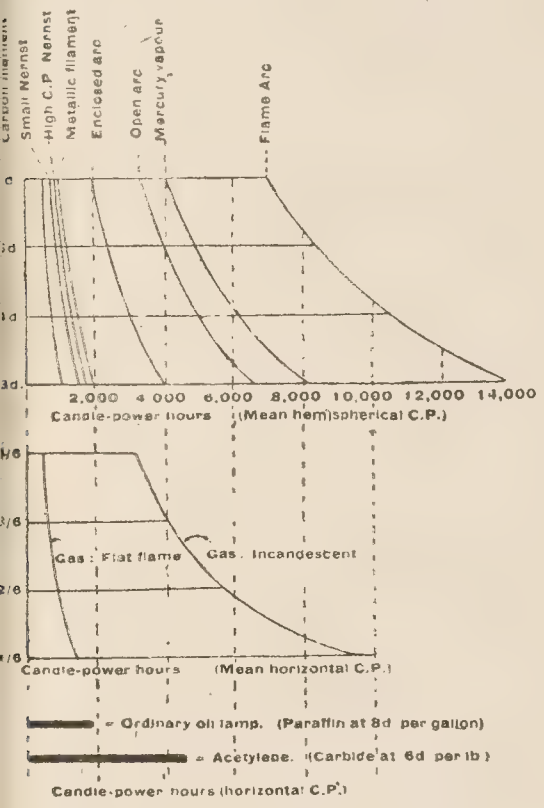
It seems to me that photography is to art, as a method, much as the pianola is to the piano: the machine can be perfectly controlled; light and shade, phrasing, and the like can be expressed by skilled persons; but those "clumsy tools," the human hands, of derewski, working straight from the player's soul, will always try it off—*Sharis contradicente*—over the bellows and hole-stamped roll of the mechanical piano player.

But when photography is content to be itself, and does not aim at aping, or, rather, impersonating, something else its votaries will give the applause and gratitude of the world. So long as it depends, as it ever must, on an entirely scientific and mechanical basis, it cannot claim to be one of the Fine Arts. The model, which the artist is a convenience, a servant, to the photographer is a master, if not a tyrant, to be cajoled and coaxed chemically to his ends. And even when most successful, a photographer can never be nearer to a painting than a monochrome drawing (*pace* Shaw). At that time the print has perhaps ceased to be photography, and has not yet begun to be art.

COSTS OF LIGHTING SYSTEMS.

The following notes and table (the latter due to Mr. Claypoole) are taken from a recent paper by Mr. James Swinburne, F.R.S., before the Association of Engineers-in-Charge:—

It is very difficult to make any useful comparison of the costs of various illuminants, as each has special advantages and draw-



backs. However, the cost per candle-power in payment to the supply company is not difficult to get at. The accompanying figure gives a great deal of information in a graphic form.

It tells you how many candle-powers you can get for 1s. from various illuminants. Thus, if electrical energy is at 5d. per unit, a carbon filament will give you, roughly, 500 c.p. hours, say, 10 candles for 50 hours for 1s. paid to the supply company. If the electrical energy is 3d. per unit, as at the bottom of the diagram, 1s. worth of energy will give you 2,000 candle-hours with a metallic filament lamp, say, 20 candles for 100 hours; or with a mercury vapour lamp you can get 8,000 candle-hours, or, say, 100 candles for 80 hours. A flame arc at 4d. per unit, again, gives 10,500 candle hours for 1s.; or, say, 1,050 candles for 10 hours.

Turning now to the gas diagram, you find that if gas is at, say, 1s. 6d., a flat flame burner gives about 1,400 candles for 1s., and so on. The incandescent burner, however, gives over 3,000 candle-hours for 1s. at 4s. 6d., that is to say, on the top line. This might be, for example, 60 candles for 50 hours. At 3s. 6d. it gives about 4,000, and so on. Oil lamps have been taken for one price of oil only, 8d. a gallon, and acetylene, with carbide, at 6d. per lb.

These figures take no account of the costs of renewals of electric lamps or mantles, or of trimming and providing globes for arc lamps. They, therefore, do not really give a comparison of the costs. Moreover, the lamps and mantles are taken as new. All the same, the figures are very instructive. It will be seen that oil lamps are much cheaper than either ordinary electric carbon lamps or gas with ordinary burners; and acetylene is astonishingly cheap.

As far as cost of gas and electrical energy go, it is not difficult to compare the rivals, but it is much more difficult to compare the cost per candle-hour, including lamps and mantles and incidental expenses. Broadly, we may say that gas lighting with mantles is very much cheaper than any form of indoor electric light, except the mercury lamp.

MULTIPLE COLOUR ILLUMINATION IN MICROSCOPY.

In our issue of February 8, the use of the special "M" screens, prepared by Messrs. Wratten and Wainwright for photomicrography, was fully described. Utilising the same principle for visual microscopy, much more perfect and sharper definition can be obtained. We are indebted to Mr. Rheinberg, who has made a special study of this subject for the past ten years, for copies of his articles, from which one may glean the following practical details.

The advantages of this method of illumination are (1) increased ability to see objects, and (2) increased ability to draw conclusions from what is seen, or, in other words, the nature and form of structure are better produced.

There are three methods of using this colour illumination:—(1) the refraction method in which the colour disc is preferably placed in the diaphragm holder of the sub-stage condenser, with an objective of low or medium power. As in dark ground illumination, the colour of the central portion of the disc becomes the colour of the background; an object placed in the field is illuminated by the light which passes through the peripheral portion of the disc, so that by using a central disc of one colour, and a peripheral ring of another colour, the object appears of one colour against another coloured ground.

For high power work, the second or diffraction method is employed with objectives of high or medium power, and the colour disc is placed above or between the lenses of the objective and the light transmitted by the sub-stage condenser cut down by the iris diaphragm to a narrow cone which just illuminates the central portion of the colour disc, leaving the surrounding part unilluminated. The colour of the central portion is therefore again the only one which lends itself to the colour of the background. When an object is placed in the field it diffracts the light incident on it, changing each ray into a number of rays spread out at various angles from the point of impingement. The greater part of these rays pass through the peripheral portions of the colour disc and cause the object to assume this colour.

The third or composition method is based on the fact that white light is composed of all colour and that different colours can be combined to form white. The colour disc, with two complementary colours, is placed in the diaphragm holder of the sub-stage condenser, and by gradually closing the iris diaphragm, the relative quantities of the coloured lights is altered, and thus approximately white light can be formed. The background then appears uncoloured. But when an object is placed in the field, the light thrown up by it into

the objective is not mixed in the same proportions to form white. The ridges, etc., catch up more of the oblique coloured rays, and the finer and more transparent parts pass more of the central portion, therefore the object appears in various shades of the two colours on a white background.

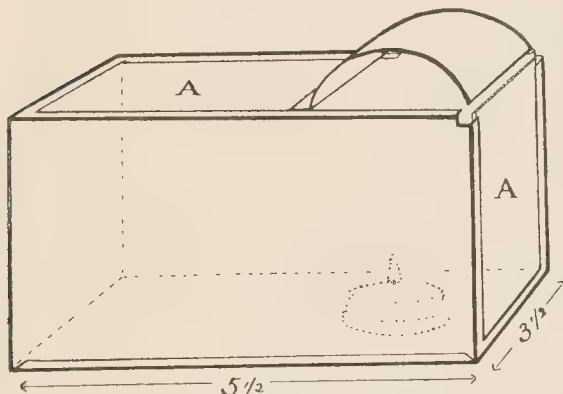
Specially prepared screens, according to Mr. Rheinberg's method, are prepared by Messrs. Wratten and Wainwright, but it is obvious that anyone can make them by using their "M" filters.

Utilising Mr. Rheinberg's principle with the "M" screens, one could utilise as complementaries, the A and B, E or G and B, these would be red and green. For yellow and blue, K3 and H or C, or D + H and B + E. These are but examples. Others can easily be picked out either by practical trial or examination of the table of transmissions of these filters on page 101, bearing in mind that white light is approximately formed by complementary colours, which are roughly red and green blue, orange and greenish blue, orange yellow and turquoise, yellow and blue, greenish yellow and violet blue, green yellow and violet, yellowish green and purplish violet, green and purple, and emerald green and reddish purple. All these colours can be compounded by using one or more screens combined, as given in the table of monochromatic transmissions on p. 101 (second column).

#### A HANDY CONTRIVANCE FOR LANTERNISTS.

Those familiar with working a lantern are aware that the escaping light through the sides and back can hardly be considered an ideal illuminant for reading titles, identifying spotting, etc. At last week's meeting of the Croydon Camera Club, Mr. W. H. Smith, Past President, showed a simple little device of his own design for lightening this task. This is illustrated in the cut in reduced scale, and consists of a rectangular tin box, the top and sides (A A) having ground glass set in. The side light enables the spots and title (if any) to be easily seen, the top light allowing the slide to be examined comfortably. A night light occupies the position shown.

Dealing with night light and candle methods of illumination for



ruby lanterns, Mr. Smith said that the ordinary wax candle would rarely stand the heat evolved, unless the lantern was very large and exceptionally well ventilated. Candles generally guttered freely, and too frequently assumed an attitude of obeisance, hardly conducive to proper burning, or good temper on the part of the operator. He had recently tried a hard candle named "Cyclites," made by Messrs. Field and Co., of Lambeth. It rejoiced in a most upright character under trying conditions of heat, and appeared admirably adapted for the purpose indicated. The same firm also made a capital little lead-cased night light for photographic purposes.

**FALLOWFIELD'S ANNUAL SALE.**—Messrs. Fallowfield, 146, Charing Cross Road, London, W.C., commence on Monday next, March 4, the annual sale of apparatus and materials which are soiled but otherwise in good condition. A selection from their list appears among our advertisements this week, but the full list itself, which will be ready to-morrow (Saturday), should be applied for.

#### A GERMAN PATENT FOR A THREE-FILM PLATE.

DR. FRANZ STOLZE, of Charlottenburg, Berlin, has been granted a German Patent (No. 176,679, August 31, 1905) for a triple film plate, intended for direct three-colour photography without filters. For three-colour work experiments have been made to expose simultaneously with one lens three films of emulsion lying one behind the other, in which the top one is principally sensitised for indigo blue, the middle one for green, and the lowest for orange red. But up to the present all the sensitised emulsions are useless, as the upper films of emulsion, even without being coloured, absorb the required colours, and act as filters for those lying underneath. The action of the emulsions hitherto used is especially detrimental to the lowest film sensitised for orange red. One must therefore use quite different kinds of emulsions for the three-colour films, or at least for the two upper ones. They must be so made that, as light-filters, they are transparent for the colours corresponding in correct ratio to the orange red sensitive nerves, thus when looked through they must transmit orange red and then still less red, yellow, and green. Experiments have proved that this is the case when the emulsion, without being sensitised with a dye, appears orange red by transmitted light. Every other kind of light will be the more completely absorbed the thicker the film of emulsion is, or the more thin films are superimposed. The top film will transmit then red, orange, yellow, yellow green, and blue green, and the middle one, which is sensitised for green by a red dye, which also acts as a filter, transmits red, orange, yellow, and yellow green. As the third film is made opaque for orange by a sensitiser, the three films will together use up practically all the light, which is active in photo-chemical action, and only transmit very little. The claim made for the invention are:—Superimposed negative films for simultaneous three-colour photography with one lens, the chief point in which is that the emulsions used for at least the two upper films, shall, without sensitising with a dye or insertion of a filter, appear orange red by transmitted light.

#### THE SCOTTISH FEDERATION.

##### ANNUAL MEETING.

ON Saturday, February 23, in the Lecture Hall of the Paisley Museum, the annual general meeting of the Federation was held under the presidency of Mr. S. Stewart, Vice-President. There was a large attendance, including about fifty delegates from the societies. Some extracts from the Secretary's report are as follows:—

The past season has been one of quiet prosperity. We closed last year with thirty-eight societies, and, after deducting three societies dead and one resigned (although probably these should be deducted from 1907), we close the year with thirty-eight societies; and it might be mentioned that another two have federated for 1907.

The portfolio has been energetically and successfully engineered by Mr. Hill, who has given to it a whole-hearted devotion that is apt to put to shame some of our more leisurely movements. The entries have increased, and I think interest in the Portfolio is being developed.

The lantern-slide entries show a diminution in numbers this year, although those who take part in it show no waning enthusiasm. I must give all credit to that busy man, Dan. Dunlop, for his management of the Lantern Slide Section.

"The Blue Book" is a valued companion to associates. Year by year I am vain enough to think it improves, but I do not think it has reached finality. One important point is that it must be kept small in size—waistcoat pocket size, in fact—so that it may be always available. Its aim should ever be *multum in parvo*.

"The Secretary's Letter" is welcomed monthly by associates. One proof of this is that if a parcel goes amissing on the railway I am not long in getting word of its disappearance. Thanks are due to the associates whose contributions have enlivened its pages.

The excursion to Loch Lomond was thoroughly enjoyed by those who took part in it. Messrs. Horn, Morren, and Crockett deserve our thanks for their very complete arrangements—they even negotiated with the Clerk of the Weather for a sample of his best.

Our staff of lecturers, demonstrators, judges, etc., is a most valued possession. There are few of our societies but have had the benefit



of the services of these gentlemen. Our best thanks are due to the self-denying labours of these gentlemen.

Everything shows that the federation remains true to its trust, and through its various agencies does its best for the betterment of photography in Scotland.

Mr. Hill appealed for a more whole-hearted support to the Portfolio, especially from the better known workers. It should really be, he said, a travelling salon, and it deserved every support. Mr. Dunlop called upon associates not to neglect the lantern-slide competition, the number of societies sending in entries was out of all proportion to the number of federated societies.

The Treasurer showed a satisfactory financial balance in his annual statement.

An enthusiastic invitation from the Aberdeen societies to hold the 1908 Salon in Aberdeen was unanimously accepted.

Office-bearers were appointed as follows:—President, Lord Provost Sir Alex. Lyon, Aberdeen; Vice-Presidents, Robert Milne and S. Stewart; Secretary, John B. Macdichan, Blairgowrie; Treasurer, Arch. Campbell; Auditors, J. A. Murdoch, C.A., and R. C. Thomson. Council:—Henry Coates, Fred. W. Kay, G. L. Smith, J. B. Philip, James C. Baird, Dan Dunlop, J. W. Ross, E. Darwin Wilmot, A. Symon and James Patrick, Mr. Patrick being elected as an associate member.

It was unanimously agreed to accept an invitation from the Brechin Photographic Association to hold the annual excursion to Edzell.

A suggestion to restrict the number of each person's entries to the Salon was defeated.

#### THE SPIDER'S WEB AS A NEGATIVE.

To one on a vacation and interested in photography (writes a correspondent of the "Scientific American"), the good part of a day may be spent in collecting and printing cobwebs. The process is easy. Let him get the farmer's potato sprayer, put in it some "sizing japan," thinned with turpentine and coloured from a terra-cotta tube. Then let him take some old window glass, or a few cleaned negatives, and go in quest of a clear web with a good centre. He will find it on an outbuilding or fence in the open. When found, let him spray it, then bring up a dry plate of glass behind it and lift it from its moorings. In a couple of hours the web will be dry, and so hard that the plate can be washed without any injury to the web. From plates thus secured he may make prints to his heart's content. To make combination pictures, put the plate over any clear negative and print through both of them. For printing the webs themselves, blue-print paper may be used to advantage, inasmuch as it simplifies the work.

In finer experiments I have tried dyeing the web, spraying it with tincture to make it opaque, then taking a fresh damp negative which had previously been exposed to the light and washed in a hypo bath, to lift it. The filaments of the web were so fine, however, that though perfectly preserved, it was impossible to make a print from it. So that for photographs I will stick to the enamelling process—that is, to spraying with "sizing japan." The japan is the same as used for gold lettering.

**THE LATE MR. W. B. SCOTT.**—We regret to announce the death of Mr. W. B. Scott, who passed away on February 9. Mr. Scott carried on the business of Brown, Scott, and Co., mount and frame makers, of Red Lion Yard, High Holborn, which was established in the year 1869.

**THE B. J. EDWARDS LANTERN-SLIDE COMPETITION.**—The following is the list of the prize-winners in the competition organised by Messrs. B. J. Edwards, of Ealing, in connection with their "Krystal" plates:—James Shaw, Manchester; Edgar B. Bull, Forest Hill; Alex. H. Paterson, Sutton Coldfield; A. G. Thistleton, Manchester; Kenneth Bishop, Warrington; T. H. Blake, London; H. Cochrane, Junr., Belfast; J. Shaw, Manchester; William Rees, Amsdale; G. A. Booth, Preston; Ellis Kelsey, Eastbourne; J. C. Miller, Leek; H. E. Corke, Levenocks; Miss Kate Smith, Watford. Honourable Mention:—H. van Wadenoy, Barry Dock; H. Hill, Sheffield; A. J. Linford, London; A. W. Searley, Kingskerswell; R. R. Bull, Forest Hill; J. Rutherford, West Hartlepool; J. J. Rutherford, West Hartlepool; F. Essex, Southampton; E. R. Bull, Forest Hill; D. H. Magnus, Morton Park, Wimbledon; H. Holt, Liverpool.

## Exhibitions.

### THE SCOTTISH SALON.

ON Saturday last, February 23, the fourth exhibition of the Scottish National Photographic Salon opened its doors to the public in the Art Gallery of the Paisley Museum. The Salon reflects the progress of the year in Scottish photographic art, and attracts the exhibits of leading Scottish workers at home and abroad. A word as to its arrangements and promoters may not be out of place.

When the idea of this exhibition was first promulgated, the proposal to conduct it on the no-entrance-fees and no-prizes methods was adversely criticised in many quarters, even by those who were in favour of a national exhibition. It was held by many that pot-hunting was too strong amongst "the men who count" to make such a show possible. The advocates of the scheme, however, were dogmatic; they were positive that national pride was still an existent force, and maintained that Scottish workers only wanted the opportunity to prove that in photographic art Scotland was a power to be reckoned with. They confidently prophesied, in the face of the pessimists, that leading workers would loyally patronise an exhibition run on the "all-for-honour" lines. The experiment was tried. The sanguine prophets were right. The leading workers sent of their best. The exhibition was a revelation to most, and the National Salon at one bound took a foremost place amongst exhibitions. The national character of the promoting body—the Scottish Photographic Federation—no doubt contributed in no small degree to the success attained, and it is questionable if it would have been possible for a photographic society—as ordinarily constituted—to have promoted such an exhibition.

Since that first exhibition at Perth in 1904, the quality of the exhibits has steadily advanced; the number of entries are increasing, until this year at Paisley they reach 843, about double the number submitted to the selectors at Perth. These 843 exhibits were entered by about 200 workers. The Board of Selection met, and every frame entered was submitted to their inspection—truly an arduous day's work. The selected pictures number 422, by about 140 exhibitors. There is also a "one-man" show by Mr. C. F. Inston, Liverpool, he having been invited as a representative from England; while Herr M. Masuren, Halle, collected and sent twenty-six pictures representative of the best German and Austrian work (we have already published a list of these exhibitors). The presence of these pictures from England, Germany, and Austria is pursuant of a policy, initiated at the first salon, of inviting work from outside Scotland, different workers being chosen each year, so that native photographers might have an opportunity of contrasting their own work with that of other nations. In this connection it is interesting to note that invitations to exhibit have been given to and accepted by Mr. Percy Lewis, Bristol; Mr. Alex. Keighley, Keighley; Herr Enke, Stuttgart; Mr. F. H. Evans, London.

The Board of Selection this year is: Messrs. J. Craig Anman, Glasgow; Wm. Crooke, Edinburgh; Patrick Downey, R.S.W., Skelmorlie; Alex. Keighley, Keighley; and James Patrick, Edinburgh; and while it is impossible to please everybody, the general opinion is that they have carried out their task well, the result being a collection of works of which promoters and exhibitors may well be proud.

Exhibitors know the various details affecting the Salon arrangements well beforehand. At the annual general meeting of the Federation, held on the opening day of the Salon, it is decided where the following year's Salon will be housed. The Council at an early date, therefore, appoints a Salon Committee and a Board of Selection, and the other details follow as a matter of course.

Portrait photographers in the North are bound to be interested in this year's Salon, as it is particularly strong in portraiture, all the "giants" of the profession being represented. Wm. Crooke is, as usual, forward with a typical collection of his imposing portraiture, one of which, a splendid portrait of an old man, is chosen for reproduction in the catalogue.

John Moffat, Edinburgh, has two strong ecclesiastical portraits, his one of the Dean of Perth (32) being a virile bit of portraiture; while James Auld, Edinburgh, is represented by essays in feminine portraiture. W. R. Kay, Southampton, has a straightforward bit of work in "Portrait of Mr. David Kay" (18); J. B. Johnston, Edinburgh, devotes himself with much success to landscape, as also does his fellow-citizen, James Patrick, who, amongst much good

legitimate work, has an outstanding picture in "Through the Snow-drift" (135). E. Drummond Young, Edinburgh, in two portraits of ladies in mediæval costume (168 and 224), strikes just the right note where he might very easily have wandered into the burlesque. Dan Dunlop, Motherwell, shows idealised portraiture in "Pensive" (49).

C. F. Iaston, in his invited work, shows a variety of portraiture and figure studies, from which much can be learned.

J. M. Whitehead is represented by a splendid collection of his now well-known landscapes. Here we have one of the benefits of specialisation. Mr. Whitehead first took up flower studies, and, having become acknowledged head of that branch of photography, developed a new school of landscape work. It is strictly academic in treatment, but is devoted to the quieter and more peaceful aspects of Nature, treated with a poetic touch that captivates alike impressionist and realist. His work is mostly hung in the centre panel of the north wall, and beside it is a portrait of the artist by G. L. A. Blair, Paisley.

Mr. Blair deserves more than a passing notice. He is a young professional in Threadopolis, who has supported the Salon from the first, turning out good, honest work, mostly landscapes and seascapes of good quality, but this year he has strayed into the world of fancy, and has endeavoured to give a symbolical rendering of the well-known "Lead, Kindly Light" (375). The picture is reproduced in the catalogue, and has already caused much speculation and debate. Rumour has it that the Board of Selection were enthusiastic in their reception of it. The picture is frankly idealistic. On a sandy strip of seashore, dimly lit by a partially clouded moon, a monk carrying a lighted lantern steps boldly forth into the gathering gloom. The attempt is an ambitious one, and while it may not be absolutely successful, it is not by any means a failure, and certainly has made Blair of Paisley the most talked-of man of the 1907 Salon.

A. W. Hill, Shotts, is strongly represented, and several of his "gum-bi" portraits give one pause, and awaken a wonder whether there would not be a market for portraits in that medium amongst the more artistic of our population. J. F. Muir, Glasgow, has the largest number of pictures hung (sixteen), and in a rather uneven collection shows much originality. In this connection we should not omit mention of the Dunlops, of Motherwell, where four members of one family have thirty works accepted.

Dr. Richmond, Paisley, has essayed a fruit study in colours (230). It is by the three-colour gum process (the Doctor being a gum enthusiast), and while it is rather garish, still it gives an indication of the possibilities of the process.

The collection of German and Austrian work forwarded by Herr Masuren has breadth and massiveness for its characteristics. The place of honour is given to "A Quiet Corner" (328), by K. Prokop, a strong massing of light and shade—an old house amongst overhanging trees; sunlight plays all around, and, with all its strength, there is a luminosity in the shadows that is as exceptional as it is pleasing. This worker has other three pictures, his "Austrian Country Dance" (321), depicted in the full blaze of sunshine, has a sense of motion in the whirling figures that one feels to be "just right." Rudolph Dührkoop has six of his quiet and restful "at home" portraits, already well known through the exhibition in the little galleries of the "B.J." and elsewhere in the country. Ernst Müller shows some strong, unhackneyed portraiture, one (332) being reproduced in the catalogue. Dr. Erwin Quedenfeldt shows contrast in attitude in 319 and 340—the scene and figure is the same, yet the one is "Discontented" and the other "In a Good Mood," and both carry out their titles. This exhibitor's strong picture, however, is his "Swan Pond," where most decorative rendition is given of the ripples on the pool. Otto Erhardt has a "big" picture of the immensity of mountain scenery; and toocher landscape (331), original in treatment, and a portrait of a boy, different from the usual thing. Dr. Schrakamp has a picture of broad masses in "Castle of Chillon." Altogether the exhibit is a notable one.

At the entrance, J. Douglas Ritchie, Paisley, held an exhibition of professional work. It comprises a number of large portraits in sepia platinotypes, artistic in treatment, technically excellent, and reflecting every credit on the studio from which they emanate.

Messrs. Kodak, Ltd., Thos. Illingworth and Co., and the Rotary Photographic Co. have also exhibits at the entrance, representative of their various productions.

On Friday evening a private view was held, open to delegates of

the Federated Societies and friends. There was a large attendance, and the pleasure of viewing the pictures was added to and varied by tea, concert, and a lantern lecture by Mr. Henry Coats F.R.S.E., the first President of the Federation. Nothing but praise was heard on every side, and everyone felt that the 1907 Salon had got a prosperous three weeks before it.

#### EDINBURGH PHOTOGRAPHIC SOCIETY.

ON Saturday the annual exhibition of the Edinburgh Photographic Society was held in 38, Castle Street, Edinburgh. The entrance show a slight decrease in numbers, but the quality rivals the best of several years back. Messrs. W. D. McKay, R. Payton Blair, and P. G. Ferras were judges, and in the open section awarded the gold medal to Louis J. Steele, Portsmouth, for his well-known picture, "The Garden of Allah" (10). The treatment is broad and massive, and the whole picture is in harmony. Hon. mention is given to "Through the Snowdrifts" (19), by James Patrick, Edinburgh. In this picture the play of sunlight on the snow and the snowdrift is well portrayed. "Cupid" (26) by R. S. Webster, is a pleasing study of a nude Cupid; and "Geese" (30), by Georg Haranghy de Magyrev Debreczen, Hungary. Other noticeable pictures in this case are colour work by Henry J. Comley, Gloucester—"On the Clear Winding Devon" (42) and "The Night Cometh" (43), by J. M. Whitehead, Alloa; "Twilight" (24), by H. Stewart Wallace; "Child of the Ghetto" (39), by Mrs. Dunlop, Motherwell; "The Beethern Staines" (16), by J. R. Sandilands; A. B. Allan's "Village Carpenter."

In the Members' Class bronze medals are awarded to "After Asti" (172), by J. Trevelyan Sturrock; "Nightfall on the Moor" (178), J. M. Whitehead; "Landing Salmon Nets" (191), J. B. Johnston; "A Portrait" (208), H. Scott Lauder. Hon. mention to "Portrait" (158), Ewen Kennedy; "Figure Study" (166), A. B. Allan; "The 12th. On Birds" (195), W. J. Croall; "After the Day's Work" (197), J. B. Johnston; "Port de Gaud, Bruges" (202), E. L. Brown; "Towards the West" (216), J. B. Johnston. Other noticeable pictures in this class are: "Through Many a Storm" (200), W. J. Crear; "Love Lightens Labour" (192), James Patrick; "When the Tide is Out" (193), Geo. Cleland; "A November Morning" (199), James Burns.

#### BIRMINGHAM PHOTOGRAPHIC SOCIETY.

THE twenty-second annual exhibition of the Birmingham Photographic Society was opened, in the beautiful galleries of the Royal Society of Artists, on Friday evening, February 22, by a reception and private view, given by Mr. Thomas Taylor, the president. Mr. Taylor has well earned the highest honour the society can bestow for he has been one of its most faithful friends from the day the society was founded, nearly twenty-five years ago, and he is one of the two original members left.

It is difficult to compare one exhibition with another, and last year was so startling in its excellence that it was not to be expected that this year's would rival it. Although one of the judges expressed the opinion that this year's exhibition was even better than last year, we think that the average individual will scarcely agree with him. But everyone must admit that it is a remarkably good one. The local work is quite equal to anything in former years, but the extraordinary display of foreign photographs of last year is not attained this time.

The judges—Messrs. J. R. Bland, Alexander Keigley, and J. T. Wainwright, R.W.S.—have evidently been greatly impressed by the quality of the work exhibited, for they have been extremely lavish, not to say prodigal, with their awards, having given no fewer than five silver, fourteen bronze, medals, and twenty-three honourable mentions in the pictorial sections.

In the members' section Mr. W. A. Clark takes the silver medal for his "Nocturne, Gloucester." Apparently an exposure, made by the last gleams of day and a lighted street lamp. It is very successful, but we think the composition would have been improved by reducing the patch of light on the right side and by showing a gleam of light inside the dark passage in the centre, which would show that there is a passage through the arch; at present the arch appears closed by a black door.

No. 26, "Crypt, Gloucester," and No. 40, "A Corner of the Cloister," are also by Mr. Clark. Both received bronze medals. The



former is a good rendering of the wonderful Norman under-church, with a ray of sunshine streaming across, but, like most photographs of the place, fails to render the intense gloom of the original. The second is also at Gloucester, showing a corner of the cloister near the famous lavatory. No. 75, "Ruth," by Mrs. Dora Leckie, is a charming head by a new comer, but the effect and concentration of interest would have gained enormously if the upper part of the print, the top of the head, and the background, had been darker; there is an unpleasant fading away at the top, which damages the general effect and rather suggests a fogged plate. Admirers of Mrs. G. A. Barton's work will be disappointed by her photographs shown here. No. 3, "Florence and Paul Dombey," is certainly a breaking of new ground, but it can be scarcely called a conspicuous success. The figure of Florence does not recall the charming girl of the book, either in grace or beauty; and of Paul we can see but little, on account of the size and whiteness of his necktie, which is the most prominent object in the composition, while the bouquet he carries attracts attention at once by the careless way in which the density of it has been reduced by rubbing. No. 7, "Madame Pharnion," a profile of an old lady, is altogether pleasing. No. 9, "Madame de Goade," is also excellent, and would be still better if the high lights on the face were not so very sparkling. Mrs. Arbuthnot contributes several dainty and pleasant renderings of Italian scenes. We hope this lady will continue to cling to the sketchy, dainty style she succeeds with so well. It is so pleasant in these days of murkiness and gloom. Miss Lillie Bruce receives a bronze medal for No. 71, "Steam," a good study of steamers and smoke; and Miss Ethel Barrows a like award for a good head study.

No. 43, "Playmates," by Mrs. Wootton, is a pretty picture of a little girl on some garret stairs nursing a kitten. It will be seen that the lady members of the society quite hold their former prominent position.

Mr. E. D. Taylor scarcely fulfils his promise of last year. His "Bit of Old Worcestershire" is good, but wants more positive concentration of light and dark, and some more prominent point of interest. Mr. Lewis Lloyd, the indefatigable hon. sec., has received two honourable mentions. No. 64, "The Iron Horse," is a picturesque impression of a huge modern railway engine, nearly hidden by escaping steam.

No. 54, "A Bit of Old Conway," by A. G. Asman, would be greatly improved if the distant buildings receded. One effect often seen in "gum" prints is want of recession of the distance; it is failing that one would not expect to see in prints by a process which is said to give such great "control"; but there are many fine landscapes in the galleries, which show that this defect is not inherent in the process.

No. 69, "The Avon," by Reg. Gilbert, gives a good idea of that beautiful river, with its rushes and willows, and a fine sky. It is a picture to live with. In No. 77, "Flora MacLeod," one recognises some of Mrs. Barton's favourite models in her well-known style, but the contrasts of light and dark are very strong. In No. 79A, "Girl With Hat," by Miss Ethyl Barrows, the shadows on the face are unnaturally strong. If photographers would only carefully study the deepest shadows on a strongly lighted face they would see that they are never as dark as the shadows in the hair or clothes, yet we constantly see them reproduced in photographs as dark as the blackest shadow in dark drapery.

In the open section there is some fine work. No. 84, "In Norway," by J. Dudley Johnstone, is a good Corot-esque landscape in gum, but the blue sky seems out of place in a monochrome. No. 87, "A Sunlit Street, Berne," there is the same curious blue sky and pavement, which very much detracts from a beautiful effect of sunlight in a busy street. It is pleasant to see the original "The White Bridge," No. 90, by the same, after seeing it so often reproduced. No. 88, "Storm Clouds," by George Haranghy, is a very powerful and effective print in dark blue.

Nos. 81 and 93, by Henry J. Cowley, are wonderfully true renderings of still life in colours. No. 93, "Oranges and Nuts," takes an honest, and the fidelity of colour is remarkable, especially in the oranges; but the piece of tissue paper on the left seems to us a little too blue in colour. On the whole, we prefer No. 81. But we cannot help feeling that these brilliant reproductions of colour, wonderful as they are, give a too vivid effect. There is always

a great deal of grey in nature, especially in half shadows, but here all seems brilliant colour. Is it caused by the negatives being too brilliant and lacking in delicate half-tone? We do not see the same defect when artists' drawings are reproduced. Think of those marvellous reproductions of Arthur Rackham's illustrations to "Rip Van Winkle."

Charles F. Stuart sends several very fine landscapes in gum—No. 98, "Summer's Noontide," No. 106, "Evening's Lengthening Shadows"—and in "Auld Reekie" we have one of the finest things in the exhibition, a grand effect of smoke and steam in the railway cutting below Edinburgh Castle. It seems strange, when awards have been scattered so liberally, Mr. Stuart gets nothing. No. 134, "Chill October," is also excellent, but unfortunately the title at once recalls one of Millais's great landscapes, and the photograph has to take a back seat. No. 162, "Loch Katrine," is another of Mr. Stuart's grand landscapes, but it is sadly marred by a dark line along the top of the far distant mountains. S. G. Kimber sends a number of very beautiful architectural studies, the finest being "A Cathedral Passage"—No. 189, a superb photograph of the Stype or Abbot's Cloister at Gloucester. One wonders why it did not get an award. Another nearly as good is No. 113, "A Relic of the Past," also a Gloucester view, showing the old cope chest. No. 100, "Steps to the Chapter House Wells," is perhaps the best of this most beautiful, but impossible, subject for photography we remember to have seen, not forgetting F. H. Evans' "Sea of Steps." No. 170, "Child of the Ghetto," by Mrs. Dunlop, is a good, broad, natural portrait, quite refreshing after the artificiality of some attempts around it. Mrs. Girdlestone has made several strong efforts to get away from conventionality in No. 129, "A Dream of Beauty," and No. 135, "L'Introse." They are scarcely successful. It is rather difficult to see what they are all about, and in No. 129 there is a strong streak of shadow athwart the forehead that is unpleasant and unnatural. Dr. Thurstan Holland sends only one print a very fine "ozo-bromide" of one of those groups of mountains in snow, for which he is famous. Edward B. Pain, in No. 116, "The Waters of Lethe," has a really fine effect of steam and smoke from blast furnaces over a canal; but why did he put the sketch of the demon, with pitchfork all complete, on the flat of the frame? It has nothing to do with the subject and only irritates by detracting attention from the picture. J. C. Batkin secures a beautiful suggestion of fresh air and open space in No. 119, "Fresh Breeze and a Winnowing Sand," and in No. 132, "Bright Visions in a Dreary Waste." T. H. Cox's "Student of English," gives a pretty pleasant study of a little Dutch girl at her book. No. 127, "A Volendam Canal," by James Gale, is capital, composed, with a figure of a Dutch girl in the foreground; but the general effect seems to want a little more vigour and contrast. C. J. Cruwys Richards has left for the present his experiments in coloured gum, and his three studies in an Irish cabin, printed in black carbon, are excellent—No. 130, "Anxiety," No. 136, "Portrait," and No. 293, "In an Irish Cabin"—but, unfortunately for the first one, we cannot help thinking of Frank Bramley's "Hopeless Dawn," and the photograph, good as it is, suffers from recollections of the picture. No. 163, "The Dairymaid," a Swiss scene apparently, is in gum; but it is not as good as we have a right to expect from Mr. Richards; the colour is unpleasant, a curious yellowish brown, and some of the shadows, which we should expect to see the darkest, are very weak; the print is unequal. It is rather like the curate's egg—some parts are excellent, but others are disappointing.

Herbert E. Wroop exhibits several dainty platinotypes, apparently vignetted by the glycerine method; they are very fresh and pleasant.

Nos. 140 and 155 are delicate photographs of the semi-nude bronze figures, carrying electric lights, in the square at Leeds, and very charmingly rendered. No. 148, "Winter," by J. E. Sykes, shows a sparkling, glittering effect of sunshine on snow, very fresh and true. George Haranghy, No. 102, "The Mill," is another snow scene of a different type, very strong and broad. No. 181, "A Play of Sunlight," by J. W. Johnson, shows a vista through panelled rooms with a well-caught effect of sunshine on the floors and walls; but it is sad to see that the beautiful rooms are falling fast into decay.

G. C. Dudley's "Pathless Snow," No. 188, is just as strong as J. E. Sykes' "Winter," is bright and sparkling, but just as true in its own way; it is a fine print. J. M. Whitehead sends several landscapes of the poetical kind we expect from him, and by far

the best is "The Silent Moor," a broad expanse of heather-clad undulations, with a sunset sky. It well deserves the bronze medal it receives. Arthur Marshall's "Venetian Pearl," we all know and admire. Dr. Ledenig, of Graz, has several fine things. No. 209, "Birch Trees," we consider the finest photograph in the exhibition. It suggests misty moonlight through a group of leafless trees. It is at once a strong, poetical, and pictorial print. It is to us just perfect, except for the glaring light coloured signature just where it ought not to be. No. 258, bearing the same title, is quite a different subject. Here we have two curiously shaped trees, blown about. The suggestion of driving wind in the trees and the clouds is grand, but the top of the taller tree, near the frame, is ugly and solid, and we think it might be trimmed off with advantage. We are glad that the former has received a silver medal.

Miss Annie E. Bridgman sends six attempts to produce the weird-poetic by photography. We must confess that, to us, they are quite failures; they are weird, but, oh! so ugly. No. 244, "The Soul of the Blasted Pine," shows a very material nude model, doing gymnastics on a fallen tree. It is of the earth earthy, and the others are much of the same kind.

No. 307, "La Petite Hollandaise," by P. Dubreuil, is an example of faking, naked and unashamed, but all the high lights are intensified by some means which suggests that the surface of the print has been scraped down to the white paper. If this work is on the negative it seems doubly indefensible; in the first place, because it is apparent; and in the second, because it imitates another method of work. Faking is only pardonable when it is not found out. No. 309, "Mother and Child," by F. H. Pratt, well deserves its bronze medal. It is a beautiful unconventional portrait group.

It is quite impossible to notice all the good things in the galleries, but we may ask why M. Demachy's, and many other beautiful prints, are hung in a dark passage where they can hardly be seen?

#### FORTHCOMING EXHIBITIONS.

1907.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge, Norwich.

February 23 to March 2: Birmingham Photographic Society. Entries close February 12.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 23 to March 9: Edinburgh Photographic Society. Entries close February 9.—Sec., H. Stewart Wallace, W.S., 77, George Street, Edinburgh.

February 23 to March 16: Scottish National Salon. Entries close January 31.—Sec., Robert Milne, Linnvale, Potterhill, Paisley.

February 25 to 28: Worthing Camera Club. Entries close February 16.—Sec., E. F. H. Crouch, 11, South Street, Worthing.

February 26 to March 2: Norwich and District Photographic Society. Entries close February 12.—Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 27 to March 2: Nottingham Camera Club. Entries close February 14.—G. R. Cranch, St. Jude's Avenue, Nottingham.

February 28 to March 7: Queen's Park Amateur Photographic Society. Entries close February 14.—Sec., J. Moir, 644, Cathcart Road, Glasgow.

March 2 to 9: South London Photographic Society.—Sec., W. L. White, Bank House, Ladywell, London.

March 2 to 24: Marseilles Photographic Society.—Sec., M. Cullet, Rue St. Savournin, 38, Marseilles.

March 6 to 8: Aldershot and District Camera Club. Entries close March 2.—Sec., D. Morrison, Kilry, York Crescent, Aldershot.

March 6 to 9: Wearside Camera Club. Entries close February 20.—Octavius C. Wilmot, 297, High Street West, Sunderland.

March 6 to 9: Bolton Amateur Photographic Society. Entries close February 16.—Sec., Gilbert Holt, 187, Deane Church Lane, Bolton.

March 7 to 16: Leicester and Leicestershire Photographic Society. Entries close February 16.—Sec., Lewis Ough, "Fernleigh," St. James' Road, Leicester.

March 12 to 13.—G.E.R. Mechanics' Institute, Stratford (photographic section). Entries close March 2. Sec., A. Woolford, 16, Grove Green Road, Leytonstone, N.E.

March 14 to 16: Coventry Photographic Club. Entries close March 9.—Sec., T. J. Mercer, 6, Cope Street, Coventry.

March 22 to April 13: Northern Photographic Exhibition. Entries close March 8.—Sec., C. F. Inston, 25, South John Street, Liverpool.

March 23 to April 2.—Glasgow Southern Photographic Association. Entries close March 16.—Sec., Charles Young, 217, Colinton Road, Partick, Glasgow.

April 10 to 13: Ilkeston Arts Club, Photographic Section. Entries close March 27.—Sec., A. Smith, 11, Graham Street, Ilkeston.

April 17 to 19: Belfast Y.M.C.A.—Sec., J. W. Bushey, Y.M.C.A. Camera Club, Belfast.

April 25 to 27: Wallasey Amateur Photographic Society. Entries close April 10.—Sec., W. Hayes, 110, Brighton Street, Seacombe.

April 29 to May 14: Photographic Society of Ireland. Entries close April 22.—Sec., R. Benson, 35, Molesworth Street, Dublin.

May 6 to 10: Chemists' Trades.—Sec., A. Norman Flack, "British and Colonial Druggist" Offices, 44, Bishopsgate Street Without, London, E.C.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications were made for patents between February 11 to 16:—

PHOTOGRAPHY AND BURGLARY.—No. 3,345. Automatic service for photographing housebreakers whilst manipulating on the door lock. Hubert Wessling, 53, Graben Strasse, Essen, Ruhr, Germany.

CAMERAS.—No. 3,607. Improvements relating to photographic cameras. Henry Major, 24, Carlholme Road, Forest Hill, London.

ELECTRO-CHEMICAL PHOTO-PRINTING.—No. 3,714. Improvements relating to cameras for producing photographs by electro-chemical or the like means. Frederick Otto Trautmann, 37, Park Road, Loughborough.

FOCAL-PLANE SHUTTERS.—No. 3,810. Improvements in connection with photographic exposure shutters, known as self-closing focal plane shutters. John Stuart and Alfred Woods, 47, Lincoln Inn Fields, London, W.C.

DARK SLIDES.—No. 3,841. New or improved combined magazine and dark slide for photographic plates, and the like. Walter William Niblett, 88, Chancery Lane, London, E.C.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

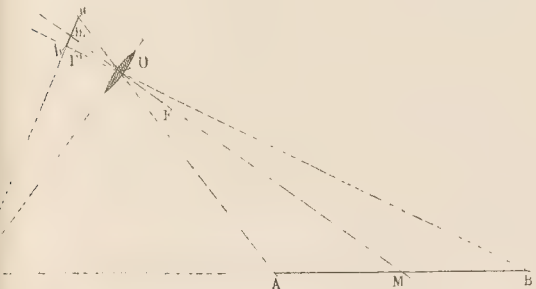
OPTICAL PROJECTION.—No. 15,729, 1906. The invention relates to a system whereby transparencies may be projected at any angle and is particularly applicable for advertising purposes. It consists in principle in inclining the optical axis in relation to a surface which receives the projected image, and in placing the projection apparatus, at a corresponding inclination (determined by convenience) a specially-prepared slide.

Let A B be the position on the ground upon which the image is to be projected, and O the point where the objective of the projection apparatus is to be placed. In order to determine the position which the slide should occupy in relation to the objective, it is first necessary to determine the optical axis, which may be represented by the line adjoining the point O with the centre M of the line A. B. The optical axis F F' and the line of the objective being known, it will be easy to determine the known processes the positions *a b* which those points of the slide should occupy that are to be projected at A and B. To test the line *a b* in size and position it is sufficient to determine a single one of its points; for example, the point *m* of this line which is found in the optical axis. The point *m* having been once determined, in order to obtain the position *a b* of the slide it is sufficient to join this point *m* to the point C where the line A B intersects the median plane O C of the lens. The extreme points *a b* of the slide will then be found at the intersection



the line  $mC$  with the lines  $AO$ ,  $BO$ , and similarly for all points of the image.

It is to be observed that the image  $AB$  is not geometrically similar to the slide  $ab$ , the point  $m$  not being at the middle of  $ab$ , and that the image  $AB$  will not conform to a predetermined subject unless it has been projected by the aid of a slide  $ab$  representing the subject distorted correspondingly. Thus, to obtain upon the ground an image similar to a given subject, it is



necessary to employ a special slide carrying a distorted image which can be determined either by tracing it point-by-point, or preferably in practice by photography. In the latter case the sensitive plate, the objective and the subject to be photographed would occupy relative angular positions which may be conveniently determined by a process analogous to that above specified and represented in the annexed figure. James Tiburce Felix Conti, 8, Quai d'Orleans, Paris.

**New Trade Names.**

- No. 289,359. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. A. Drake Roberts and Co., Ltd., 100, Carpenters Row, Stratford, Essex, Manufacturing Chemists. January 8, 1907.
- STEMPERETTE.—No. 289,506. Chemical substances used in manufactures, photography, philosophical research, and anti-corrosives. W. H. Holmes and Sons, Stepney Paint Works, Turner Street, Portland Road, Newcastle-on-Tyne, Paint and Colour Makers. January 14, 1907.
- IPIDO.—No. 286,122. Photographic apparatus in Class 8. Fabrik Photographischer Apparate auf Aktien vormals R. Hüttig und Sohn, 76, Schandauer Strasse, Dresden, Germany, Photographic Manufacturers. September 22, 1906.
- XIO.—No. 289,081. Stereoscopes and parts of stereoscopes included in Class 8. Leon Pigeon, 3, Millotet, Dijon, France, Manufacturer. December 22, 1906.

**FEATS OF THE CINEMATOGRAPH.**—The Palace Theatre scored two distinct bioscope records last Saturday afternoon. The wreck of the "Berlin" was shown in a series of episodes vividly depicting the disaster. The rescuers are seen embarking on their perilous undertaking, and later, the ill-fated "Berlin" with the waves breaking over her. Their Majesties the King and Queen opening the South African Products Exhibition was also shown on the bioscope on Sunday within three hours of its occurrence and a unique feature that of the King in the act of knighting Captain Bam.

**SIR BENJAMIN STONE** has just returned after a long holiday with the camera in Egypt. The Unionist member for East Birmingham, it appears, paid particular attention to the beautiful ruins of Kom Ombo, and also to the recently excavated tombs of the Queens near the plains of Thebes, but undoubtedly the most interesting of the photographs he has secured are in connection with the tomb of Amen Teie. Sir Benjamin had the good fortune to be present when Messrs. T. Davies and Curdely opened the tomb containing so many wonderful relics, and of these he has made numerous photographs.

**HALIFAX CAMERA CLUB.**—Mr. Lionel Dickinson, secretary for the last seven and a half years, has retired from the position, his successor being Mr. Harry Crossley, 29, Beech Street, Pellon Lane, Halifax, to whom it is requested all communications on club matters could be addressed.

**Analecta.**

*Extracts from our English weekly and monthly contemporaries.*

**A Preservative of Soda Sulphite Solution.**

The addition of glycerine to sulphite solution (writes "F. G. P.," in "The Amateur Photographer," of February 26) acts as a preserving agent, while it in no way interferes with the chemical action of the developer. The following is the formula:—

Sodium sulphite .....	5 ozs.
Glycerine .....	3½ drms.
Water .....	1 pint.

This makes a good stock solution, which may be diluted as desired. It will keep for six or eight months easily, without deteriorating to any practical extent. Other substances, such as mannitol, have the same effect, but are less readily obtainable.

**Firelight Effects by Daylight.**

Writing in "Photography," of February 26, Mr. Henry Essenhighe Corke describes a method of securing portraits and figure studies shown under a lighting like that from a domestic fireplace. He says:—"In the case of those taken in the studio, the sitter was posed on a raised platform, so as to be on a level with the bottom of the window, in this case of ground glass, and about two feet from the floor. The sitter should be as near the source of light as possible, so that the lighting may be rather concentrated. All the dark blinds are then drawn, leaving only a patch open about two feet square,



just in front of the sitter, where the fire is supposed to be. A fender and hearthrug are then placed in front of the light on the floor. In some cases it may be found convenient to place a mirror in the "fireplace," so as to give an extra amount of reflected light upwards to the face of the sitter. A small strip of white paper may be placed inside the fender to look like the white hearth.

"It is desirable to use a dark background, composed of dark curtains; these should not be allowed to hang in folds, but should be stretched tightly, or awkward streaks of high light will possibly show on the folds.

"Exactly the same effect can be obtained in the same way in an ordinary room, and at an ordinary window."

[Some time ago Mr. Corke sent us a photograph of his studio showing the arrangement for obtaining the firelight effect. The illustration is so explanatory of the above description that we may reproduce it here.—Eds. "B.J."]

**Ozobrome Lantern Slides.**

The Ozobrome tissue (writes Mr. W. Findlay, in the "Photographic News," of February 22) is sensitised, as directed by the makers (immersed for one minute in the special solution), and squeezed into contact with the print from which the lantern slide is to be made. The print should be first well soaked in water, and,

after squeegeeing, left for an hour in contact under slight pressure between sheets of damp blotting-paper. This is an important point. If it is omitted, the further transfer necessary is rendered difficult.

At the expiration of the hour, the print with the adhering plaster is immersed in cold water, and under it they are separated. The former is now non-existent, but is re-developed later, and is generally none the worse. The tissue is immediately squeegeed on to a cover-glass on which there is no substratum. This is placed between dry blotting-paper and left for twenty minutes, to allow for a good adhesion.

The embryo side is then immersed in a dish of lukewarm water. A sufficient time is allowed for the backing paper to free itself from the pigment, and then this is peeled off. It comes away readily, and there is no image on the face of the paper such as one expects to find in the case of a correctly exposed carbon print.

Development is allowed to proceed, and the unaffected pigment is rather slow in coming away. No more warm water need be added, however, and in about five minutes' time a good slide—an exact replica of the print—is obtained.

### The Arithmetic of Dry Mounting.

The editors of "The Photographic Monthly" (née "The Photogram"), with whom systematisation amounts to a religion, gives the following table of temperatures for the guidance of dry-mounters:

	Deg. Fahr.	Deg. Centi.
Carbon and "gum" prints .....	140-150	60-65
Gelatino-chlorides, lightly alumed .....	160	70
" " strongly alumed .....	165-175	75-80
Colloidio-chlorides .....	185	85
Bromide .....	185-195	85-90
Albumen .....	195	90
Platinums, plain-salted silver, "Mattos," and other prints with matt faces and no gelatine .....	195-205	90-95

These temperatures are for five seconds' pressure, but slightly lower temperatures and a longer dwell are recommended. Within very wide limits the variations of temperature will do no real harm. If too low, neither the print nor the mount will stick to the adhesive sheet; if much too high, the adhesive sheet will generally stick to the print and come away from the mount.

With very thick papers the temperature may be increased a little and the time be lengthened to fifteen or twenty seconds.

Unmounting is quite easy. Heat a metal plate to 250 deg. or 300 deg. Fahr. (120 deg.—150 deg. C.). Lay the mount upon it, and with a piece of flannel press a corner of the print, until it is loose. Raise this corner, then press an adjacent part until it, too, comes loose, and very quickly the whole print can be stripped without injury.

## New Books.

"Three Vagabonds in Friesland with a Yacht and a Camera." By H. F. Tomalin. 250 pp. and xxvi. 8 by 6 inches. London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 7s. 6d.

The yacht was hired, the camera was Mr. Arthur Marshall's. Hence the interest to us and to all photographers of this narrative of the wanderings of a photographer and two friends on the "meers" and canals of Northern Holland. The book is one answer to the eternal question: "Where to go this year?" Try this quaint corner of Holland, say the authors, and adduce in support of their advice the account of a month's journeyings which admirably reproduces the restful easy-going life of a part of Holland which is inconceivably remote from the beaten track of the tourists, yet only fifteen hours from Liverpool Street.

Mr. Marshall's photographs—made with a 5 by 4 reflex camera, as he tells us—are quite as necessary a part of the narrative as the text. Without pretensions to be more than "snap-shots" taken with some care, they are many of them highly pictorial, and the quaint costumes of the Dutch men, women, and children are the subject of many most pleasing compositions. The cost of this delightful holiday, we read, worked out at £1 a day for each of the three "vagabonds," and we have no doubt that the "architect," "printer," and "scribe," as the trio are individually labelled by

the last-named, had a glorious time. The narration of how their holiday was spent in doing nothing in particular has few dull places in it. Indeed, our only quarrel with the author is that he seems to be constantly trying to reproduce the humour of Mr. Jerome K. Jerome's "Three Men in a Boat."

Mr. Marshall contributes an appendix containing an interesting account of his photographic equipment and procedure *en route*.

"Exécution des Fonds d'Atelier." By H. Fines. Forty pages, 8 by 5. Paris: Chas. Mendel. 60 centimes.

M. Fines, the author of this little work, is a painter of backgrounds for professional photographers in Paris, and was at one time a scene-painter for the Opera. He instructs the reader in the making of a background from beginning to end by the distemper and flatted oil methods. Commencing with the construction of the framework, he deals with sizing and the application of colour to plain and clouded grounds, interior, and landscape subjects, and to ground cloths. Finally, he gives a series of hints on the repair of backgrounds. The volume is evidently the work of one who is thoroughly acquainted with his subject.

## New Materials.

Barnet "Oyster-shell" Gaslight Paper. Made by Elliott and Sons, Ltd., Barnet, Herts.

From the jungle to oyster beds is a far cry, but the breach is traversed by Messrs. Elliott in their search for a name for their new introduction, the character of which is far removed from that of the "Tiger Tongue" paper. "Oyster-shell" happily emphasises the peculiar coolness and delicacy of the results with the new paper, results which evade exact description, yet are assets of considerable value both to the amateur and professional photographer. The latter particularly has reason to take notice of the new paper, for it is still another instance of the continual improvement of bromide as a printing process which can be used for portraits of the highest class. Its pure black, "colour" of image, clear high-lights, and subtle matt surface produce altogether an effect which a photographer can apply to his own work with great distinction, especially if he study the particular fitness of mounting boards for the reception of "Oyster-shell" prints. Messrs. Elliott have issued small window-bills which supply an admirable object lesson in this respect. The imitation grey canvas surface, with just a tinge of green in it, makes a perfect surround for the soft prints on the new paper.

Leto Pigment Paper. Made by the Leto Photo-Materials Co. (1905) Ltd., Rangoon Street, London, E.C.

In this material we have still another addition to the now quite considerable number of papers for the production direct of a pigment image—that is to say, without transfer to a temporary or final support, as in the carbon process proper. The forerunner of all these papers may be said to be the well-known "Artigue," to which, indeed, the paper now under consideration, bears a very strong resemblance as regards the results procurable with it.

The paper is sensitised in a rather special way, otherwise all the manipulations are those familiar to users of direct pigment papers. The sensitising bath is:—

Ammonium bichromate.....	450 grs., 50 gms.
Sodium carbonate (cryst.).....	90 grs., 10 gms.
Water up to.....	20 oz., 1,000 c.c.s.

This is diluted immediately before use with twice its volume of methylated spirit and the diluted solution discarded after use. The sensitiser is applied by brushing, placing the print on a board tilted so that any excess of liquid runs off at once from the print. In this way the print absorbs a less amount of sensitiser than it would by floating or immersion, and it dries in about 10 or 15 minutes. It should be used within forty-eight hours, or it becomes stale and flat in working.

As regards the further treatment there is no point of difference from that adopted in previous papers of this class. The prints are developed in hot water, which is poured upon them from a jug or the tap, or they may be very lightly treated with a soft brush (with which also any amount of "control" may be introduced), or they may be developed in a broth of hot water and fine wood meal. In all cases, the results in our experience show a fine range of gradation.



and pleasing texture. The paper is sold in shilling packets of twenty quarter-plate, or nine half-plate, pieces, and is also obtainable in larger sizes up to 15 x 12. Accessories in the shape of sensitiser, tintometers, and developing sprays are also supplied by the Leto company.

**"ELTICO" ART MOUNTING BOARDS.**—Messrs. L. Trapp and Co., and 9, Chiswell Street, London, E.C., send us a sample booklet of series of fine art boards and papers which they are issuing specially for mounts and folders. In both colour and surface the series offer variety which is an improvement on any we have seen. The colours are none of them pronounced. They include browns, greys, and tints of very agreeable and unobtrusive shades, and in the case of the boards, possess a linen grain very closely resembling some of the mounting boards used by Herr Dührkoop for the photographs shown to our offices a year ago. Messrs. Trapp send the booklet to any professional photographer for sixpence, and we imagine that every one aiming at distinction of style will wish to avail himself of the offer.

**THE SCHROEDER LIGHT.**—Mr. Jonathan Fallowfield, 146, Charing Cross Road, advises us that he has had a consignment of the Schroeder lamps sent over, and will be pleased to show those interested the working of the lamp in London. From practical trials and from letters received from professionals who are at present using this apparatus, it is recommended with every confidence. The price is £6 6s., and includes carrying case.

**OIL PRINTING.**—Messrs. John J. Griffin and Sons, Ltd., inform us that they have made arrangements to supply the materials for the printing process with which Mr. Rawlins's name, and lately those of M. Demachy and Puyo, have been associated. They will also give demonstrations of the process every Tuesday afternoon at 3.30 at their house in Kingsway. A list of prices of oil-printing requisites will be sent by Messrs. Griffin on application.

**"TABLOID" CHEMICALS.**—To enable photographers to make a practical test of "Tabloid" photographic chemicals, and familiarise themselves with the convenience and reliability of these products, Burroughs, Wellcome, and Co. are now issuing specimen sets of "Tabloid" photographic chemicals to retail at 6d. and 1s. The former contains metol-hydroquinone developer, potass bromide, and sulphide; the latter, in addition, pyro developer, persulphate, and gold-toning preparations.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, MARCH 1.

Hamstead Scientific Society. "Sponges: Their Life-history and Development."  
M. Yeatman Woolf, F.R.S.  
London Photographic Club. "Members' Prints."  
London Photographic Society. "Art and Photography." C. O. Murray.  
London Photographic Society. "The Life of a Flower." A. McKinnon.  
London Art Club. "Federation Portfolio."

#### SATURDAY, MARCH 2.

London Photographic Society. "Picturesque Japan." Illustrated. J. Duncan Millar. Art Union Drawing.

#### MONDAY, MARCH 4.

London Polytechnic Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."  
London Photographic Society. "Leading Principles in Velox Manipulation."  
London Photographic Society. Monthly Lantern night.  
London Camera Club. "Visp to Zermatt." Illustrated.—Part I. W. R. Kay.  
London Park Photographic Society. 1906 Outing. Lantern Slide Competition.  
London Camera Club. "Suggestions on Pictorial Photography." Lantern Lecture.  
A. A. Bellingham.  
London and Forest Hill Photographic Society. "Principles of Composition."  
W. E. Tindall.  
London's Heath and Moseley Photographic Society. "Cathedral Photography."  
W. A. Clark.

#### TUESDAY, MARCH 5.

London Photographic Society of Great Britain. "Wet Collodion, Negative and Positive." By the Autotype Company.  
London Camera Club. "Postcard Photography on 'Rotox' and 'Rotograph' Card."  
London City Camera Club. Carlisle. "Theory and Practice of Self-Toning Papers."  
London John J. Griffin & Sons.  
London Crow Naturalists' Field Club. "Theory and Practice of Self-Toning Papers."  
London John J. Griffin & Sons.  
London Glasgow Southern Photographic Association. "Sports and Pastimes with the Goetz-Anschutz Folding Camera."  
London Otherham Photographic Society. "Intensification and Reduction."

Sheffield Photographic Society. "Some Points in Making Lantern Slides." G. D. Harrison.  
Stafford Photographic Society. "Holland and the Rhine." H. Cliff and H. Hey.  
Redhill and District Camera Club. "Colour Photography." E. E. and C. Robinson.  
Handsworth Photographic Society. Council Meeting.  
Worthing Camera Club. "Theory and Practice of Self-Toning Papers." Demonstrated. John Griffin & Sons.  
Darlington Camera Club. "Japine Platinotype." F. Airey.  
Hackney Photographic Society. Annual Meeting.  
Sheffield Photographic Society. "Some Points in Making Lantern Slides." Demonstrated. G. D. Harrison.

#### WEDNESDAY, MARCH 6.

Derwent Valley Photographic Society. "Enlarging Simplified." John Griffin and Sons.  
Friends School Photographic Society (Sheffield). "Contact Printing on the 'Rotograph' Slow Paper."  
Bideford Camera Club. "What can be done with a Hand Camera." C. P. Goerz.  
Hamstead Scientific Society. "Printing Processes." Edward Seymour.  
Bristol Camera Club. Prints Criticism.  
Bristol Photographic Club. "Technical Negative Making." R. W. Coates.  
Edinburgh Photographic Society. "Some Experiences of a Professional Photographer." T. Drummond Shiels. "Some Experiences of an Amateur Photographer." James Burns.  
North Middlesex Photographic Society. Lantern Slide and Print Competitions.  
Borough Polytechnic Photographic Society. "All at Sea with a Hand Camera." E. J. Mortimer, F.R.P.S.  
Woodford Photographic Society. "An Idyllic Minster of the West Country." E. W. Harvey Piper.

#### THURSDAY, MARCH 7.

Darwen Photographic Society. "Stereoscopic Photography." C. P. Goerz.  
Tynemouth Photographic Society. Telephotography. C. P. Goerz.  
Ashbourne (Derby) Photographic Society. "Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning Bromide."  
Chelsea and District Photographic Society. Lantern Evening.  
Handsworth Photographic Society. Lantern Evening—Members' Slides.  
Leicester and Leicestershire Photographic Society. Exhibition.  
Rugby Photographic Society. "Novelties in Photographic Apparatus and Materials."  
Tunbridge Wells Amateur Photographic Association. "A Visit to English Cathedrals." H. W. Bennett.  
London and Provincial Photographic Association. "Selection of Apparatus." Ernest Human.  
Richmond Camera Club. "Platinochrom." O. Sichel & Co.  
L.C.C. School of Photo-Engraving. "Some Notes of English Caricature." W. B. Dalton.  
Liverpool Amateur Photographic Association. "Norman and pre-Norman Stonework." Frank O. Groswell.  
Hull Photographic Society. "Features of Lenses." F. W. Doughty.  
North London Photographic Society. "Platinochrom Printing." O. Sichel and Co.  
Blenheim Club. "Picturesque India." E. R. Ashton.  
Blyth and District Camera Club. "Amateur Photographer Prize Lantern Slides."

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held February 26, Mr. E. J. Wall in the chair. Mr. E. C. Middleton, of Birmingham, read a paper on "Half-tone Negatives," and a Suggestion for Securing Uniformity in the Same." Mr. Middleton discussed the current method of employing more than one stop in making negatives with the half-tone screen. The results were never so good as when one stop only was used, and he regarded two or three stops as a means of helping the inefficient operator. The theory of the half-tone process had never been worked out thoroughly. Experiments had been made by Dr. Eder and others under certain fixed conditions, but when the conditions were changed the theory which had been evolved broke down.

The method which he had worked out whereby he could place the making of negatives with absolute uniformity in the hands of an assistant knowing nothing of the work, was based on the assumption that equal quantities of light would produce equal results in half-tone negative making. He kept the screen at a fixed distance from the plate, about one-eighth of an inch in his own case, and he adjusted the diameter of the diaphragm to the extension of the camera so that the former was always the same proportion, say, one thirty-fifth, of the latter. In this way he secured a regularity which was a great saving of labour in the printing and etching rooms.

Mr. A. J. Newton said he should like to see the results of the method on a graded scale of tints. It was his experience, and the experience of half-tone operators in general, that the most perfect results were obtained by the use of two stops, and, contrary to the contention of the lecturer, the middle tones of a subject were better rendered in this way than with one stop. He did not employ the stops with elongated corners recommended by the lecturer, for he found that every effect and perfection of result could be obtained with round stops when working from a variety of originals.

Mr. Fogwell said he preferred to employ one stop only. He could not endorse the lecturer's statement that a negative should have the dots free from all halo. It was an advantage to have some halo, or

"scum," on the dots of the middle tones. It was a great mistake, he said, to aim at the same class of negative when using dry plates for half-tone work as when using collodion.

Mr. Middleton, in reply, said that his work had been done exclusively with collodion.

Mr. John Sterry then read a paper on "The Action of Oxidisers on the Development of the Latent Image." His experiments had completely confirmed the statement of the late M. Leon Vidal, that the latent image in a plate was not destroyed by potassium bichromate. He had found, however, that potassium bichromate, as well as other oxidising agents, produced a change in the reduction product which delayed or prevented the development of this portion. He was led to the view that the action of light produced (a) a product which was not attacked by the oxidising agents, and which could be removed by the fixing bath; (b) a product which was rendered non-developable by the oxidising agents, and after oxidation was apparently removed by the fixing bath; (c) a reduction in the film which was not removed by the fixing bath.

The paper was followed by a discussion in which Messrs. C. E. K. Mees, F. F. Renwick, T. Thorne Baker, and the chairman took part.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION. Meeting held February 21, Mr. A. Haddon in the chair. Mr. Archer Clarke lectured upon "Modern Printing Processes," in the course of which he reviewed the collotype and photo-litho processes, ferro-prussiate, and ferro-gallic and gelatino-bromide.

In the report of the L. and P.P.A. meeting of the 14th, in our issue of February 28, p. 149, there is an error in the developer formula. This should read "water, 20 oz." not "1 oz."

CROYDON CAMERA CLUB.—Mr. F. J. Terry, a careful and successful worker, gave last week an exposition on "Orthochromatism," simply and clearly worded. Amongst many orthodox expressions of opinion, the lecturer strongly urged the necessity of correct exposure, gauged by an actinometer, owing to the lessened latitude of the plate when screened. He had been through a maze of plates and screens, and by a process of evolution had settled down to the exclusive use of one plate in conjunction with a screen of "Filter Yellow K." This combination permitted instantaneous exposures with correction. He was a strong advocate of developments by time, the length of which only varied with the temperature, just sufficient light being allowable to see dishes, etc., no direct rays being ever allowed to strike the plate. If the Watkins system were adopted, then a lower factor should be taken for ortho' plates. Personally, he would diminish the usual factors by 25 per cent. It had been alleged that ortho' plates and screens killed "atmosphere" and "distance." With a correctly adjusted filter this was not the case, whatever it might be under other conditions. Perhaps the stiffest thing of all to adequately render was the true tonal value of a cloudless blue sky; with anything like correct exposure any clouds present were invariably recorded. In the discussion which followed, the temptation to debate the relative advantages of "ortho" over "ordinary" plates, a never-ending and somewhat unprofitable subject, was happily resisted. It was however pointed out that the utility of gauging exposure of screened ortho' plates by means of an actinometer was seriously open to doubt, owing to the fact that the plate was fully sensitive to a large part of the spectrum, to which the meter paper was comparatively insensitive. A meter paper with an extended range into the yellow and orange was badly needed, and a hint was thrown out that in the near future such a paper might be on the market. Mr. Terry's conclusion as to taking a lessened Watkins factor under the conditions stated, was endorsed, it being an established fact that the yellow rays gave a much steeper gradation than the blue, which, with the ultra-violet, mainly affected the ordinary plate. Consequently, for a given degree of contrast, shorter development was necessary with the ortho' plate. In this connection different brands of ortho' plates varied amongst themselves, and each probably required a different factor.

COLOUR-PHOTOGRAPHY IN OPEN COMPETITION.—At the exhibition of the Birmingham Photographic Society, a bronze medal is awarded in the Open Section to Mr. H. J. Comley for a three-colour print, "Nuts and Oranges." Mr. Comley, as Secretary of the Society of Colour Photographers, is known to be interested in securing special recognition of colour work at photographic exhibitions.

## Commercial & Legal Intelligence.

PHOTO REPRODUCTIONS, LTD. (Nottingham).—£450 5 per cent. debentures, created and dated February 4, 1907, charged on the company's property, present and future, including uncalled capital, have been registered.

EASTMAN KODAK COMPANY OF NEW JERSEY.—The usual quarterly dividends of 1½ per cent. (being at the rate of 6 per cent. per annum upon the outstanding Preferred Stock, and of 2½ per cent. (being at the rate of 10 per cent. per annum) upon the outstanding Common Stock, have been declared by the Eastman Kodak Company of New Jersey, payable on April 1, 1907, to stockholders of record on February 28, 1907.

CANVASSING FRAUDS.—At the Marylebone Police Court last week a man, named E. Jones, of Kimberley Road, Edmonton, was charged on a warrant with obtaining 6s. by fraudulent pretences from Margaret Coghlan, a cook, at 17, Froggnal, Hampstead.

The prosecutrix said that prisoner called at the house of her mistress on February 4, and explained that he had started in business as a photographer in Oxford Street, and would be opening two days later. He produced a coupon and said, "This is my coupon, and if you buy it for 3s. you can have a dozen cabinets worth 10s. 6d., and pay 6s. 6d. at the studio when sitting." She agreed to buy the coupon, but when she returned to the door, after getting the money, he said, "I'll tell you what I'll do. If you pay 6s. now you will only have to pay 4s. 6d. when sitting, and I will give you an enlargement with the dozen cabinets if you will allow me to put one in the window." She accordingly paid him 6s., only to discover when she went to the address in Oxford Street that he was not in business there for himself at all, and that she had been defrauded. She found, however, that he had been employed by the photographer carrying on business there, but was discharged last October.

Mr. John Mallia, the photographer referred to, said he discharged the prisoner in consequence of the many complaints he received about him. Since then hundreds of servant girls who said they had paid him money had called at his premises, and had completely disorganised his business; in addition to which he had received many letters of complaint.

Detective-Sergeant Ballard stated that when arrested the prisoner asked what harm he had done, and said he was authorised to receive 3s. on the coupons, so he did not see that he had committed any fraud.

The prisoner now stated that if it was a fraud he was not aware of it. He pointed out that he had a sick wife and five children in a dreadful condition, and he himself was starving; and on these grounds he asked that he might be allowed out on bail. Prisoner was remanded.

FENRIS FILMS.—According to the "Financial News," of Friday last, great things are expected of the Fenris film business, the introduction of which on to the Paris Bourse is to take place immediately. We omit the excursions of our contemporary into the classical derivation of the word "Fenris," but it is interesting to state that the company was formed in 1906 in London, with a capital of £100,000, of which £22,000 is intended to be reserve. Its objects is the working of a photographic film, of which the entirely new principle of manufacture will allow celluloid to be done away with and the cost of production to be considerably reduced, whilst offering at the same time considerable advantages over photographic films manufactured at the present day.

Fenris films are manufactured in France. By a special agreement the company which is selling to the Fenris Company its monopoly and license has reserved to itself the manufacturing of the films. This arrangement is believed to favour the Fenris, as it has no special industrial organisation—always a somewhat risky undertaking for a new affair to consider. The company is thus enabled to provide for an output proportionate to the orders in hand, so that it does not apprehend any difficulties of manufacture nor interruption, nor upkeep of a factory. The contracts which have been arranged are stated to offer sufficient guarantee for the Fenris Film Company to be able to reckon on a regular production and manufacture.



The Ferris Film Company states that it has taken measures for fully output of 3,000 metres, which may be raised to 10,000 metres more. The figure of 3,000 metres has been mentioned, as the cards now in hand are officially stated to amount to about 3,000 metres per day; but it can be increased according to requirements. This figure is, consequently, regarded as but a minimum. The large photographic trading firms of Paris require as much as 50,000 metres per day. Under these conditions the market of the product considered by the company to be fully secured. The company has established in London two sale departments—one in the City the other in the West-End—and these two offices, with the help of the customary means of advertising in England, already enjoy important turnover. The Ferris Film, Limited, intends also to have depôts in Paris, Berlin, Vienna, Naples, Brussels, Barcelona, Madrid. This organisation has been the subject of the closest scrutiny, and in view of it the promoters claim that they have secured the assistance of well-known commercial and photographic experts.

## Correspondence.

- \* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### PLATES AND FILTERS FOR PHOTO-MICROGRAPHY.

To the Editors.

Gentlemen,—Since writing the small booklet on the "Selection of Plates and Filters for Photo-micrography," I have found that a considerable amount of work on the same lines had been previously done by Dr. E. J. Spitta. This was published in "Photography" (No. 25, 1904), and also in his book on "Photo-micrography." The idea of screens giving exact contrast to the stain is there pointed out and should certainly have been noted by me. The omission was due to "sheer ignorance, nothing else."—Yours, etc.,  
C. F. KENNETH MEES.

### RECOVERING PLATINUM RESIDUES.

To the Editors.

Gentlemen,—In reference to the letter of Mr. G. T. Harris in your issue of February 8, I may say that my experience of protoplasmic iron has been that it is not a suitable reducer for platinum recovery. I cannot say why but I believe Mr. Harris's experience is that of others. I should suggest to him that he tries the zinc and acid process. It is all the better if the solution is warm at the time the zinc and acid are added. The latter may be hydrochloric, but sulphuric is equally effective, and cheaper. In either case there must be a copious evolution of gas. Any zinc which remains at the end of the reaction may be used again, but at the care should be taken to scrape off any adherent platinum.—Yours truly,  
"STATU NASCENDI."

### PROFITS ON PICTURE POSTCARDS.

To the Editors.

Gentlemen,—I read with interest Mr. Corkett's letter in your last issue. From some experience, I think his critique on the estimate is in the main correct, though I question if many stationers outside large towns visiting centres get through 100,000 a year. The large wholesale producer, anyhow, gets the cream. However alive the local photographer may be, or willing to supply the stationers of his district (and rightly he must keep there if the man in the next town is too far to go with his stationers), he finds himself handicapped by the wholesaler, who, if they cannot buy a set of negatives off-hand locally, will hire someone to take them. And here comes the question of a reasonable price to charge a firm you know will be able to undersell because he works over a larger area, and can thus give larger

orders to actual producer, perhaps in Germany. It would be interesting to know what Mr. Corkett thinks a reasonable price.

He says the photographer was always adverse to the postcard. Why? If he had a view-selling trade at all, he knew it would be seriously affected. This has resulted.

Stationers who could sell for you, varying according to place, from £50 to £150 worth of views during the season, cannot now sell a tenth of the amount, and if the photographer prints his own P.P.P. cards he has to employ treble the labour to produce an equal profit; and if he buys at best rates the cards that sell from 1d. each, now often three for 2d., he has to invest on spec. a larger capital if he is to net a proportionate profit.

As to ordinary portraiture, the photographer has himself to blame if he supplies postcard portraits at much, if any, below his terms for other work the same size. Unfortunately, photographers in a town do not hold together; if they combined, the public would be obliged to pay better prices than they now do in many places for such.

Not only has the sale of portraits of celebrities, but the prices charged for amateurs' work generally, have cheapened photographs in the eyes of the public.—Yours,  
PROFESSIONAL.

## Answers to Correspondents.

- \* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

G. J. Heaton, 257, Lavender Hill, Clapham Junction, S.W. Two Photographs of the Rev. W. J. Carey.  
H. J. Hole, Swain Street, Watchet. Photograph entitled, "A West Country Joke when Wife is Away."

### DRAWING REGISTERED:—

E. F. Symmons, 3, Clifford Street, York. Drawing entitled, "Angram Performer."

GLAZING POSTCARDS.—Would you kindly inform me the quickest way to glaze postcards? Do you suggest a burnisher? If so, where could I obtain one best for this purpose?—H. P.

Squeegeeing from plate glass is the only commercial process for quantities. The prints should be given a short bath of alum before the final washing, and plates are well polished with French chalk. If the squeegeed prints are dried by a current of properly warmed air, they can be stripped off within three-quarters of an hour.

TELEPHOTO.—The "Adon" used with another lens gives about double the focal length, but the combination does not provide covering power quite equal to defining to the corners of the plate. But used alone, the Adon gives any desired degree of magnification and covering power. A useful rule is that its equivalent focal length equals twice the camera extension plus  $4\frac{1}{2}$  inches. That is to say, with 15 inches extension, you can get a focal length of 35 inches. No telephoto lens will give the same critical definition as an anastigmat used alone, and rapidity also falls off as focal lengths over 10 inches are obtained. We advise you to get an elementary work on tele-photography, such as Dr. Deller's (Dawbarn and Ward, 1s.)

SODA SULPHITES.—Is there any advantage, or the contrary, in using half the quantity of anhydrous soda sulphite and anhydrous soda carbonate, instead of the full amounts of crystal soda

sulphite and crystal soda carbonate given in development formulae—Toxo.

The anhydrous soda sulphite is said to keep better in the dry state. The carbonate requires to be tightly bottled, as it loses strength by absorption of water. There is no difference, in either case, when the substances are dissolved.

**LIMERICK.** There are none. The manufacture is done in America and Germany. You had better apply to Messrs. Guitermann and Co., 35-36, Aldermanbury, E.C.

**COPYRIGHT.** I have photographed for my own use for publication on postcards all the surrounding views, and have been selling them. I now find that a grocer here is selling my views, reproduced upon the penny cards (ink-type). 1. Have I any power to stop the sale of them, I holding no copyright? 2. If I can stop the sale, can I compel the shopkeeper to stop selling them, and hand over to me the cards he has? 3. Should I have to find out who published them, and proceed against them?—**ANXIOUS.**

1. If you register your copyright in each photograph at once you can stop further sales by anyone. 2. You can take action for the delivery to you of the infringing postcards. 3. It is not necessary.

**PINATYPE.**—1. Is there any benefit in the final result in drying tricolour carbon tissues, pinatype print plates, etc., by the method of dried warm air sucked through the drying box by means of an electrically-driven fan, as compared with the slower method of air-tight box and calcium chloride? I mean for small batches of say twelve half-plates. I have constructed a wooden drying box, properly lined with zinc, which will hold twelve half-plates, with 4in. space between each, size of box 29in. x 18in. x 15in. 2. What quantity of calcium chloride is sufficient for this size box? 3. What size pipe for inlet and outlet for working this box with electric fan? Having no installation on the premises, could I work the fan with an accumulator or batteries?—**FRANCIS B. WILLIAMS.**

1. There is no advantage as regards the pinatype print plates, nor will there be if alcohol is used in the sensitising bath for the carbon tissue, as suggested on page 9 of our issue for February 1. 2. The more calcium chloride used the more rapid the drying, and as the damp salt can always be re-dried and used again, there is no need to be sparing with it; still 2 ozs. in small pieces will be ample for the given number of plates. 3. About a four-inch inlet and a three-inch outlet would be sufficient. The fan could be worked with accumulators, but assuming that there is any reasonable supply of water, a small Pelton water motor would be much cheaper and more convenient.

**TIME DEVELOPMENT.**—1. Please give a formula of pyro-soda developer, in ounces and part ounces, suitable for time development. 2. Kindly state if the time is taken up to the moment the image appears, what factor should be used to complete development at a certain temperature. 3. Give instructions for diluting the developer (and temperature) for stand development to last two hours.—**P. C. SMITH.**

1. The following is recommended by the Kodak Co. for use with the development machine:—

Pyro .....	50 grs.
Sulphite of soda .....	500 grs.
Carbonate of soda.....	200 grs.
Water .....	40 ozs.

Use at 65 deg. Fahr.

2. In the case of pyro, the factor depends on the strength of the solution in pyro. Mr. Watkins, in his "Manual," gives (for pyro without bromide) a factor of 12 at 2 grs. per oz., of 10 at 3 grs., and 3 at 4 grs. See the "Almanac," p. 962. 3. We have no experience of pyro for such prolonged development. You had better try dilution of the solution to about 1-10 of a grain of pyro per oz., and add extra sulphite to prevent stain.

**RESIDUES, ETC.**—1. What should be the average cash value of silver recoverable from waste silver paper per pound, the paper being mostly Paget and Wellington? 2. Also in sending parcel to refiners, would you advise burning the paper first and forwarding the ash? 3. Is it generally known that enlargements can be made from any size negative by artificial light without a condenser, and if so by what methods have results been obtained?—**J. W. H.**

1. It is impossible for us to say. 2. It is a matter of convenience. In accumulating enough P.O.P. clippings and prints to be worth recovery, the storage room and carrying become considerable; hence it is better to burn the paper. 3. There are several methods: such as reflectors—the burn of magnesium ribbon behind the negative—but none equal a condenser.

**BUILDING A STUDIO.**—1. I am shortly having a studio built. Will you kindly say which is preferable, a north or east light: I have either? 2. Also will the following dimensions be suitable 30 x 16? 3. Where can I obtain plans of a good studio?—**B.**

1. Either light is a good one for working in. With a north aspect, however, the light is more uniform throughout the day than it is with any other, and requires, perhaps, a little less skill in working. With a north light, as frequently used, there is a great sameness in the lighting in all the portraits taken. That, however, is not due to the light but to the work. 2. Yes, very suitable indeed for all purposes. 3. In Bolton's book, "The Photographic Studio and its Construction," published by Marion and Co., Soho Square, price two shillings, there are several different designs for studios, and hints on the construction.

**P. S. (Mullingar).**—They are the same. The qualities vary with thickness. We should advise you to ask for a set of our sample pieces.

**W. B. WOOD AND OTHERS.**—In our next.

**F. E. G.**—There is no reason why the focal plane shutter should not answer your requirements. In fact, it, or a good diaphragm shutter working up to 1-100 or 1-150 of a second, is the best thing for such work. In regard to the lens, there are a number of first-rate ones working at  $f/4.5$  to  $f/5$ . Consult the makers' lists in the ALMANAC and the recent reviews in our columns.

**J. S. (Wolverhampton).**—See the article on p. 82 of our issue of February 1 last.

**PHOTO TYPE CO.**—Moore, De Saulles, and Co., Wordsley, near St. George's bridge.

**REVERSING NEGATIVES.**—1. Plate was placed in slide reversed error, glass side to lens; how can I rectify? 2. Some fifty years ago I used to obtain a sensitised paper, green, for making light effects; is it to be had now, where, and if in postcards?—**MIRANDIDIE.**

1. You can strip the film by the method on page 972 of the ALMANAC, but the safer plan is to make a transparency: copy this in the camera so as to get a negative with the desired reversal. 2. Not that we know of, except the tinted transparency papers for use with the carbon process. You cannot adopt a better method.

**RETOUCHING** (Reply to J. H. J.)—Had you not informed us that you only commenced retouching in November last we should have given you credit for several years' experience, for only in the time can the average retoucher acquire a soft grain or texture effect; although a marketable smoothing up may be attained in a few months. Be careful in the treatment of the nose, also fine up a bit more for modern requirements, especially printing on glossy papers.

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## The British Journal of Photography

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## SUMMARY.

reproduce a portrait said to be the first ever taken by terre. (P. 178.)

r. Arthur Payne now uses pinacyanol as the sensitiser in making his theatrical snapshots during the ordinary public performance. (P. 173.)

r. Mees and Mr. S. H. Wratten have examined the results obtained with suggested systems of applying a limited amount of developer to the plate. (P. 172.)

table of failures and remedies in carbon printing, of German origin, supplies some useful hints to those using the process for colour work as well as monochrome. (P. 176.)

system of full-size focussing has been recommended, in which image formed on the white blind of a focal-plane shutter is reflected in a mirror up to the negative. (P. 170.)

American worker relates his experience of ozobrome in decorative pottery. (P. 175.)

Further cases of canvassing frauds were heard at the London courts last week. (P. 185.)

country professional relates his experience of postcard production and publishing. (P. 186.)

refer to the literature dealing with the action of chromic acid on the latent image. (P. 171.)

Keartons have completed an exhaustive work on British photographic eggs, illustrated throughout by photographs. (P. 181.)

German author lays stress on the importance of proper tone background in order to give the desired effect of recession. (P. 176.)

## EX CATHEDRA.

### Enclosed Arcs and Enlarging.

The composition of the light from an enclosed arc-lamp, that is to say its richness in the ultra-violet light, may give rise to a difficulty which an enlarger may easily be at a loss to ascribe to its real origin. The case has been mentioned to us by no less than three enlarging firms within the past few weeks, and we may therefore assume that it is of sufficient general interest to refer to. The trouble in each case was want of sharpness in the enlargement, although the image on the easel was perfectly sharp. In one instance it became noticeable as soon as an open arc was replaced by one of the enclosed type; in another it did not manifest itself until an old pattern R.R. was replaced by a modern anastigmat. In either case the cause is the difference between the focus of the ultra-violet rays and that of the visual rays. The correction usually adopted by opticians applies to rays about 4,340 in the blue and 5,890 in the red. The use of a light source containing a great deal of the ultra-violet light of wave-length about 3,400 naturally upsets the efficacy of this correction, and for that particular light the lens, although perfectly corrected for ordinary work, is actually non-achromatic. There is, however, a remedy for the defect in the shape of a very pale yellow screen which will cut out a great deal of the ultra-violet. A screen of the new dye "Filter Yellow K" may be used for this purpose, but it must be very weak in colour, otherwise the length of exposures in making the enlargement will be increased and the contrasts in the results will be intensified more than may be desirable. The active bleaching action of the ultra-violet rays should be borne in mind, and the filter checked occasionally. A screen of asculin would, no doubt, be better than one of "Filter Yellow K," except that the substance is darkened by light.

\* \* \*

### Science for the Amateur.

We are glad to find that among the journals appealing to the less advanced amateur worker there are still signs of a determination not to ignore totally the important scientific papers of which, if they appear to us to deserve it, is our custom to publish a full translation. We write this apropos of the commencement in "Focus" of Wednesday last, of a page headed "Progress of the Month," wherein the microscopic researches of Dr. Scheffer, Dr. Homolka's indoxyl developer, three-colour cameras, and other matters are treated popularly yet exactly. This new feature is in the capable hands of Dr. S. E. Sheppard, whose influence on the staff of our contemporary will possibly check such lamentable incidents as a recent reference to the inventor of Velox and author of numerous papers as "a Dr. Backlandt."





ards would come the development with the silver intensifier, as described by Mr. Sterry. We doubt the practical use of this pretty scheme, though it possesses possibilities in the hands of secret commissioners or the modern novelist of sensation. Mr. Hall Caine should certainly make a note of it.

## THE ACTION OF CHROMIC ACID UPON THE DEVELOPMENT OF THE LATENT IMAGE.

The paper read by Mr. John Sterry before the Royal Photographic Society last week was a resumption or continuation of a previous one read before the same body in 1904, and has conclusively established the fact that the action of light upon the sensitive halides of silver is such that it is not subsequently destroyed by chromic acid. Whether we assume with Mr. Sterry that development is arrested into primary and secondary actions or not, there is no question that we have an extremely valuable method in practical work. The basis of the whole system, which to our mind has been most conclusively proved by Mr. Sterry's last paper, is that, whatever may be the action of light upon the sensitive silver salt, there is left behind, after fixation, or after treatment with chromic acid followed by fixation, a something upon which it is possible to deposit metallic silver, and that, however faint the light action, a nucleus persists.

The subject is one which has been attacked in many quarters and in various ways. The fact that it was possible to physically develop an image on a collodion plate after fixation, when to all appearances nothing but a perfectly structureless film remained, was first observed by Reichenow in 1858, and confirmed in the following year by Reichenow and Bayard. It is obvious, then, from this fact that if there is no "silver germ" left, there must be set up by the localised stress, strain, or condition in the vehicle which is sufficient to form nuclei for the aggregation of nascent silver; and, further, that this X, or unknown, produces an image which may without exaggeration be taken to be equal to that obtained by primary development, that is, development of the light-affected silver halide itself. The fact that this was observed with collodion plates that X may be independent of the vehicle.

The first experiments with gelatine plates were made, I believe, by Franz Kogelmann, whose results appeared in a little-known work, "Die Isolierung der Substanz des latent photographischen Bildes" ("The Isolation of the Substance of the Latent Photographic Image"), published in 1894. It is impossible to follow his experiments in detail; but one, by means of which he claims to have proved that it is not the action of bromine on gelatine that gives rise to the image, is interesting, because it leads us to the conclusion that when bromine were set free during an exposure in sufficient quantities to combine with the gelatine, this bromine would—being well known that gelatine is tanned by bromine—is not the cause of the developable image. Kogelmann exposed two plates under a scale—the one fixed, or, to use his own term, "extracted," with hyposulphite, the other with sodium sulphite. Both were washed and then exposed for three hours to gaseous bromine. On development with iron acid developer, an image was obtained identical in all respects with that on similar plates not treated with bromine. Kogelmann comes to the conclusion that the invisible X is a "silver skeleton" of the substance of the latent image.

Mr. Eder has, of course, examined the question of the constitution of the latent image, but mainly by means of chromic acid. His use of chromic acid has been principally

confined to the destruction of solarisation, and has proved that, although 0.1 candle-metre-seconds was necessary to produce the faintest light action, and that fifty to one hundred times this quantity gave dense high-lights, yet it was possible by the use of chromic acid to destroy the solarisation caused by 1,000,000 candle-metre-seconds. Lüpke-Cramer has also investigated the action of chromic acid on emulsions generally, but as many of his conclusions do not differ materially from those of others, we need hardly enter into details.

Mr. Sterry's experiments have been made not only with the latent image produced by short exposures, but also with the printed-out images on gelatino- and collodion-chloride papers, also with printed-out images on gaslight papers and lantern plates on very rapid plates and on dry collodion. The visible images thus obtained were treated with chromic acid, fixed, and then physically developed with the well-known sulphocyanide silver developer or intensifier of Mr. J. B. B. Wellington. It is interesting to note that in all cases the colour of the resultant image was black, either pure, rusty, or greenish in hue.

In the case of P.O.P., every trace of an image disappeared after treatment with chromic acid and fixation, yet a vigorous black image was obtained by physical development. Here, then, we have a state of affairs almost analogous to the case of the latent image on dry plates, which might lead us to the conclusion that the latent image is but an elementary or incipient printed-out image—that is to say, the substance of the image is in both cases of a like chemical nature, a view which is also held by some authorities. There is also a still further analogy between the dry plate and the printing-out paper, and that is that both can be colour-sensitised with the same dyes and for approximately the same region of the spectrum. This was proved by Dr. Andresen's experiments and patented process of colour-sensitising normal silver chloride photographic paper, as well as by Eder's tests as to the distribution of the blackening by printing-out and that obtained by development, the two curves being approximately parallel with corresponding maxima and minima.

The practical application of the chromic acid treatment has already been found useful in the production of soft harmonious prints on bromide paper from very harsh negatives. It is only necessary to expose fully for the dense high-lights, neglecting the shadows, to treat with chromic acid, wash and develop, when a perfectly harmonious soft print is obtained. The faint impress of light under the densest parts of the negative is not lost, but the otherwise excessive density under the shadows is reduced, so that there is finally a much longer scale of gradation.

A TRAVELLING PHOTOGRAPHER, named George Douglas, was sentenced at Dartmouth last week to a month's hard labour for stealing an overcoat. He had a previous conviction at Belfast against him.

ILLINGWORTH PAPERS.—Messrs. Thomas Illingworth, Willesden Junction, N.W., inform us that they have been awarded the gold medal, being the highest award, for their exhibit of "Carbon," "Bromide," and other prints, at the exhibition held in Turin during January and February.

PHOTOGRAPHIC SURVEY OF SURREY.—The annual meeting will be held in the Council Chamber, Town Hall, Croydon, at 4 p.m., on Saturday, March 16, 1907, when the Mayor of Croydon will give an address, and the report of the Council and the accounts of the year ended December 31, 1906, will be submitted. The meeting is open to all interested in its work and aims, and an exhibition consisting of a representative selection from the 2,340 prints already in the survey collection, will be arranged in the Lecture Room, Town Hall, Croydon.

## DEVELOPMENT WITH INSUFFICIENT REDUCER.

THERE have been various methods proposed at intervals for developing a plate in such a way that the reducer should, either locally or universally, be exhausted before reduction was com-

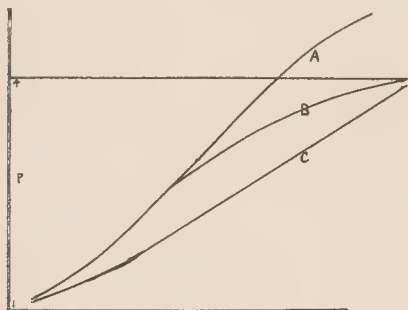


Fig. 1.

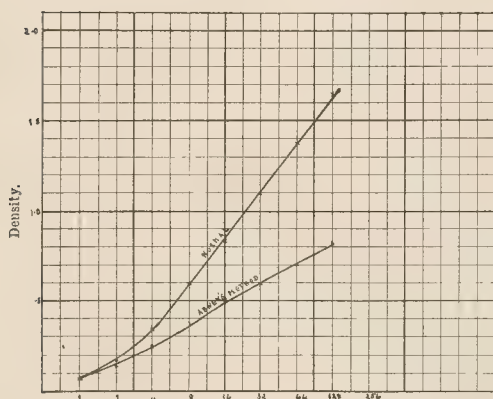


Fig. 2.

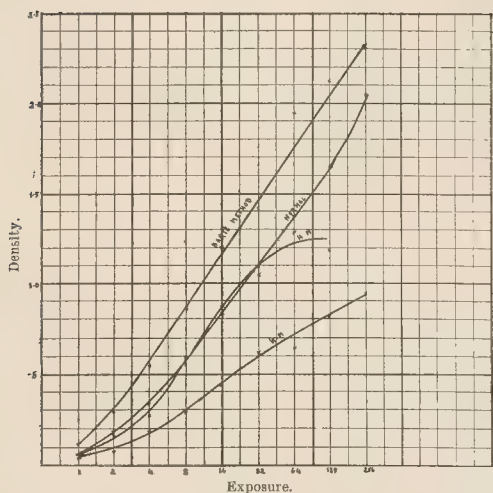


Fig. 3.

plete, so that the extent of development should be determined, not by exhaustion of the latent image, but by exhaustion of the developer itself.

Possibly the oldest of these methods is that given by Abney in his "Instruction in Photography," of removing a plate from the developer upon the appearance of the image, and allowing development to proceed by means of the developer in the film.

Another method was suggested by D. W. Hart, in his patented method of development, by squeegeeing a sheet of gelatinous paper soaked in developer on to the surface of the plate.

Yet another method has been recently brought forward from

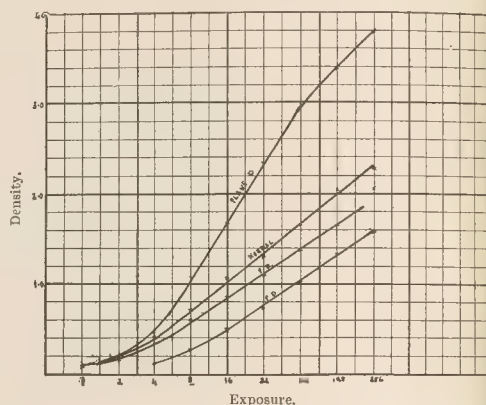
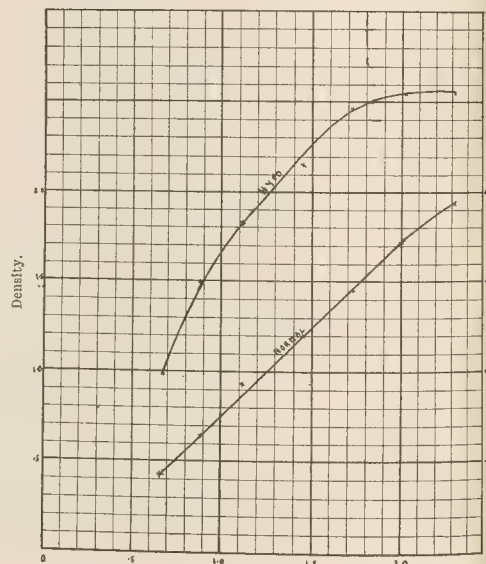


Fig. 4.



Log. E.

Fig. 5.

Germany, under the name of "Plane-development." And this appears to us to be a fundamental misconception underlying these and other methods of modifying the plate curve. The idea seems to be that a photographic plate gives too much density when acted upon by intense lights, and that, owing to the fact that this density is beyond the printing scale of effect of over-exposure results. If this idea were true, then it would surely be easy to remedy the matter. All that would be necessary would be the production of plates incapable of giving



eat densities, by reason of the poverty of their films. But  
rely, the effect of over-exposure is due to the fact that with  
creasing exposure a plate does not give sufficient density,  
giving flat results, and requiring greater development to obtain  
the necessary contrast in the high-lights, which in its turn  
produces a total contrast beyond the printing range.

Thus in the figure (1),\* suppose that P represents the printing  
range of a paper, and that in consequence of the over-exposure  
of a plate A, that plate must be developed to the steepness shown  
in order that the contrast in the high lights shall be sufficient.  
When this plate, if developed by a method in which the high-  
lights are restrained by exhaustion of the reducer, will give a  
result similar to that shown in B. If, however, the plate had  
greater latitude, it could have been developed as shown in C,  
giving sufficient contrast in the high-lights, and yet keeping  
within the printing range.

In order to determine the efficacy of these methods of restrained

\* This figure is purely illustrative and imaginary, not measured.

development, we have made a series of measurements of the  
methods given above.

Fig 2 shows the result of Abney's method, which is quite  
effectual in accomplishing its object.

Fig. 3 shows Hart's method. In this the effect, of course,  
depends upon the strength of developer employed. Various  
degrees are shown.

In plane-development, the plates were developed in an  
absolutely horizontal position in Hübl's glycin developer,  
diluted. It will be seen from Fig 4 that we have found the method  
to produce little or no departure from the normal. We do  
not know the cause of this, as no marks indicating disturbance  
of the developer were produced at all, and various strengths  
of developer were used. Probably the most effectual method of  
producing this kind of modification of the plate curve is to  
employ ferrous oxalate developer, containing thiosulphate. An  
example is shown in Fig. 5.

C. E. KENNETH MEES.  
S. H. WRATTEN.

## THEATRICAL PHOTOGRAPHY.

It has been very gratifying to me to notice the interest which  
has been taken in this branch of photography since I first  
published the results of my experiments in this direction, and  
notably its adoption by the press photographer, for photo-  
graphs have already been published by the "Daily Mirror"

stage scenes taken during the public performance, pre-  
sented by the method which I published in detail in  
the BRITISH JOURNAL OF PHOTOGRAPHY, July 6, 1905, under the  
title of "The Camera and the Play." I had previously indicated  
the use of plates bathed in orthochrome T. dye for this work in  
"Photography," May 28, 1904.

It has therefore occurred to me that it may be of interest to  
those engaged in this work if I bring the description of my  
methods up to date, it being understood that this paper is sup-  
plementary to that which has already appeared in this journal.

### Pinacyanol Sensitiser.

In the first place, I have abandoned the use of orthochrome T.  
dye, substituting for it a 1 in 50,000 solution of pinacyanol,  
which not only confers increased sensitiveness upon the plates  
bathed in this solution, but also makes them more sensitive to  
red light than to blue light when tested with a Chapman Jones  
colour sensitometer by the light of a standard candle. Candle  
light was used, because I am of the opinion that the quality  
of this light may be fairly accepted as an average standard of  
the quality of stage lighting. An orthochrome T. bathed plate  
tested under similar conditions gave a result in which the red and  
blue sensitiveness of the plate were approximately equal, and  
when it is considered that the average light reflected from the  
stage is strong in the red and yellow rays, it will be realised  
why the great red sensitiveness of a pinacyanol bathed plate is  
of such value in stage photography.

The relative speeds of both kinds of bathed plates, and also  
of an unbathed plate, were roughly estimated by means of a  
Chapman Jones plate tester to candle light, and whilst allow-  
ances must be made for the light absorbent qualities of the  
sensitometer when comparing the readings of the unbathed  
against the bathed plates, this will probably not seriously affect  
the comparative value of the readings obtained on the bathed  
plates. I now use Mawson's Felix plates for bathing

Read.

"Felix" unbathed .....	16
,, bathed with orthochrome T. 1 in 50,000	22
,, ,, ,, pinacyanol 1 in 50,000.....	24

It is obvious that the gain in speed by yellow light is consider-  
able when pinacyanol is used, so much so in fact that I have  
been able to obtain a good negative, when the stage was illumina-  
ted by yellow light only, with a focal plane shutter exposure of  
about 1-7th to 1-10th of a second with a lens working at  $f/3$ .

When preparing these bathed plates, my procedure is to bathe  
"Felix" plates for three minutes in the following solution,  
which should not be used more than once:—

Pinacyanol (1 in 1,000 alcohol) .....	2 c.c.
Distilled Water .....	100 c.c.

The plates are then well washed for three minutes and wiped  
surface dry by means of a pad of damp cotton wool, or damp  
washleather, and then dried.

### A Green Safe-light

For this work I find it is quite safe to use a faint green safe  
light, which may be of such a low luminosity that it is impossible  
to read the figures on a Watkins eikronometer (the small develop-  
ing clock) when it is held close to the lamp, but which gives  
sufficient light to enable the operator to work in comfort, even  
at some distance from the lamp. This does not necessarily mean  
that the pinacyanol bathed plate is insensitive to green light,  
but rather that the physiological effect of green is much more  
useful than any other colour. For instance, the eye itself is  
rather insensitive to red, so that it naturally follows that it is  
necessary to use a considerable amount of red light in order to  
be able to see by it at all. Dr. Louis Bell, quoting Sir William  
Abney, states that: "Starting with the normal curve of lumino-  
sity, the peak of the curve being one candle power, the light at  
B (in the spectrum) would disappear if the illumination were  
reduced to .01 of its initial value, that at C at about .0011, at  
D .00005, at E .0000065, at F .000015, and at G .0003." So that  
it follows that the power of the green light may be reduced to a  
lower degree than any of the other colours and still retain its  
usefulness as an illuminant. Or to express this differently, if  
the luminosity of three safe lights, red, yellow, and green, were  
adjusted so that they are equally useful as illuminants, the  
candle power of the green light would be less than that of the  
yellow, while the red light would have to highest candle power  
of the lot.

Do not, however, be tempted to use an unnecessarily large  
amount of green light, but keep the light turned down to the  
lowest point consistent with its value as an illuminant, and  
shade the plate as much as possible even from the action of this

faint light. It is hardly necessary to explain that the eyes are more sensitive to this faint light after the operator has been in the dark room for a few minutes, so that he should make his preparations by means of a fairly strong green light and then lower the light when the plates are bathed or developed.

My dark-room lamp is fitted with a glass tank of an internal thickness of one inch, which is filled with the following solution :

GREEN SAFE LIGHT.

Acid green .....	2 parts.
Naphthol green .....	2 "
Tartrazin .....	15 "
Water, distilled .....	300 "

Dilute one part of this stock solution with twenty-five parts of water, and use it in a one-inch thick cell. A sheet of ground glass should be placed in front of the safe light in order to diffuse the light.

Exposing Plates Wet.

It is not really necessary to dry the plates after they are bathed and washed, for I find from sensitometer tests that there



Miss Jose Collins in the pantomime "Aladdin," Tyne Theatre, Newcastle-on-Tyne. Hand camera exposure, with focal-plane shutter working at about one-tenth of a second. Portrait lens at  $f/3$ . Scene painted in yellows and reds, and lit by yellow light. Taken during the public performance.

is no appreciable difference whether the plate is exposed in a dry state, or immediately after the surplus water has been wiped from the surface of the plate in the manner already described. Possibly in the case of the wet plate a trifle more density is obtained with equal development than when the plate is exposed dry, but otherwise there appears to be no difference in the results. I have also tested the use of wet plates in the theatre, and I find that they give good results after they have remained

in the dark slide for forty-eight hours. Three hours elapse between preparing the plates and exposing them in the theatre, and forty-five hours between exposure and development. Contrary to what might be expected, these wet plates work free from fog and more cleanly than plates which have been dried rapidly. It is advisable to soak the wet plates in distilled water for ten minutes before they are developed, so as to avoid appearance of uneven density, due to uneven development, caused by the plates partially drying in the slides. It is, of course, better to use the plates when dry, and this I recommend whenever it is possible to prepare them in time to allow of drying before they are placed in the dark slide, but it may be useful to know that on special and unforeseen occasions, they may be successfully exposed without waiting for them to dry.

The edinol developer that I recommended for use in my previous paper was made according to the formulae given by the makers of edinol, but it apparently contains an unnecessarily large quantity of sodium sulphite, and I find that edinol may be successfully used when compounded as follows:

EDINOL DEVELOPER.

Sodium sulphite, cryst. ....	1 oz. avoiz.
Edinol .....	50 grains.
Sodium carbonate, cryst. ....	1 oz. avoiz.
Distilled water .....	10 fluid oz.

Dissolve the salts in the order given, and develop the plates for five minutes at a temperature of 75 deg. F.

Taking into consideration the great red sensitiveness of panchromatic cyanol bathed plates, and the preponderance of red and yellow in the average stage lighting, it ought not to be very difficult to obtain successful three-colour negatives of stage scenes with comparatively short exposure. Of course, they could not, at present, be obtained during the public performance except under very favourable circumstances, such as would arise when the theatre management would consent to hold the curtain for five or six seconds on the "call" at the end of the act, and the performers would pose for the photograph. Taking into consideration the value of colour stage photographs as an advertising medium for the proprietors, they might arrange for a special production in order to obtain a series of three-colour photographs of a pantomime or other spectacular play. I offer this idea to those who are interested in this work, and suggest that it is a proposition which might be brought before the notice of theatrical clients.

I again wish to record my sincere thanks to Mr. F. C. Sutcliffe of the Tyne Theatre, Newcastle-on-Tyne, for the courteous manner in which he has allowed me to make practical exposures in his theatre, and for the interest he has taken in the work I have in hand.

ARTHUR PAYNE.

ART FROM THE ARCTIC REGIONS.--Never before, and probably never again, could such an exhibition be possible as now occupies the Grafton Galleries, for only one man in a million could display the same evidence of enthusiasm triumphing over difficulties such as those suffered by Alexander Borisoff, of St. Petersburg. This artist, in response to a fascination felt for "the lands of mist and snow," made two Polar explorations, the latter made in company with two other Russians (a zoologist and a natural scientist), lasting a year and a half. He relates how his oil paints froze into solid lumps, even turpentine becoming useless; how he could sometimes only work with heavy fur gloves upon his hands, and then only by making rapid and energetic strokes. "There were moments when my hands were frozen, and refused service, my brush splitting with the cold." His results are marvels of colour and romance. He has painted with equal directness and subtlety the appalling infinitudes of ice and snow, the charming iridescence of the iceberg, the skies, from saffron to all but black, and the brilliant sun and blue shadows of the Arctic summer. All has been done under great privation and within call of death. Mr. Borisoff was, until the age of eighteen,

an unlettered peasant. He owes his chance in life to the Czar, the Grand Duke Vladimir, and Count de Witte, by whom he has been fostered and treasured. Two of the largest works are shown in a darkened room by artificial light; but they lose as well as gain by this display. He is strongest in his original sketches, which are impressively rough, and bear evidence of the moments of white heat enthusiasm which prompted them.

CYANIDE POISONING.—An inquest was held at Fleetwood last week relative to the death of Moses Livesbey, aged 46, photographer, of Bury. Dr. Preston expressed the opinion that Livesbey had died through poisoning by cyanide of potassium. The jury found that death was due to misadventure.

THE FALLOWFIELD SMOKER, to be held at Frascati's on March 18 is this year of special significance, as it celebrates the jubilee of this well-known photographic supply house. The advance proof of the programme shows us that an excellent evening's entertainment is to be provided under the chairmanship of Mr. F. W. Hindley. Tickets for the smoker may be obtained at 1s. each from Mr. J. C. Preece, 146, Charing Cross Road, London, W.



## OZOBROME FOR POTTERY DECORATION.

THE following notes on the ozobrome process by a contributor to the "Photo-Era" will doubtless suggest other applications of Mr. Manly's process to those interested in decorative applications of photography.

Personally, after reading of the ozobrome process, I was inclined to question its alleged miraculous powers. Having tried it, I unhesitatingly withdraw the first adjective. My first experiment was to try its applicability to lantern-slide work, and the results exceeded all expectations. Then I tried to get a carbon copy off a bromide enlargement. In this, success—after one ignoble failure—was also gained. I then thought of its adaptation to decorating pottery. Here some difficulties had to be overcome, but after a few failures and the exercise of a little perseverance they were successfully surmounted. The recital of these difficulties, and the methods of overcoming them, may be of interest to readers of this article, and, should they care to follow in my footsteps, they may shun the pitfalls where I have left a danger-post.

### Ozobrome on Porcelain.

I saw in a china-shop, one day, a plate with a beautiful blue border. My companion remarked that one of my photographs in blue carbon, placed in the centre, might enhance its beauty. The suggestion was dismissed as impracticable. However, when doing some lantern-slides by the ozobrome process the thought came into my mind, "Could not this picture, with equal facility, be transferred to the plate?" I could not get the thought from my mind except by one method, and that was a practical experiment. One of the ordinary household plates was requisitioned for the purpose. A gaslight print was taken from a negative, a circle mask, such as is used in lantern-slide work, being placed between the glass and the paper. It is well to leave a good margin of white around the circle. This performs the part of the "safe-edge," which is as necessary for ozobrome as for carbon. This was developed, fixed, and washed. When the hypo had been eliminated, the ozobrome pigmenting solution was mixed in the necessary proportions and placed in a dish. A piece of pigment plaster—marine blue was the colour chosen—the same size as the paper was cut and immersed in the solution till quite limp. It was then taken from the bath, placed face upwards on a piece of plate-glass. The print was lifted from the washing-water and placed on top of this, face downwards, of course, and gently squeezed into contact. The two together were then placed between sheets of damp blotting-paper and a sufficient time allowed for the print to transfer itself to the pigment—half an hour is about sufficient. (Some workers omit this and simply lay the print and pigment on a table and allow them to gain a certain dryness. This is all very well if they do not get too dry, for then there is a difficulty in separating them.) When it is thought that sufficient time has been allowed for the miracle to work, both are plunged into water, and under it they are separated.

### A Cause of Failure.

The pigment plaster was then squeezed on to the centre of the plate, a piece of dry blotting-paper was placed on top, above that a lantern-slide cover glass, and above that again as much weight as it was possible to put on. The "weight" I used was an enamelled basin full of water. Under this pressure the plate with the adhering pigment was left for twenty minutes to allow of proper adhesion. At the expiration of this time the weight and other paraphernalia were removed, luke-warm water was poured into the plate, and developments awaited with keen interest. No oozing of

the colour from the side of the backing-paper taking place within a reasonable period, slightly warmer water was used, and the desired effect took place at once. The backing-paper was then removed with ease, and the unaffected pigment came away beautifully. The picture was there all right, but as the dish was rocked to and fro to facilitate development the affected pigment began to peel off, and the experiment was a failure. Another was tried, and a longer time under pressure was allowed, but a similar result was to be chronicled. When the pigment plaster stuck nicely to glass without any substratum it was curious that it should not do the same to stoneware. A close examination, however, revealed the fact that there were inequalities in the surface, and this accounted for the failure.

### The Need of a Substratum.

It was quite evident, therefore, that a substratum was necessary, and the centre of the plate was coated with negative varnish, and when it was considered dry—about an hour afterwards—another trial was made. Failure was again in store, though the peeling off was not so pronounced. Another plate was coated with the varnish, and left for a night to harden. The same procedure recorded was gone through, and a beautiful picture resulted. The safe-edge, represented by the white margin around the pink, showed plainly, and it was necessary to get rid of this. A wet cloth was wrapped around the forefinger, and the circle was carefully gone round with the nail. The varnish came away quite easily at first, but as it began to dry it became more difficult. The finger with the cloth adhering was dipped in methylated spirit, and with that the remaining safe-edge came away quite easily.

A solution of alum was then placed in the plate, and left for half an hour. This acted as a fixing and hardening bath, and eliminated any traces of bichromate, which is one of the constituents of the pigmenting solution. The plate was then placed on a shelf in a warm room, and in an hour or two was quite dry.

The proceedings were now complete, but there remained the possibility of injury to the picture when the plate was dusted—washing this particular part would be fatal to its beauty. This was overcome by applying picture-varnish to the print. When applied, a rather streaky appearance presented itself, but in the drying process this vanished.

It is quite possible that if one could secure an unglazed plate the substratum of negative varnish could be dispensed with; but as to the pigment withstanding the heat necessary in the future glazing process, I am not in a position at present to say.

A word, in conclusion, as to the choice of colours. A sea-green pigment makes an excellent medium for representing a landscape; it can also be used for seascapes. Red chalk gives as correct a rendering of a sunset as is possible. But what I consider the best colour, and in which most of the experiments here recorded have been made, is marine blue. The pigment seems to have more depth than any others I have tried. Seascapes, which on the print look commonplace, have, in this colour, taken on a new beauty, and in snow scenes one can almost imagine he sees the sparkle of the snow, the substratum of negative varnish giving this effect.

W. FINDLAY.

## FAILURES AND REMEDIES IN CARBON PRINTING.

The following table is given in "Das Bild," and whilst it is specially drawn up for the tissues and stripping films as sold by the Rotary Photographic Company, it is obvious that in many cases it will also apply to ordinary carbon work. The letters T and F in the first column refer, the former to tissue on the ordinary paper support, and the latter to the stripping films,

Failure.	Cause.	Remedy.
1. The pigmented gelatine dissolves during sensitising, especially when touched with the fingers. T.F.	The sensitising bath is too warm .....	The sensitiser should not be warmer than 60 to 65° Fahr. It should be placed in a bottle and stood for a long time in running water or some pieces of ice should be added.
2. The gelatine runs in drying. T.F. ....	The drying room is too warm.	The room should be kept cooler or ammonium bichromate used with the addition of 25 to 50% of alcohol. See also No. 5.
3. The gelatine strips during drying. F. ....	The drying room is too warm and there is too much ventilation. Very dry weather.	The room should be damped by hanging up wet cloths, or be sprayed with water, 5% of glycerine should be added to the sensitiser.
4. The film shows reticulation during development and floats off the support, or it only adheres in the deepest shadows, and the half-tones dissolve. F.	(a.) The printed image is not laterally reversed on the gelatine. The film was placed with the gelatine in contact with the negative. (b.) The print is reversed. Too short exposure.	(a.) The celluloid must be in contact with the negative. (b.) Longer printing.
5. The gelatine will not dissolve even in the unexposed parts, in warm water. T.F.	Too long drying. (Damp air). The fumes of burnt gas or paraffin in the drying room. Fumes from an acid fixing bath. Old sensitiser.	Better ventilation or warming of the drying room, the hygrometer should not show above 70°. The drying room should be fitted with fans. Use an alcoholic solution of ammonium bichromate 15 gms., water 100 ccs. To every 25 ccs. of this stock solution add 25 ccs. of alcohol. This should be applied with a brush. Duration of drying 1½ to 2 hours. After use the sensitiser should be filtered. It should be frequently made fresh.
6. During development the highest lights alone dissolve. T.F.	Over-exposure. ....	Add to the developing water some ammonia; if details do not then show, shorter exposure is the only remedy.
7. The gelatine will not dissolve at all in hot water, and only shows relief. F.	Complete over-exposure .....	As for No. 6. If this is no use print one degree less on the actinometer.
8. As No. 7, it also shows reticulation. F. ....	As No. 7. The reticulation is caused by too hot water.	As for No. 7.
9. In the finest half-tones, transparent, round spots of different sizes and not coherent show, whilst in the shadows they are less transparent. F.	Crystallisation of the bichromate on the film through the use of too strong a sensitiser. Too long sensitising, insufficient blotting off of the same.	Use weaker baths. After sensitising blot off excess of solution with clean blotting paper. One minute's sensitising is enough.
10. The prints show dark places or streaks. T.F. ....	Excess of sensitiser was not blotted off and parts are thus more sensitive.	Excess of sensitiser should be carefully blotted or wiped off.
11. Development is difficult and irregular. F. ....	The excess of chromate not washed out before development.	The prints should be soaked for about 15 minutes, and the water changed twice.
12. The prints appear hard. See also 14. T.F. ....	Sensitiser too weak or too much ammonia added .....	For soft negatives use a 1 to 3% sensitiser with as much ammonia as will turn it straw coloured. For hard negatives a 4 to 5% should be used without ammonia.
13. The print is flat. T.F. ....	Too strong sensitiser .....	
14. The half-tones are eaten away, otherwise the print appears fairly good. T.F.	Developing water too hot, or too hot water was added. Too violent rocking during development.	The water should not exceed 80° to 97° Fahr. Too violent shaking should be avoided. A stronger sensitiser should be used.
15. The developed print shows slight reticulation. T.F.	Too hot water in developing .....	The temperature should not exceed 97° Fahr.
16. The celluloid will not easily strip from the picture. F.	The print is not dry enough .....	The remedy is obvious.
17. The transferred print is covered with shining round spots. (The support is a rough paper). T.F.	The transfer paper was not soaked long enough, or was not sufficiently squeegeed after transfer.	Rough transfer paper should be soaked for ½ to 2 hours in water, and just before use dipped into water at 125° Fahr. Stronger pressure on a soft support in a copying press.
18. The outlines of the transferred prints are covered with innumerable shining points. T.F.	The developing water was too cold and too full of air. The transfer paper was insufficiently soaked.	Use greater pressure and warmer soaking water.
19. The outlines of the individual prints do not exactly coincide in combination or three-colour printing. F.	One or other of the images was developed in too hot water so that one has expanded more than the other.	The constituent prints should be developed simultaneously or water used at the same temperature. The paper bearing the transferred print should be soaked longer.
20. The cemented prints do not adhere to one another when the print is dry. F.	The prints were not thoroughly cleansed from rubber. In transferring the gelatine was squeezed out during squeegeeing.	The prints should be thoroughly cleaned with benzole. After the gelatine solution has been poured over the print, the softened print should be carefully superimposed, and any air bubbles removed by gentle pressure with the fingers.

## THE PERSPECTIVE OF THE BACKGROUND.

No slight part, as every photographer knows, is played by the background in portraiture. The background can make or mar the total effect of a portrait, a fact which was recognised by painters long before photography was thought of for portraiture. The following notes on the background in portraiture, advanced by Herr Otto Mente in the current number of "Das Atelier des Photographen," should therefore be worth consideration.

After laying stress on the great attention paid by the old masters to the background, the author states that until the last few years the subject has been much neglected by photographers.

The first and most important question is the representation of the

background in its true position behind the shutter. Success in this important matter implies correct gradation of tone as regards the portrait and softness of focus. Slight fuzziness or "softness of focus," as it is preferably called, is an absolute necessity, for the reason that the human eye can only see sharply those objects on which the eye is focussed. The eye has no depth of focus, and everything in front and behind, or on either side of the object observed will not appear sharply defined. From the fact that the eye unconsciously focusses on the principal object, we see a portrait sharp, but the background and accessories will appear indistinct. This process of the living eye can be imitated by the lens when pro-



ly used, but we have now to deal with only the second factor causing the background to recede—namely, the correct relation (tone) of the background to the portrait.

### Aerial Atmosphere.

A background being always separated from the eye by a greater thickness of air than the sitter before it is exposed to the action of thicker layers of air, which latter exert the most pronounced action on tone effects. Let us consider a landscape with receding ranges of hills. The summits of the hills always become greyer and poorer in detail as they recede from the observer, and everyone who has not yet noticed the fact can at once convince himself by observing any subject, even a long street, in which there are receding planes. This phenomenon is caused by the innumerable number of dust particles which increase in proportion to the thickness of the air. These particles reflect light, and therefore brighten up the intensity of the shadows of distant objects. An open-air portrait will stand out from its background, the greater the distance between the two—that is to say, the less contrasts the background contains.

### The Dangers of Indoor Portraits.

In artistic portrait photography for some time it has been the fashion to photograph the sitter in ordinary furnished rooms. The man in this new portraiture should not be condemned in itself. Above all things, the person to be portrayed, if in his accustomed surroundings should lend himself more readily to artistic results. But there are difficulties. Whatever the lighting, accessories give too much contrast, even if so far removed from the sitter as to the one hand to give satisfactory softness, and on the other satisfactory definition of their form. As regards the use of a small top, a certain limit cannot be exceeded in practise for the sake of rapidity, and consequently the sitter and accessories must be liberally near one another, and the picture lacks repose. The lights and shadows of the background become more full of contrast than those of the portrait, and it is necessary to resort to subsequent retouching, such as doctoring the back of the negative to produce harmony.

Now that stereotyped accessories are banished from the studio, it is satisfactory to see that the painted backgrounds now made are more suited to the newer taste. More often, perhaps, walls covered with actual tapestry are now used. There is much to recommend this kind of background.

In the first place, the ordinary character of the room remains unchanged; in the second, any degree of softness of focus can be obtained without any trouble by merely altering the distance between the background and the sitter, and the distribution of the masses in the picture can be effected by alteration of the position to one side or the other of the tapestry.

### Focal Differentiation of the Background.

As a rule, however, we come to the conclusion that we can obtain better results with painted backgrounds than with natural surroundings, and we have the question as to how far from the sitter they must be placed in order to produce the necessary softness. The answer to this is very simple. In order to produce a constant ratio of softness of the background to a sharp portrait with lenses of different focal length, we must increase or decrease the distance between the two accordingly, as the focal length of the lens is shorter or longer. The stopping down of the lens is of little importance, as the aim in portraiture is naturally for the largest possible apertures, in order to obtain short exposures and roundness in the face and its surroundings.

Short focus lenses, with their greater depth of field, are not advisable, on account of the distorted perspective, so-called, which they give. Therefore, for individual portraits, we have only the longer focus lenses, with which the correct distance between background and sitter can be best determined in an empirical way. No formula can be given for this, as different cases require different degrees of softness. Before all things, must one decide as to whether the background shall be a background—that is, a complement to the portrait—or whether there is any actual connection between the sitter and the background. In the latter case, naturally, it is desirable to take a sharper and more definite representation than in the former; still, this is purely an æsthetic question, and further consideration of it would lead us too far.

### White and Black Backgrounds.

Undoubtedly even-toned backgrounds are the simplest to work, since there is no question of sharpness or softness, and therefore the dreaded "sticking" of the portrait to the background is impossible. Perfect black and perfect white are, however, extremely difficult to handle. The well known optical phenomenon that a small black square on a white ground appears smaller than a white square of similar size on a black ground warns us to take care. Actually one may often observe that in portraits on a perfectly black ground the head appears too large for the body. This appearance will be all the more prominent the greater the density of the negative. The reverse case is not so bad, but still even here there are other troubles, and the great white background warns us to take care. Actually the highest lights of the portrait and make these appear darker. A differentiation of the sparkling lights against the white background is no longer possible. At the time of the vignettéd bust pictures, which still survive in some places—a white, or at least a very bright, background was generally used, as it was thus possible to obtain a satisfactory shading off—into the background, at least—without any trouble. These pictures were, however, wanting in "plasticity," because the high-lights of the portrait could not be brought to their full value.

Abroad, dark backgrounds have again become the fashion, and the necessary design of the background is done on the back of the negative. Twenty years ago the same process was adopted, and the back of the negative was smoked, the drawing made, and from that a duplicate negative. An artist may succeed with such means, but generally this process is not advisable.

### THE HANGING AND ARRANGEMENT OF PICTURES.

THE importance of the tasteful display of photographs in a reception room will earn for the following hints from the "Photo Era" a careful reading:—

The hanging of a picture makes or mars its success as a decoration for the room. If the colours are printed or painted in bright tones, the degree of light needed is not so great, in the daytime or evening, as with colours of less intense hue. Dark corners of the room may be perceptibly brightened by the introduction of pictures in vivid colours—pinks, reds, and yellows.

Large pictures require distance to appear to their best advantage. This rule applies also to compositions of a certain character—winding roads and curving brooks that seem to disappear beyond the horizon.

Family portraits bear so intimate a relation to the life of the household that they belong to the living-rooms, except when for some reason they fit into the scheme of decoration for the formal rooms, hall, or drawing-room.

Portraits of celebrated authors acquire increased interest when placed near their works, and pictures of composers are more attractive when hung near musical instruments. In one library a little gallery of authors' faces was made by filling the entire wall above the book-shelves with prints framed uniformly. The idea might be taken up in a music-room with the same success, using good photographs or engravings of persons eminent in the musical world.

Small pictures distributed at intervals upon a wall lack the style that they give when grouped more closely together. The same principle is true of the small plaster medallions that are usually hung, each by itself, about a room.

Two different methods of hanging pictures with a wire cord can be followed. One is to use one hook for each picture and have the cord form an acute angle where it falls over the hook. The other plan is to use two hooks and two separate cords, the cords making two separate perpendicular lines from picture to hook. The latter way is better for large, heavy pictures, the former more suited to pictures light in weight.

The proper height at which to hang a picture is often questioned. A good general rule is to bring the centre of the picture within eye range of person of ordinary height when standing before it, but this need not be inflexibly followed. Sometimes three pictures framed alike and similar in composition or colouring are to be hung one above the other. The middle picture, which will look better if a size smaller than the other two, should be the one in eye

range, and the space of an inch left between the pictures above and below.

One common mistake of an inexperienced picture hanger is to bring into juxtaposition pictures with dark and light mats. Harmonious results are impossible to effect when this is done.

In many houses the hall-way is quite overlooked in the matter of picture decoration. The opportunity, either in a living or reception hall, is too good to be lost.

#### THE FIRST PORTRAIT BY DAGUERRE.

It will be remembered that in our issue of December 7, 1906, we quoted a letter from Mr. W. Gardner to the "Westminster Gazette," stating that the writer's uncle, an engineer of the past generation, was the first sitter to Daguerre, and that he, indeed, suggested portraiture to Daguerre, who until then had confined himself to turning his camera upon inanimate objects. By courtesy of Mr. Gardner's mother, in whose possession the Daguerreotype now is, we have had a copy made of the portrait. The inscription made by Mrs. Gardner on the back of the portrait, in 1904, runs as follows:—

"This Daguerreotype was given to me by my brother, Andrew Shanks, in 1843. Daguerre had then taken only buildings and land-



Andrew Shanks.

Copy of the Daguerreotype by Bennett Clarke, Wolverhampton.

scapes. At my brother's suggestion he offered to take him, so that this was the first likeness he ever took."

In the absence of documentary evidence of the time it is difficult to verify or disprove the claim of this Daguerreotype to be the first portrait ever made by Daguerre. We have searched in the early literature of the Daguerreotype process for some reference to Mr. Shanks which would fix the date of his conversation with Daguerre, but without success. Although the portrait did not come into the possession of its present owner until 1843 it must have been taken before then if it were the earliest made by Daguerre, because Daguerre, with those who had learnt the process, were making daily use of the process within six months of its being published in 1839.

There is no mention of the incident in Daguerre's "Historique et Invention," published in 1839, but then Daguerre was not in the habit of going out of his way to acknowledge other people's suggestions. The fact that in his directions for exposure he says nothing about portraits leads colour to the supposition that at the time of publication of the book he had not thought of applying his process in this direction. It is possible that the daily and weekly newspapers in Paris for the years 1839 and 1840 might contain some reference to the occasion on which Mr. Shanks' portrait was obtained. So far as we

are aware, it is quite in accordance with the known facts that the art of photographing portraiture might have been practised for the first time on Mr. Shanks' person.

#### PHOTOGRAPHIC SURVEY OF SUSSEX.

The following is the report for the year ending December 31, 1906. In the report for 1905 reference was made to negotiations being in progress for placing the survey on a broader basis and making the collection accessible to all interested in the work. With this view steps taken during the past year have resulted in the transfer of the Public Library, Church Street, Brighton, of the photographic negatives, lantern slides, etc., contributed to the survey; this collection is now in process of being arranged and catalogued. It will be stored in the Reference Library (which is open to the public week-days from 10 a.m. to 6 p.m.), and will shortly be available for inspection by all interested in the survey, as well as by the general public. In the meantime, those wishing to refer to the collection will receive every facility for doing so on application to the Hon. Curator at the Brighton Public Library. Photographs now total 747, negatives about 1,100, and lantern slides 300.

As it is desirable that the working of the photographic survey should proceed from one centre as much as possible, Mr. H. J. Roberts, the Chief Librarian of the Brighton Library, has been appointed Honorary Curator, and Mr. L. A. Gilbert, Honorary Secretary. Their addresses will be: The Public Library, Brighton. Mr. J. C. Stenning will retain the post of honorary treasurer, and proposes to visit Brighton from time to time to help where needed.

An endeavour will be made shortly to organise a systematic photographic survey of the county. Whilst this is pending it is hoped that no opportunity will be lost of rendering assistance to the survey by photographing objects of interest and sending the results to the hon. secretary at the Brighton Library; in exceptional circumstances where no photographer is available, the hon. treasurer would be glad to be communicated with.

The hon. treasurer also desires again to draw the attention of all who possess old photographic or scrap albums, old negatives, or photographs of buildings or of other antiquities in the county to the service that can be rendered to the photographic survey by the lending them for the purpose of copying; any such articles sent to the hon. treasurer will be copied and carefully returned.

The balance sheet shows a total collection of £11 ls. 1d., an increase of more than £3 over last year, whilst the expenditure has been £7 ls. 11d., leaving a balance of £3 19s. 2d.

The annual meeting of the survey will take place on March 12 at the Public Library, Church Street, Brighton.

**FANCY DRESS BALL.**—The employees of Mr. J. F. Lessels, photographers, Aberdeen, were entertained by their principal at the annual fancy dress ball in the West End Café last Friday. The assistants from the studios at Glasgow, Edinburgh, Leith, Dundee, and the various branches in the city assembled, with a few friends to the number of 50, and spent a most enjoyable evening. The host, as Hamlet, looked and acted the melancholy Dane to perfection notwithstanding that the gaiety of the scene did not lend itself to the characteristic gravity of the prince. Miss Lessels, who admirably fulfilled the functions of hostess, was attired as Empress, and looked sufficiently imperial in the part. The other dancers represented a variety of fancy and historical characters, including among the ladies:—French fisher girls, Dutch peasants, Spanish dancers, Summer, Puritan, Ireland, Queen of Diamonds, Japanese, Veronique, Queen of Roses, Marie Antoinette, Snowball, Alice in Wonderland, Colleen Bawn, Hypatia, Vivandière, etc. The gentlemen appeared as naval and military officers, Indian Rajah, Chinamen, Davy Garrick, Beau Brummel, Chief, Weary Willie, Robin Hood, Count Little Pickle, Rajah Bhong, Policemen, Jockey, Chinese Mandarin, Colonials, Cowboys, Toreador, etc. During an interval a very interesting function took place, Mr. Bannerman, on behalf of the employees, presenting Mr. Lessels with a handsome violoncello. Mr. Lessels, in a neat speech, returned thanks for the gift, and hoped that the friendly relations existing between his assistants and himself would long continue.



## Exhibitions.

### NORWICH PHOTOGRAPHIC SOCIETY.

The Norwich and District Photographic Society has now attained to its fourth exhibition, which was opened by the Mayor on February 28, in the Lecture Hall of the Church of England Young Men's Society. It embraces all the usual features and something more; and to the practical photographer it is of the utmost educational value. A considerable proportion of the total exhibits is shown in the highly contested open class, and there is shown, besides a large loan collection of portraiture done by Herr R. Dührkoop, of Hamburg. The Dührkoop pictures (writes the "Eastern Daily Press"), which are lent by the Editor of the *BRITISH JOURNAL OF PHOTOGRAPHY*, and have been seen before on various photographic occasions in other parts of the kingdom, are some seventy-six in number, and they manifest an astonishing variety of manner and tone. Whether the tone be high or low—and it ranges from one extreme to the other—the technical quality is always admirable. There is an absence of pose and an air of spontaneity about all the figures, some of which are taken under conditions of obvious difficulty. Whatever else he ignores, the visitor must see the Dührkoop pictures.

The classification of the competitive photographs, of which there are 424 altogether, has this year undergone an important change. There used to be separate categories, relating to landscape, portraiture and architecture, which are now all merged together in a large open class—Class I. The second class is made up of lantern slides and is open. The third class is free from any limitation in respect of subject, but is restricted to photographers living in East Anglia. The remaining six classes, which relate to landscape, portraiture, architecture, and still life, are limited to members only. In point of average quality the line to be drawn between the members' own exhibits and the exhibits in the open classes is not nearly so marked as it was in previous years. In the competitive departments of the show there is nothing which will attract the attention of the visitor perhaps so strongly as the still life exhibits of Mr. H. J. Comley, of Stroud, Gloucestershire, who has achieved some remarkable effects in colour photography.

The committee are to be congratulated heartily on their arrangements. The competitive work, as shown on two well-displayed screens running lengthwise of the hall, and most of the loan pictures are shown upon the walls at the side. The award list in the open classes is as follows:—

Open Classes.—Class I: Plaque, No. 5, Aubrey Harris; No. 34, John Walton; No. 54, W. J. Clutterbuck; No. 82, A. W. Walburn; No. 14, F. A. Tinker; No. 50, J. J. Rutherford; No. 62, Miss H. Stevenson; No. 4, H. Y. Summons; extra plaque, No. 20, H. J. Comley. Class 2: Plaque, No. 90, A. G. Thistleton; No. 96, J. Ludlam.

### SOUTH LONDON PHOTOGRAPHIC SOCIETY.

The eighteenth annual exhibition of this society was opened on the 2nd inst., and whilst the general average of the work in the members' classes was equally as good as in previous years, there was distinct falling off in the architectural and excursion picture classes. The latter one can understand, but the former is a little curious, considering the very high reputation which the members of this society have held in the past for architectural work. One may almost presume that the members are turning their attention to other classes of work, and, for example, flower studies, of which some fine examples are shown, particularly by the lady members, who deservedly score.

The judges, Messrs. Furley Lewis, J. C. S. Mummery, and E. J. Wall, made the following awards:—

Members' Classes.—A: Portraiture, animals, flowers, fruit, etc. Bronze plaques: "It Is Not Always May," Mrs. K. Whiles; "Madam Carl Droski," Miss M. A. Smart. Hon. mention: "The Little Window," A. E. Bixby. Class B.—Architecture.—Bronze plaque: "Touched with Sunlight," G. J. T. Walford. Class C.—Landscape, seascape, etc. Bronze plaques: "December Sunshine," J. J. T. Walford; "At Bosham," T. Moyser; "Winter," Gideon Mark. Hon. mention: "The Mill," W. Llewellyn White; "Sunshine

and Wind," E. W. Taylor. Class D.—Excursion pictures.—Hon. mention: J. T. French. Class E.—Lantern slides.—Bronze plaques: G. J. T. Walford. Hon. mention: E. C. Seare and J. T. French. Class F.—Champion class.—Gold medal: E. W. Taylor.

Open Classes.—Class H: Portraiture, etc.—Silver plaque: "Portrait of Cecil Heywood," E. O. Hoppé. Bronze plaque: "Japanese Pæonies," Miss L. Marillier; "A Portrait Group," Oscar Hardee. Hon. mention: "The Nation's Pictures," E. T. Holding; "Oranges and Nuts," H. Comley; "Fairy Tales," C. A. Morgan. Class J.—Architecture.—Silver plaque: "A Play of Sunlight," J. W. Johnson. Bronze plaque: "A Norman Triforium," G. J. T. Walford. Class K.—Landscape and seascape.—Silver plaques: "Bruges Canal," Oscar Hardee; "Trafalgar Square," F. Warner. Bronze plaques: "The Medway at Rochester," A. H. Piddington; "The Pathway," R. G. Cripple. Hon. mention: "The Garden of Allah," L. J. Steele; "Off to the Fishing Grounds," G. J. Rattle. Class L.—Lantern slides.—Silver plaque: E. R. Bull. Bronze plaque: G. J. T. Walford and A. G. Thistleton. Hon. mention: Ellis Kelsey and G. A. Booth. Class M.—Stereoscopic.—Silver and bronze plaques: H. Wormleighton.

The bronze medal in the Edwards' Memorial Competition for the best monochrome reproduction of a coloured picture was awarded to Miss M. A. Smart.

For the best novelty in the trade section the medal was awarded to Messrs. Watson and Sons' new Holo convertible wide angle lens; and that for the best stall to Messrs. Prosser, Roberts, and Co.

### WORTHING CAMERA CLUB.

OWING to the great success of the Worthing Exhibition last year the committee endeavoured to make still more extensive arrangements, and this year's show, which was held on the four last days of February, was again a very great success. Entries in the open class had almost doubled themselves, 149 frames being hung. Amongst these the three-colour carbon work of Mr. Henry J. Comley, who secured the premier award (silver plaque) stood out prominently. Mr. Comley's print was purchased by the club for their permanent collection. The work of the members showed a decided advance on pictorial quality, and was well above the average seen at provincial exhibitions.

The lantern slides, too, were worthy of mention. Besides those which were shown daily, there was an excellent programme of lectures.

Messrs. A. Horsley Hinton and Oliver G. Pike undertook the judging, and the following is their list of awards in the open classes:

Class A.—Silver plaque: "A Corner of the Larder," Henry J. Comley. Bronze plaques: "The Rescue," Ellis Kelsey; "Grey Morn," James C. Batkin; "Barn Owl" (from life), Alfred Taylor; "Low Tide," Walter Selfe. Hon. mention: "Gooseberries," Robert Burnie; "Home of the Crested Grebe," W. Farren.

Class B.—Bronze plaques: "Evening," W. Selfe; "Song Thrush," G. A. Boothe. Hon. mention: J. Easonsmith and R. Burnie.

### FORTHCOMING EXHIBITIONS.

1907.

March 2 to 24: Marseilles Photographic Society.—Sec., M. Cullet, Rue St. Savournin, 38, Marseilles.

March 7 to 16: Leicester and Leicestershire Photographic Society. Entries close February 16.—Sec., Lewis Ough, "Fernleigh," St. James' Road, Leicester.

March 12 to 13.—G.E.R. Mechanics' Institute, Stratford (photographic section). Entries close March 2. Sec., A. Woolford, 16, Grove Green Road, Leytonstone, N.E.

March 14 to 16: Coventry Photographic Club. Entries close March 9.—Sec., T. J. Mercer, 6, Cope Street, Coventry.

March 22 to April 13: Northern Photographic Exhibition. Entries close March 8.—Sec., C. F. Inston, 25, South John Street, Liverpool.

March 23 to April 2.—Glasgow Southern Photographic Association. Entries close March 16.—Sec., Charles Young, 217, Crow Road, Partick, Glasgow.

April 10 to 13: Ilkeston Arts Club, Photographic Section. Entries close March 27.—Sec., A. Smith, 11, Graham Street, Ilkeston.

April 17 to 19: Belfast Y.M.C.A.—Sec., J. W. Bushey, Y.M.C.A. Camera Club, Belfast.

April 25 to 27: Wallasey Amateur Photographic Society. Entries close April 10.—Sec., W. Hayes, 110, Brighton Street, Seacombe.

April 29 to May 14: Photographic Society of Ireland. Entries close April 22.—Sec., R. Benson, 35, Molesworth Street, Dublin.

May 6 to 10: Chemists' Trades.—Sec., A. Norman Flack, "British and Colonial Druggist" Offices, 44, Bishopsgate Street Without, London, E.C.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following Patents were applied for between February 18 and February 23:—

**SHUTTERS.**—No. 4,024. Improvements relating to shutters for photographic apparatus. Wilhelm Kengott, 111, Hatton Garden, London, E.C.

**CINEMATOGRAPHS.**—No. 4,168. Improvements in lens mechanism for cinematograph apparatus. Robert Thorn Haines, 322, High Holborn, London, W.C.

**CAMERAS.**—No. 4,351. Improvements in photographic cameras. Arthur Lewis Adams, 26, Charing Cross Road, London, W.C.

**RELIEFS.**—No. 4,361. Method of producing bas-reliefs for decorative purposes and for the production of photographs and printed matter, with relief-like effects. Rudolfo Namias, 40, Chancery Lane, London, W.C.

**DEVELOPING APPARATUS.**—No. 4,386. Improved photographic dark-slide or light-trapped case for exposing, developing, and fixing flat films or plates in daylight. Charles Johnson, Birkbeck Bank Chambers, Holborn, London, W.C.

**DEVELOPING APPARATUS.**—No. 4,526. Improvements in photographic developing apparatus. Eugen Bader, 7, Southampton Buildings, London, E.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**CAMERAS.**—No. 12,254. 1906. The invention consists of a roll film camera, in the back of which is an aperture through which notes and memoranda may be made on the paper cover of the film. The aperture is provided with a shutter. The author says: "As it would, however, be difficult to make a record on the black paper, I use the film with unsensitised strips at intervals along its length, on which the notes are made through an aperture in the black paper corresponding in size to that of the aperture in the back of the camera, but I make no exclusive claim to such films. Instead of using films having unsensitised strips at intervals I may employ films fully sensitised, but of extra lengths, to provide spaces for recording the notes, but to such films I make no claim." Joseph Constance Jones, 20, Walsingham Road, Hove, Sussex.

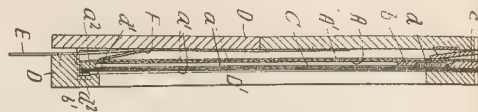
**PLATE-HOLDERS.**—No. 5,212. 1906. The invention relates to camera slides and plate-holders of the kind referred to in Patent Specification, No. 7,757, 1899.

As shown by the sectional drawing, the plate carrier or holder A, is composed, as usual, of a sheet of metal, celluloid, stiff paper, or other thin material having its two sides a bent or turned over to form side grooves into which the sensitive plate or film fits, and one end closed by a cross bar b, while the other end, which is not turned over but is open to admit the plate, is entered into

an outer carrier A<sup>1</sup>, whose two sides, a<sup>1</sup> and inner end b<sup>1</sup>, are bent or turned over to form grooves, in which the inner plate holder A may slide.

A sliding flap or shutter C is entered into hollow grooves formed by the spaces between the turned over edges a and a<sup>1</sup> of the inner and outer carriers A A<sup>1</sup>.

The inner end of this shutter C enters a groove formed between the turned over edges b<sup>1</sup> of the outer carrier, and a cross bar a<sup>2</sup> of wood or the like, against which the end of the inner holder A abuts. A cross bar c, secured to the outer end of the shutter, is provided for drawing it out of the carrier A A<sup>1</sup>, and to close up the open outer end of the latter so as to exclude

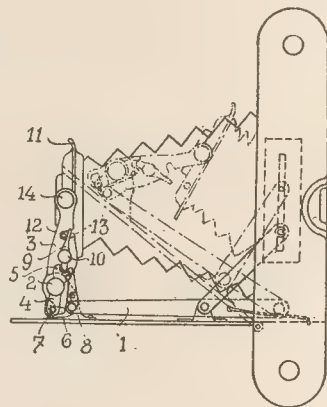


light, the said cross bar c, bearing for that purpose on a velvet or like pad, d, as is usual, at the outer end of the inner carrier or plate holder A, while the turned over edges a of the latter and the cross bar b at the inner end of the outer carrier A<sup>1</sup>, serve to exclude stray light from the remaining edges of the plate. Frederick MacKenzie and George Wishart, 17, Douglas Street, Glasgow.

**SHUTTERS.**—No. 2,713. 1906. The invention consists of a diaphragmatic shutter, including a number of aperture plates, an air and escapement mechanism. The description entails reference to the seven detailed drawings in the specification. Gustav Dietz, 20, West 31st Street, New York, United States.

**CAMERAS.**—No. 20,142. 1906. The invention is in reference to cameras, in which the front is pivoted to the baseboard and automatically comes into vertical position when the camera is opened. A group of levers is provided on either side of the front, so that when the front is raised by means of a suitably mounted tie rod, a lever (4) is turned by striking against a fixed stop, in such a manner that a second double-armed lever moved by it holds the front in vertical position.

The tie rod 1 is at one end pivoted to the camera casing, and at the other end hinged to the lever 3 on the camera front, rotatably connected at 2 to the baseboard. On the pivot point 2



is pivoted a second lever 4, provided at the top with a lug or fork 5, and at the bottom with a pin 7 engaging in a slot 6 in the lever 3. When the tie rod 1 is left behind during the opening of the camera, the said pin 7 rests against the foot 8 secured to the folding baseboard, so that the lever 4 has to turn about 2.

The fork 5 is in engagement with a branch of a lever 9, which is pivoted at 10 to the lever 3. The other end of the said lever 9 forms a projection which, on the camera being opened, presses



a pin 12 secured to the front board 11, into a notch 13 in the lever 3, and thus holds it fast.

When the apparatus is opened, the tie rod 1 pulls the lever 3 on the front into vertical position. The front board 11 hinged at 14 is brought forward, and the pin 12 engages in front of the notch 13. At the same time, owing to the pin 7 striking the foot 8, the lever 4 is turned about its pivot point 2, and thus the lever 9 is turned about its fulcrum, so that it engages with the upper arm behind the pin 12 and holds it in the notch 13. A. J. Boulton, for the Fabrik Photographischer Apparate auf Aktien vormals R. Hüttig and Sohn, 76, Schandauerstrasse, Dresden, Germany.

The following complete specification is open to public inspection for acceptance under the Patents Act, 1901:—

**SHUTTERS.**—No. 4,024. Shutters for photographic apparatus. Wilhelm Kengott, 111, Hatton Garden, London, E.C.

### New Trade Names.

**INKA.**—No. 289,850. Chemical substance used in manufactures, photography, or philosophical research, or anti-corrosives. Kirchhoff and Neirath, 23, Oranienburgerstrasse, Berlin, N., Germany. Manufacturing chemists and novelty vendors. January 2, 1907.

### Analecta.

*Extracts from our English weekly and monthly contemporaries.*

#### The Boon of Telephoto Anachromatism.

Mr. Will. A. Cadby, writing in the "Amateur Photographer," on the "Adjustable Landscape Lens" of M. Morin, says:—

"It is an immense advantage in a landscape lens to have it adjustable, by which I mean the power to alter the size of the picture without moving the position of the camera. If we want our subject large, we extend the bellows, and focus accurately with the rack and pinion attached to the lens, exactly in the same way as with the Adon's telephoto when used alone. Indeed, size is only limited by the length of bellows attached to our camera, within, of course, reasonable limits. A very little reflection is needed to enable us to realise the advantage of this arrangement, for the one instrument forms in itself a whole battery of lenses, and the picture can be taken the exact size wished for without dodging backwards and forwards with the camera.

"To sum up, it seems to me that this lens might form the turning point in many a wavering photographic career. The disappointed worker, at the end of his tether, sick to death of his sharp, all-over-licious of indiscriminate landscape, will find it a means to make his nature prints at least more attractive and less obvious, for it lends quite pleasing quality to the most ordinary view. The lens, at all events, will do its part of the work artistically, and this is saying a great deal."

#### Coloured Miniatures on Bromide Opals.

Writing in "Focus" of March 6 on the preparation of miniatures made on bromide opals and coloured with dry powder colours, such as Barnard's "Velvotints," the Rev. Canon Day gives the following description of the fixing process which must be used to soften the coarse effect obtained by the first application of the colours:—"All this is remedied by the subsequent process, which is the secret to the beautiful delicacy seen in miniatures, produced by this means. After dusting off any superfluous colour, the opal should be held, at a distance of 12 inches, from the spout of a kettle, the water in which has been made to boil briskly. This allows a good spray of steam to spread over the surface of the picture, and has the effect of fixing the colours and refining and blending them at the same time; of course, if the opal is held too close, or for too long a time in the steam, the heat will melt the gelatine basis of the picture, and the work be ruined irretrievably. Five seconds in a good volume of steam will be quite sufficient to fix the tints, without allowing moisture to condense upon the film."

### New Books.

"British Birds' Nests." By Richard Kearton, F.Z.S. 520 pages, 9 x 6. London: Cassell and Co., Ltd. 21s.

This handsome volume is the outcome, so the author tells us in the preface, of a resolve made fifteen years ago to write a book on British birds' nests, and to illustrate it from beginning to end with photographs which should "show things as they are, and not as they are supposed to be." Mr. Kearton, with the assistance of his photographer-brother, has had the thanks of the public for quite a number of books since that time, all presenting various aspects of bird and insect life in a way which fascinated the reader, while it left him marvelling at the prodigious patience which the photographic illustrations implied. Yet probably none of the previous works of the Kearton Brothers partake of the character of the present one, which is not a narrative, but a book of reference, and is, in fact, arranged dictionary fashion, with the items in alphabetical order from "Accentor" to "Yellow hammer." But the term "dictionary" should not mislead the reader of these lines, for the volume is more like a picture-book than anything else, from the inclusion, with scarcely an exception, of a photograph of each bird's nest, and in many cases of the bird in its natural haunts.

The information given under each heading comprises a description of the parent birds, and of the situation and locality of the nest, a description of the eggs, and notes on the time at which the birds are sitting. In addition to the numerous half-tone illustrations in the text there are six photogravure plates and sixteen three-colour reproductions of eggs.

"Les Positifs sur Verre." By H. Fourtier. 188 pages. 7½ x 4½. 3fr. 75c.

"Les Projections Scientifiques et Amusantes." By G. Massiott. 48 pages. 9 x 5½. 1fr. 75c.

"Conseils aux Amateurs." By Maurice Mercier. 144 pages. 7½ x 4½. 2fr. 75c.

Of these three volumes, from the publishing house of M. Gautier-Villars, Paris, the first two deal with lantern matters. M. Fourtier's treatise treats of the processes of slide making, including the preparation of stereoscopic transparencies. It gives instruction in the collodion and albumen processes, as well as the use of the more popular bromide and gaslight gelatine plates.

The second brochure describes about twenty experiments of an instructive or entertaining character, which can be shown on the screen with a modern projection lantern. A number of the devices in which a physical phenomenon is presented to the spectator in a novel and spectacular manner are highly ingenious, and the little book should be of service to science lecturers employing a lantern, not merely for its actual instructions, but for its suggestion of means to make scientific instruction entertaining at the same time.

M. Mercier, a lively writer, well describes his book as "Conseils," for the latter is not a systematic text-book, but a series of papers chiefly on negative making, in the course of which the author manages to convey a good deal of information in a bright conversational way. Some of his recommendations, for example, picric acid in the developer, are unusual; but he is evidently writing out of his own experience.

"Wagner's Lohengrin." Retold in English and illustrated in colour by F. C. Tilney. 95 pages, 8 x 5. London: George Routledge and Sons, Ltd. 3s. 6d.

Bravely does Mr. Tilney attack the mystical German romance, and, reducing it to its elements, remould the story nearer to the comprehension of the boys and girls in their teens—for whom this elegantly produced volume is doubtless intended. It is no easy task to present the story of Lohengrin in a way which is comparable with Lamb's tales from Shakespeare, but Mr. Tilney manages to interest us in the trial of Elsa and her rescue by the mysterious knight. The volume contains half a dozen reproductions in three-colour of the author's paintings illustrating the story, and is alto-

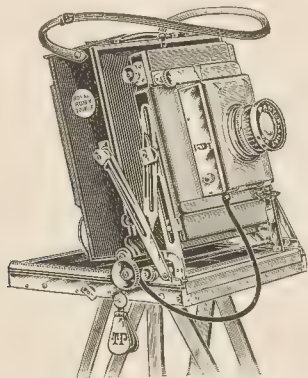
gether a delightful gift-book to place in the hands of anyone with a taste for the legends on which Wagner founded his operas.

"THE PRACTICAL AND PICTORIAL PHOTOGRAPHER" has changed its character to some extent on passing into the hands of new proprietors, Messrs. Robert Atkinson (London), Ltd., 10, Essex Street, Strand, W.C. One notable innovation which we see for the first time in the March issue just published is the use of a matt paper for the half-tone plates. The illustrations lose very little in detail, and the general effect from the artistic standpoint is immeasurably superior to that on art paper. Among the literary contents are contributions from Mr. Chapman Jones, Horace Mummery, and T. Thorne Baker, and a symposium on refinements of bromide printing.

## Dew Apparatus, &c.

Thornton-Pickard Cameras, 1907 Models. Made by the Thornton-Pickard Manufacturing Company, Altrincham, Cheshire.

Almost exactly a year ago we reviewed several new cameras which the Thornton-Pickard Company were then adding to their series. We have now to pass judgment upon the latest model of the oldest camera of their manufacture, originally the "Ruby," but now, in its perfected form, the "Royal Ruby." It represents the firm's supreme achievement in camera construction, and a truly remarkable achievement it is.



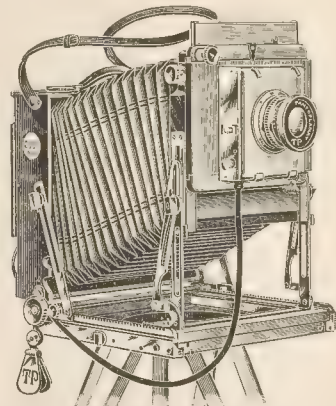
Vertical swing to front and back. Also showing short focus movement at front of camera, without protruding baseboard.

The improvements which mark the camera out from previous models lie chiefly in the lens front. The latter is now attached to the front of the baseboard by a system of levers, and has not, as previously, to be set in place by the user when opening the camera. Instead, the act of drawing out the bellows brings the front into exact perpendicularity with the baseboard and locks it there. Similarly, the back is automatically locked square with the baseboard; so that the camera is adjusted, at once and independently of the operator's judgment, in the position in which it is required to be for the great majority of work.

To return to the front. The levers which support it permit of the front being made wider and higher, apparently a small matter, yet, in fact, the key to the improvements in the camera. The larger front allows a bellows of slightly less tapered shape, and, as a result, the positions of wide angle combined with rise and fall, which the camera can assume are incredibly advantaged under the new construction. The double-lever support of the front likewise gives a very rigid position of the latter, and permits of the front being held out beyond the baseboard, an addition to the camera's already very ample provisions for extension. Similarly the front is projected towards the focussing screen, where it is adjustable up, and down, and where also, as in all other positions, it can be swung

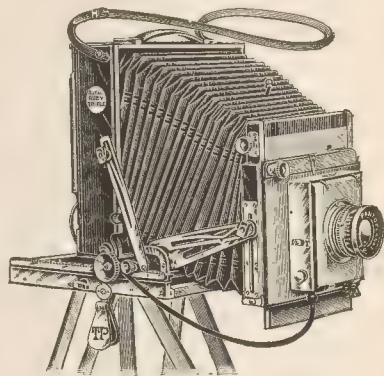
through an angle which is only limited by its juxtaposition to other parts of the camera.

We confess that the task of lucidly setting forth the facilities which are thus provided is no light one, and may also lead us to overlook the extra movements of rise and fall by the system of divided panels, the scientific balance of the whole apparatus at its extension of 25 inches (half-plate) and of other minor matters, which nevertheless contribute to the efficient use of this camera—e.g., the new pinion to the lens front, which both controls the rise or fall and clamps the front firm. The illustrations of the camera in different



Rising front with independent rising panel. Total rise above centre 3½ in.

positions, but not extreme ones, will better convey an adequate idea of the range of movements of this handsome instrument. The half-plate size is an ideal tourist's field camera, and the larger sizes are equally effective in the hands of photographers called upon to undertake technical work of the most difficult kinds. And the last word must be one of surprise that, with all the added improvements, this company should have been able to reduce prices. This they have done to an appreciable extent. The half-plate set, with R.R. lens, three-fold tripod, T. and I. shutter, and one dark slide, now costs £10 10s.



Fall over front of baseboard. Universal swing front in action.

The 70s. half-plate set of the Thornton-Pickard Company, which must be next mentioned, has been still further improved for the coming season in a number of details which make for comfort and speed in working and enhance the already extraordinary value which is offered at the moderate figure of £3 10s. All the brass work is now made with rounded corners, the reversing back faster in place with spring snaps instead of the previous hook clips, and the dark slide is automatically secured by a spring clip instead of turn button, minor additions which any worker will be thankful for. The upright struts (now brass) of the lens front are made to splat

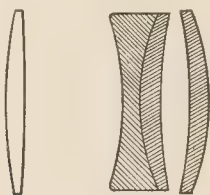


outwards, the camera thereby closing more easily, owing to the struts assisting the compression of the bellows. Previously these struts were of wood, but the change to metal has made possible a wider lens panel and a better range of movements. As it now stands, the "Imperial Triple Extension," as the 70s. set is called, is perfectly adapted for a very wide range of work.

"Duo" Anastigmat Lenses. Made by Aldis Bros., Old Grange Road, Sparkhill, Birmingham.

A step forward in lens construction has been made by Messrs. Aldis, the announcement of which should be received with a good deal of interest by the many users of their anastigmat, as well as by those who at the moment may be halting between many opinions as to which lens to select as an addition to their equipment. The Aldis anastigmat, we may say for the information of those who do not possess it, differs from the majority of instruments in not being separable into two separate lenses. It is of the simple construction which permits of great optical perfection of the lens as a whole, yet does not allow of the division of the lens into two working parts. That fact is largely discounted by the fact that a purchaser might obtain two complete Aldis anastigmats, of the foci he would require, for little more than the money he would pay for a divisible lens, and at the same time he would get the longer focus of the same rapidity as the smaller. Yet the same, or lesser, facilities in one lens only are probably preferred by the majority of tourist photographers, and it will therefore be a satisfaction to them that the new "Duo" system gives them the choice of foci without the drawbacks of two separate complete lenses.

In short, Messrs. Aldis have perfected a small lens element, which replaces the front combination of the anastigmat and converts the latter into an anastigmat of double the focal length. We have had an opportunity of putting the new system to the test of trials extending over a considerable time. The particular "Duo" that we have tested is intended for use with the No. 7 Series III.  $f/7.7$  anastigmat of  $7\frac{1}{2}$  inches focal length. When substituted for the original front combination an anastigmat of 15 inches focal length and effective aperture of about  $f/17.5$  is produced. This 15-inch doublet seems to be a remarkably well corrected instrument, and it gives perfect definition with full aperture over a half-plate with scarcely a sign of astigmatism. Stopped down, it will, of course, cover a larger plate, but as the original No. 7 lens is essentially a half-plate lens it is probable that this "Duo" combination will be mainly used with half-plate cameras. Fifteen inches is a most useful focal length for half-plate work, but a 15-inch anastigmat is usually very expensive. The "Duo" should easily become popular, as its combined



qualities of smallness, cheapness, and high quality will be hard to beat, and for all classes of work it is a lens which we should have no hesitation in recommending to a photographer requiring a high standard of excellence in his negatives. The drawing shows (on the right-hand side) the full size and construction of the No. 7 "Duo" front element in conjunction with the back element of the Aldis anastigmat.

## Photo-Mechanical Notes.

The following patents have been applied for:—

PHOTO-MECHANICAL PRINTING.—No. 3,363. Improvement in photo-mechanical printing. John William Ippers, 65, Chancery Lane, London.

PRINTING-PLATES.—No. 3,538. Improvements in the production of plates for printing purposes. Sherard, Osborn Cowper-Cowles, 4, South Street, Finsbury, London, E.C.

## New Materials.

Cream-Crayon "Zigo" Self-toning P.O.P. Made by Thomas Illingworth and Co., Willesden Junction, London, N.W.

Those who want an effect very similar to the toned bromide, but obtained simply by printing-out and fixing, should give Messrs. Illingworth's new variety of "Zigo" a trial. The tint of the paper harmonises well with the colour of the image, and the whole effect is of a kind to satisfy the worker who is discontented with the gloss or semi-gloss of P.O.P. Like the other brands of "Zigo" paper, glossy and matt, the operations following printing are limited to fixation for about six minutes in a hypo bath and washing for the usual time. The "Cream-Crayon" is supplied in sizes and at prices uniform with those of the existing papers and based on 1s. for the packet of 25 quarter-plate pieces, or 1s. 11d. for two sheets,  $24\frac{1}{2} \times 17$ .

PICTURE POSTCARDS.—The London Studio, 20-22, St. Bride Street, Ludgate Circus, E.C., send for our inspection a number of specimens of pictorial postcards in half-tone, which they prepare from photographers' originals, they making and printing the blocks at prices which are announced elsewhere in this issue. The cards before us are excellent examples of half-tone.

LETTERING PRINTS AT THE TIME OF EXPOSURE.—A sample of the useful outfit supplied by him is submitted to us by Mr. G. H. Eustace, Grimsby. The method calls for no special skill in use, and is one which should be of service to photographers issuing postcards.

REVISED PRICES of the Ilford "Amauto" self-developing plate appear in the current issue of "Photographic Scraps" as follows:—

	Per doz.		Per doz.
$3\frac{1}{2} \times 2\frac{1}{2}$ .....	1s. 0d.	$5 \times 4$ .....	2s. 6d.
$\frac{1}{4}$ -plate .....	1s. 6d.	$\frac{1}{2}$ -plate .....	3s. 8d.
$5\frac{1}{2} \times 3\frac{1}{2}$ .....	2s. 6d.	1-1 plate .....	7s. 6d.

## CATALOGUES AND TRADE NOTICES

THE PHOTOGRAPHIC CATALOGUE of the British Dispensary, New Road, Bangkok, the largest source of supplies in Siam, reaches us from the proprietors. It is satisfactory to note that the goods are almost entirely supplied by British houses.

"THE PROFESSIONAL PHOTOGRAPHER."—No. 4 of this publication of the Kodak Company contains some interesting notes on Mr. Drummond Shiels, of Edinburgh. There are a number of excellent half-tone reproductions of portraits.

LISTS OF THE STOCKTAKING SALE now in progress at Messrs. Houghtons, 88-89, High Holborn, are now obtainable, and describe a great variety of mounts, cameras, lenses, and camera cases offered at large reductions of the regular prices. Messrs. Houghtons also send us a booklet illustrating the styles of catalogue which they can offer to suburban and provincial dealers, with his (the dealer's) address and other announcements added on the covers. The booklet should repay the attention of dealers not in a position to issue lists entirely of their own.

THE ANTHONY AND SCOVILL COMPANY, Binghampton, New York, U.S.A., send us their catalogue of supplies for photographers and photo-engravers. It at once impresses a British reader from the fact that not a single woodcut appears among its illustrations. Half-tone photographs or wash-drawings of the apparatus are exclusively used, and the list thereby gains in effect. The American buyer, too, is not offered the endless variety of accessories and attachments which he can see described in the dealers' lists here, and apparently he is none the worse off.

LAFAYETTE, LIMITED, DUBLIN.—The directors' report to the shareholders, submitted last week, showed that the net profit made during the year was £7,000. Dividends of 6 per cent. on the preference and of 10 per cent. on the ordinary share capital of the company were ordered to be paid to the shareholders.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, MARCH 8.

Sutton Photographic Club. "Photographic Failures and their Remedies." Oliver Goldsmith Photographic Society. "Theory and Practice of Softening Papers." John Griffin & Sons.  
Cardiff Photographic Society. "Photography by Artificial Light." W. J. Jenkins.  
Hamstead Scientific Society. "Wild Traits in Domestic Animals." J. A. Simes.  
Loughton Photographic Society. "Alpine Passes." Geo. Lamley, F.R.P.S.  
Photographic Society of Ireland. "Lectures." By Members.  
Nottingham Camera Club. "Contact Printing on Slow 'Rotograph' Bromide Paper."

#### SATURDAY, MARCH 9.

Edinburgh Photographic Society. "The Pentlands and the Moorfoots: Their Historical Associations and Scenic Beauties." Illustrated. W. Reid.  
Photo Art Club. Outing to Grandholm.

#### MONDAY, MARCH 11.

Preston Camera Club. "Five Minutes' Lectures." By the Members.  
Southampton Camera Club. "Zermatt and Beyond." Part II. Illustrated. W. R. Kay.  
Central Photographic Society. "Fire-Side Chat on Work for Winter Evenings." By H. J. Lewis.  
Gravesend and District Photographic Society. "Rambles in Lakeland." Hurst and Carpenter.  
Oxford Camera Club. Lantern Slide Competition and Exhibition of Members' Work.  
Derby Photographic Society. "1906 Competition Prints." W. R. Bland.  
Blackburn Camera Club. "Flower Photography." H. T. Maiby.  
Kingston-on-Thames Camera Club. "Rotary Papers."  
Equitable Photographic Society, Oldham. "What can be Done with the Goerz Lens." C. P. Goerz.  
Tudmorden Photographic Society. "Pictures with the Goerz Lens." C. P. Goerz.

#### TUESDAY, MARCH 12.

Royal Photographic Society of Great Britain. "A New Anastigmat Lens." Conrad Beck, F.R.P.S.  
Sheffield Photographic Society. "English Ecclesiastical Architecture." C. B. Howdell.  
Hackney Photographic Society. "S.C.P." Demonstrated. A. H. Dunning.  
Darlington Camera Club. "A Few of Great Britain's Cities and Towns." H. A. Clayton.  
Leeds Photographic Society. Members' Slides.  
Manchester Amateur Photographic Society. "The Gum Bichromate Process." J. C. S. Mummery.  
Burton-on-Trent Natural History and Archaeological Society. "Photographic News," 1906, Prize Slides.  
Holmfirth Photographic Society. "Ozobrome." J. F. Copley.  
Keighley and District Photographic Association. "Natural History Photography." W. Wilson.  
Hove Camera Club. "A Glimpse at Darjeding and the Sikkim Himalaya." Dr. W. J. Trentler.

#### WEDNESDAY, MARCH 13.

Central Technical College. "Enlarged Negatives on 'Rotograph' Negative Paper." By the Rotary Photographic Co.  
Woodford Photographic Society. "Platinotype Printing." F. G. Emiler.  
North Middlesex Photographic Society. "Figure Study." E. T. Holding.  
Borough Polytechnic Photographic Society. "Hints to Would-be Press Photographers." A. Barratt.  
Everton Camera Club. "Lantern Slide Making." J. F. Wilde.  
Carlisle and County Amateur Photographic Society. "Enlarging Simplified." John J. Griffin & Sons.

#### THURSDAY, MARCH 14.

North West-London Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Blenheim Club. "An Architect's Tour on the Loire and in Poitou." G. A. T. Middleton, A.R.I.B.A.  
North London Photographic Society. "The Passe-Partout." G. H. Nettleton.  
"Stereo-Photography." C. W. Adshead.  
Hull Photographic Society. "Pictorial Photography." F. Atkinson.  
Liverpool Amateur Photographic Association. "Indoor Portraiture and Retouching." Ernest Scott.  
L.C.C. School of Photo-Engraving. "Tendencies of Modern Illustration." Joseph Pennell.  
Richmond Camera Club. "Illuminated Manuscripts in the British Museum." H. J. Ellis.  
Handsworth Photographic Society. "Mounting Prints by Various Methods." Messrs. Baker, Cope, and Proctor.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held March 5, Mr. J. C. S. Mummery, president, in the chair. The third of the series of demonstrations of ancient photographic process was given by Mr. A. C. Braham, of the Autotype Company, on "Wet Collodion." After explaining the method which must be adopted in cleaning the glass for a wet collodion negative or transparency, the lecturer proceeded to prepare some collodion by solution of pyroxyline and papyroxyline, in the usual mixture of alcohol and ether. He explained the iodising of the collodion, and named ammonium and cadmium iodides as the salts most frequently employed. The operations of coating, sensitising, and developing were shown, and the lecturer then proceeded to demonstrate the

applicability of the collodion process to the preparation of combination negatives by the stripping of the film from one plate on to another negative. He showed how the process was carried out in the case of a face which it was desired to add to a different body. The stripping was done in a solution of sulphuric acid of strength about 1 in 40 of water.

In the course of the discussion which followed, Mr. Clift referred to the unsuitability of vulcanite for the material of the vessel for the silver bath. It led to the rapid deterioration of the bath. Mr. Clift stated, as the result of seventeen years' experience of the wet collodion process, that the bogey of the silver bath, which was so frequently held up by those who had worked the process, had little existence in fact, provided that the bath was not overworked, and that all the ordinary precautions were taken. He thought that the reputation which the bath had for suddenly and inexplicably going wrong was not merited.

Mr. Oliver S. Dawson said that a chief merit of the wet collodion process was its cheapness. His own estimate of the relative cost of wet collodion process, as compared with dry plates, was that a plate which cost 14d. by wet collodion cost 1s. 6d. by the dry gelatinobromide plate.\*

In the further discussion Messrs. Rapson, Teape, McIntosh, T. E. Freshwater, Haddon, C. E. Donne, and the Rev. F. C. Lambert took part.

CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.—On February 27, a paper on "Photography with Beck Lenses" was read. The paper discussed pictorial and technical methods, the technical points being illustrated with architectural as well as landscape views. A great many of the photographs were taken on 12 x 10 plates with a 1/1 plate lens in order to show the marginal definition that could be obtained. Several diagrams were shown illustrating the flatness of field of various types of lenses.

CROYDON CAMERA CLUB.—Mr. A. M. Arbuthnot last year showed a pigment paper of his own invention based on the "gum" process since when further modifications have been effected, and it is now commercially made, and known as the "Leto Pigment Paper." Although Mr. Arbuthnot contents himself by leaving demonstrations to the firm responsible for its manufacture, yet, being an old friend at Croydon, an exception was made in the Club's favour on the 27th ult. A notice of the paper in question appeared in our last issue, together with some working details, and there is therefore no necessity to recapitulate them here. It will be sufficient to say that one and all expressed their appreciation of the paper, on the ground of its ease of working, and beauty, and certainty of results, combined with control. In reference to the gum-bichromate process, the lecturer stated that generally speaking the worker had to resort to multiple printing, up to eight impressions or more, and the labour involved was great, as only those who went through with it knew. With multiple prints, moreover, there was great danger of getting too heavy a result, and though at times a heavy, low-toned picture was desirable, yet repetition produced monotony. He had consequently some time ago come to the conclusion that the only possible means of getting light, delicate effects, in a medium which would allow of personal expression, was a return to the old single-print "gum," or rather a modified form of it. The main defect of the gum process was its uncertainty, principally due to the tendency of the gum to become acid, and attendant alteration of viscosity. "Granularity" was also a feature of the process as usually worked. In an endeavour to overcome the foregoing troubles, he had experimented with practically every possible variation of colloids, and it was only by striking out in an entirely original direction that he had succeeded in producing the paper before them. The lecturer then proceeded to sensitise several sheets of paper, and to develop exposed prints by means of a spray, the President, Mr. A. E. Isaac, who assisted, getting liberally drenched during the operation. A sporting element attached to the prints, some of which had been printed at the works, others by the lecturer's housemaid. In fairness to the feminine sex, it must be recorded that, judging by results, it fully held its own against the combined talent of the works.

\* An article on this subject in which a very different ratio was arrived at appeared in our issue of Feb. 15, 1906.—Eds. "B. J."



## Commercial & Legal Intelligence.

**CARL HENTSCHEL, LTD.**—The report for July, 1905, to December, 1906, shows that the net profits for this period was £15,556. Various charges, including the preference interim of 6 per cent., and the writing off of preliminary expenses, absorb £9,210, thus leaving a distributable balance of £6,346. This allows a dividend of 8 per cent. on the ordinary shares. The forward balance is £843. The report says that a considerable amount has been expended on improvements in plant, the benefits of which will be reaped this year. Also arrangements have been made to cope with the company's important Paris business by establishing works in the gay city.

**A TROWBRIDGE BANKRUPTCY.**—Edward George Shotter, formerly of Salisbury, and of Frome, and now of 85, Park Street, Trowbridge, appeared last week before the Bristol Official Receiver. The liabilities amounted to £142 1s. 9d., and there was a deficiency £140 1s. 9d. The debtor attributed the chief cause of his failure to loss on stock by fire, which occurred on his premises at Westgate Street, Gloucester, last June. His loss on that occasion was £75. According to the Official Receiver's observations, the debtor, who is 29 years of age, began business in December, 1904, as a photographer, at Winchester, without capital. He had since resided at the following towns:—Gloucester, Frome, Sutton-in-Ashfield, Kirkby-in-Ashfield, Reading, and Trowbridge. Before starting as a photographer he was an insurance agent. His liabilities were all in respect of goods supplied or work done. He attributed his insolvency to the fire which occurred last June. His effects were uninsured, and he estimated that he lost about £250, although the deficiency account only recorded a loss of £75. The only account book kept by the debtor appeared to show his receipts and payments from February to June, 1906. The public meeting takes place at Bath on March 21.

**CHARGED BY HIS FATHER.**—Cecil Ernest Swanland, photographer, of Glenfield Terrace, West Ealing, was charged at the Highgate Petty Sessions with stealing in November last a camera, three lenses, and one burr, together value £50, the property of his father, Alfred Swanland, photographer, of High Street, North Finchley. Prosecutor said prisoner had helped him in his business; in fact, at the time of the alleged offence, he was practically master of it. On November 27 prisoner left the studio on the plea of going to photograph a house, taking the articles in question with him, but never returned. Prisoner, who made no reply to the charge, was again remanded.

**ALLEGED FRAUDS BY A PHOTOGRAPHER'S CANVASSER.**—Edward Jones, aged 30, described as a canvasser, of 90, Kimberley Road, Edmonton, was charged on a warrant, before Mr. Paul Taylor, at Marylebone Police Court, on Tuesday, with obtaining 6s. by false pretences from Margaret Coghlan, with intent to defraud.

The prosecutrix, a domestic servant, in service at 17, Frognal, Hampstead, stated that on February 4 the prisoner called at that address and explained to her that he had started in business for himself as a photographer at 285, Oxford Street. He showed her some coupons, and said he would be opening on February 6. "We are doing a dozen cabinets for 10s. 6d.," he explained, and, pointing to one of the coupons, he said: "This is my coupon, and if you buy this for 3s. you can have a dozen cabinets for 10s. 6d. and pay 6s. 6d. at the studio when sitting." She then left him to get 3s. and her photograph, and when she returned he said: "I will tell you what I will do. If you pay 6s. now you will only have to pay 4s. 6d. when sitting, and I will give you an enlargement with the dozen cabinets if you will allow me to put one in the window." She accordingly paid him 6s., and not until he had gone did she notice that the coupon he had given her was without a signature. Subsequently she went to 285, Oxford Street, and found that she had been defrauded.

The magistrate: In what way?

Witness: Mr. Mallia, the photographer, carrying on business there, told me this man was discharged by him last October, and that he (prisoner) was not in business there for himself. I thought from what the prisoner said that he was Mr. Mallia.

The prisoner remarked that he was allowed to take 3s. for each

half dozen, but the magistrate pointed out that according to the prosecutrix he was discharged from Mr. Mallia's service a long time ago.

Mr. Mallia was then called. The prisoner, he said, was formerly in his service as a canvasser, but had not acted in that capacity since last October.

The prisoner proceeded to cross-examine Mr. Mallia on irrelevant matters, but the magistrate stopped him, remarking that the question was whether he had committed a heartless fraud. Mr. Mallia, added that the prisoner had taken 3s. from servant girls and told them to go and get their photographs taken, and as a result hundreds of servants had come to his premises and completely disorganised his business.

Detective-Sergeant Ballard said there were several other cases that might have been gone into. There were also previous convictions against the prisoner, including one for perjury and fraud on January 13, 1906; another on October 20, 1897, at Ely Quarter Sessions, of nine months for larceny from a dwelling house; and a third on October 3, 1899, at the North London Sessions, of eight months for stealing a cash-box, etc.

Formal proof having been given of the previous conviction of eight months for stealing a cash-box in October, 1899, the prisoner pointed out that he had a five years' character from a certain firm. Sergeant Ballard informed the magistrate that at the time he was applying at that Court for a warrant for the prisoner's arrest, he learned that a warrant had also been applied for against him at Hampstead. The person in that case, however, did not wish to proceed further, in view of the prisoner being arrested on the present charge.

Mr. Sims, from the solicitors' department of the Treasury, who was present in Court in connection with the Whiteley murder case, also identified the prisoner, and communicated the fact to the magistrate.

Mr. Paul Taylor committed the prisoner for trial.

At the Highgate Police Court, also last week, Maurice Jones was charged with obtaining, by means of false pretences, 2s. from Millicent Mitchell, 3, Duke's Avenue, Muswell Hill, and 3s. 6d. from Louie Prince, 11, Westfield Avenue, Muswell Hill. Three further charges of a similar nature were now preferred against him, two relating to persons residing at Granville Place, South Kensington, and the other at Highgate.

Mr. Mallia, 285, Oxford Street, W.C., gave evidence, and prisoner was committed for trial on the three charges, bail being allowed.

## Correspondence.

\**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed by our correspondents.*

### PROFITS ON PICTURE POSTCARDS.

To the Editors.

Gentlemen,—As I stand in a somewhat unique position with regard to postcard publishing, as a professional photographer I should like to say a few words on the subject. I am the only photographer in this town, which has a population of 17,000, and I have a monopoly of the postcard view trade with the stationers and tobacconists. About four years ago when the pictorial postcard craze was beginning to show in this town and district, although late in the season, I did not sit and see others reaping the benefit. I knew that it was "grist" that ought to come to my mill, and I did not wait until somebody told me how to get it my way.

I took estimates for 100,000 collotypes right away—one from a London firm of printers, and another from a firm nearer home, who both print and publish, and who kept me waiting for about a fortnight, during which time I found that that firm had sent a man here to take a series of views for their own publication and were trying to get them into the shops. I wrote the firm about it, but they tried to smooth me over by saying they did the same in other towns, and pointed out what a large profit I would have, finishing up their letter by asking if I had any negatives which I would care to sell to make up their series.

I took no notice of their letter, but sent the order at once to the London firm, and went round all the shops and made an agreement with them to this effect: that I would supply them with between thirty and forty subjects if they would agree not to encourage outside publishers, at the same time binding all the shopkeepers to sell the cards at one penny each, and one shilling per dozen, so that neither they nor I would suffer from that cut-throat policy of cutting prices.

Six months or so later a firm of publishers wrote me for a set of six negatives, and another firm for a set of twelve, neither asking any questions except the price. I had to hunt through a lot of old negatives which I would never have used, and sent off a selection to each, asking half-guinea for each. The money was back by return of post.

These appeared on the market in due course, printed in colours. I wrote to one firm for their prices, but they would not supply me owing to an agreement with the wholesalers. They evidently did not consider me a dealer. Most of the shops had a supply sent to them unordered, so I just took a turn round the shops and reminded those who had got the coloured cards of their agreement with me. In two cases I withdrew my cards because of their persistence in selling the others, but I considered that I would have more gain than loss. One firm of wholesalers wrote me later for my prices, but I refused to supply them. I still hold the field, and have not much fear of being ousted. I have several other smaller places on the same basis. I do not compel them to buy packets of one of each view, as is usual with wholesalers, but give them any quantity of any view or views which they want, and I find this to be an inducement for them to support me. My cards are not retailed in packets, but customers have their own selection at a shilling per dozen.

Your readers may think that I stand in a unique position by having such a large town to myself, but I "suffer" more from photographers in other towns just at hand sending canvassers to this town. But this is how I "suffer": the canvassers from other towns take away all the third-class sitters, but in this I take a different view from most photographers. I do not reduce my prices and send round canvassers and starve myself, as most of them, I understand, do, but I put from 3s. to 10s. per dozen on my prices and get a better class clientele, more work, and better pay.

"Professional" seems to think that professionals are justified in being averse to the postcard, because it seriously affects his view-selling trade. True, it has entirely killed my view-selling trade (in fact, I helped it), but I make at the very least ten times more profit by the change. You say "you must admit the wisdom of his (the photographer's) hostility to the picture postcard—because that branch of it which includes photographic portraits of celebrities has undoubtedly cheapened photographs in the eyes of the public and has thus lowered the prices obtainable by the less skilful professional photographers." I say it does not follow that the prices must be reduced. I do not use all my skill for my ordinary work, I do the work that I see takes with my clients. But supposing skill is wanting it is surprising what can be done by using the right printing process, using high-class mounts, and raising prices. "Professional" is right in saying that photographers have themselves to blame if they supply postcard portraits at much, if any, below his terms for other work the same size.

It is a great pity that those who do this class of work cannot see the harm they are doing, not only to themselves, but the profession generally. I do not even print real photo-view postcards for the retail trade.

Speaking to a brother professional last summer in a fashionable summer resort, I asked him if he did not publish local view coloured postcards, to which he said "Nah!"—as if such a thing were beneath his notice—and he told me he got an order the year before from one gentleman for 150,000, but he would have nothing to do with it. He has a special line at his very door and takes advantage of it, using whole plates; and it also came out in course of conversation that he sold real photographic postcards from the whole plates. I said that he would require to reproduce his subjects on smaller plates, and was surprised to hear that he did not reduce his plates, but exposed the cards in the camera, giving fifteen minutes' exposure. He seemed pleased at getting threepence each for them! No wonder that some people grow fat at the expense of others.

I do not stick to postcards as the only appendage to my business, but have taken up dealing in cameras and photo-materials for some years, and find it pays well. But of course I do not place my whole rent and expenses against this single line, as "F. M. S." seems to do in his estimate with regard to retailing postcards, which, I think, is preposterous. Mr. Corkett is much nearer the mark; but in this way it is only mere guesswork.

I must apologise for so long a letter, but I hope many of your readers may benefit by a hint or two which they may pick up. I may say that my latest venture is that of publishing a pictorial guide book to a country district (the first of a series, which it is my intention to issue). In fact, my business in this town was a venture, having to build my studio. I was told it was a rash venture, as no photographer had stayed longer in this town than from one to two years before me. I have now been thirteen years here, and feel like staying another thirteen.—Yours,  
POSTCARD.

#### COLOUR SENSITIVE METER PAPER.

To the Editors.

Gentlemen,—With regard to Mr. Terry's remarks at the Croydon Camera Club, we have kept closely in touch with this matter, and if there is any inquiry for paper to fit our meters approximating in colour-sensitiveness to modern colour-sensitive plates, we should soon be ready to supply it. So far, there has been no inquiry.

It must, however, not be presumed that our present "Steadfast" paper is not sensitive to green and red. The enclosed print, under a Chapman Jones plate-tester, shows that it is orthochromatic in character, and a second print of the same paper, specially treated to increase its colour-sensitiveness, shows what we can do in that direction.

We should, by the way, be pleased to send some quarter-plate pieces of our paper to any investigator who has a Chapman Jones plate-tester, and would like to judge for himself.—Yours truly,

WATKINS METER Co.

[The test prints show fair and about equal sensitiveness under the green and red squares.—Eds. B.J.]

#### YACHT PHOTOGRAPHY.

To the Editors.

Gentlemen,—There need be no difficulty in working with a T. and P. shutter provided your correspondent does not attempt anything beyond its capacity. Regarding apparatus. I prefer for work of this class a whole plate box camera. This can readily be slung round the neck, or rested on anything low enough to admit of a clear vision through the finder a few seconds before making an exposure.

An excellent finder can be made by removing the hood from an old-fashioned show "Eclipse" finder, then slipping it inside a

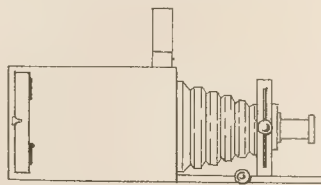


Fig. 1.

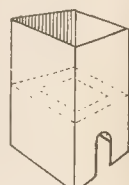


Fig. 2.

correctly fitted square tube (as shown in Fig. 2). The upper part keeps off cross light and allows a clear view of the image. Any amateur with a good steady steam yacht ought to secure good pictures; but a rowing boat or small steam launch are too unsteady for work of this sort. Could your correspondent not hire the local water boat or a small cargo steamer, known here as a puffer, for special occasions, as chances from a fixed point ashore are very rare, and it is of the utmost importance to work from a steady base, whether with or without camera stands. I add a rough sketch of my 1/1 camera (Fig. 1), which is very rigid and without complicated movements. The shutter is an original "Kershaw" working behind the lens. The two screws (of which only one is shown) at the side of the shutter fix the vertical movement at any point. They also allow the lens to swing at right angles with its own axis at any elevation. The rack and pinion in the base admit of



careful adjustment to a previously marked scale on the baseboard, and for yachting subjects beyond 100 ft. it is quite enough to extend the camera to a fixed focus, which may be determined at  $f/8$  on any clearly defined object at 80 or 100 ft. By using  $f/11$  for dull subjects or  $f/16$  for brilliant ones, everything will be sharp from 70 ft. to infinity. The finder must be carefully corrected for covering power of lens, and this will show clearly the subject up to the moment of exposure. It takes a good deal of knowing to be successful, but there is a great deal in being master of the situation and able to take full advantage of an unlooked-for opportunity.—Yours faithfully,  
BHAM-O.  
Oban, Scotland.

#### SULPHIDE TONING OF BROMIDES.

To the Editors.

Gentlemen,—In reference to the recent difficulty of a correspondent getting the bleached print to darken in the sulphide solution, an examination of a print sent to me by yourselves has shown me that very common event in sulphide toning has taken place.

The hypo in the decomposed sodium sulphide has rapidly dissolved the haloid formed in the bleaching, allowing only of the smallest amount of silver sulphide being formed. Some sulphide has been removed, and this constitutes what image there is. My reasoning is as follows:—1. All tests prove the complete absence of any haloid.

Hypo will not affect the image in any way. 3. Potassium cyanide completely removes the image; therefore, as potass cyanide is a solvent of silver sulphide, I take it for granted, without further analysis, that the faint image is composed of silver sulphide (or Carnegie's modification).—Yours truly,

C. WINTHROPE SOMERVILLE.

Lyrath, 117, Hazelbank Road, Hither Green, S.E.

#### PHOTOMICROGRAPHY AND MULTIPLE COLOUR ILLUMINATION..

To the Editors.

Gentlemen,—Referring to the article on the above on page 157 of our issue of March 1, may I be allowed to trespass a little on your space to prevent any misconception?

Whilst multiple colour illumination is based upon the same broad principle—viz., the desirability of securing the best contrast between object and background to secure the best definition—upon which the work of Dr. E. J. Spitta and Dr. C. E. Kenneth Mees has been done, it differs very materially in other respects, in fact their work and mine, one might almost say, has been of a complementary nature.

The problem that these gentlemen set themselves and which they have so skilfully solved was taking objects which, seen usually, are stained or coloured, to secure the best contrast in black and white on the photographic plate. This they do by means of uniformly coloured light filters, the selective absorption of the stained or coloured object being the special factor utilised.

My problem was to take uncoloured or unstained objects, and secure the best visual contrast in colours. This has been effected by means of circular discs—the peripheral portions of which are differentially coloured to the central portion—and the factors principally utilised in obtaining the desired result are the refraction and diffraction of light by the object.

As regards the application of multiple colour illumination to photomicrography, I am hopeful that it may prove of value for colour photo-micrographs, though, so far as I know, nobody has as yet applied it to this branch of work. As for photo-micrography in black and white, I have come to the conclusion that no special advantages are to be gained by illuminating the object and background in different colours, as so far as the desired results are concerned, they can be obtained more simply.

To take just one concrete example. A slide of diatoms or foraminifera viewed with a double-coloured disc by the refraction method, so that the objects are seen in red on a green ground, would give visually an excellent contrast effect—photographically the simplest way of obtaining an equally good result, would be to use the ordinary dark ground illumination, and employ a uniformly coloured blue or violet light filter, such as Wratten and Wainwright's with an ordinary non-orthochromatic plate.—Yours truly,

JULIUS RHEINBERG

16, Coolhurst Road, Crouch End, N., March 5, 1907.

## Answers to Correspondents.

\**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

\**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*

\**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

#### PHOTOGRAPHS REGISTERED:—

J. HARGREAVES, 4, Fair View, Dalton-in-Furness. *Photograph of Usterston Town Football Club.*

J. C. LELIE, 23, Alderbank Terrace, Merchiston, Edinburgh. *Five Photographs of Views of the Craiglockhart Ponds, Colinton Road, Edinburgh, with skaters thereon.*

BOOK ON LIGHTING.—Would you kindly recommend me a good book on studio lighting, one that shows how the light may be controlled with the use of blinds.—H. LENOTT, Malmesbury, Cape Colony.

"The Photographic Studio." By T. Bolas (2s.), or "Lighting in Photographic Studios," by P. C. Duchochois (1s.). You may obtain either from Dawbarn and Ward, 6, Farringdon Avenue, E.C.

R. P. S.—Kindly let me know if it is possible to become a member of the Royal Photographic Society, and how to go about it, please. If not, is there any other British society I could join?

C. PURNELL PARKERSON, Potorna, Auckland, N.Z.

Application should be made to the Secretary, Mr. John McIntosh, 66, Russell Square, London, W.C. We have asked Mr. McIntosh to forward you the form of application. If you are a professional photographer it is to your advantage to join the Professional Photographers' Association. The Secretary is Mr. A. Mackie, 89, Albany Street, London, N.W.

TIME DEVELOPMENT.—1. Would you kindly give me a formula for a suitable developer for time development, one giving a negative of medium density in about ten minutes, at, say, 70 deg. Fahr.? I would prefer one that could be conveniently stored in concentrated solutions, and not liable to deteriorate too rapidly. 2. Given ample washing between operations, do you think harm likely to result from using the same article for developing and fixing? 3. Can you give me the name of any book containing information as to time taken by various developers, at given temperatures? The details given in the books I possess are altogether too vague for practical use.—F. W. BRADBURY, Eastern Telegraph Company, Ltd., Gibraltar.

1. We should advise the use of rodinal or a paramidophenol solution of the following composition:—

Paramidophenol hydrochloride .....	1 oz.
Potassium metabisulphite .....	3 ozs.
Water .....	10 ozs.

Dissolve and add:

Caustic potash, sat. sol. .... g.s.

to dissolve the precipitate first formed. This will keep indefinitely, and may be diluted for use in the proportion of about 1:60 for ten minutes' development at 70 deg. Fahr. 2. As long as the washing was sufficient no harm would accrue, but we must confess to not liking this method of working. We should feel safer if a hypo elimination, like potassium permanganate or hydrogen peroxide were used to clean the tank in between fixation and the next development. 3. There is no book on the

subject, but an article appeared on p. 249 of our issue of March 31, 1905, and an abstract of a later paper by the same authors, Messrs. Ferguson and Howard, appears in the "Almanac" for 1907, p. 754.

**BOOKS ON PHOTO-MECHANICAL SUBJECTS.**—I should be glad to have names of two or three manuals (pratiques) on phototype or colotype, as I have some zinc plates and a press at disposal—I mean gelatine and bichromate process. German books are often more complete and precise in details; the language presents no difficulty.—**PHOTOPHIL** (Tunis).

For colotype, we should recommend "Der Lichtdruck," by August Albert, published by Wilhelm Knapp, of Halle. For phototype, "The Half-tone Process," by Veriasser, published by Iliffe, London, price 5s.; or "The Half-tone Process on the American Basis," by Cronenberg, price 2s.

**STUDIO LIGHTING.**—I remember reading an article in the "B.J." somewhere towards the close of 1905, relating to an idea of studio lighting by means of a square system. The author claimed to be able to get proper lighting, even though in every case he made it mechanical: as he used his square of light larger so he moved the sitter further away, and so on. The article rather impressed me, and I intended to keep the number and give it a trial; but now, although I have a big pile of the *JOURNAL* on hand, the particular number I wanted must have been lent. I would therefore, be obliged if you would send me the number containing this article.—**W. H. GILL**, Middleburg (Cape), South Africa.

We cannot trace the article in our pages for the period to which you refer. There was an article which answers to the description by F. M. Steadman in "The Photogram" for April, 1902. We have asked Messrs. Dawbarn and Ward, 6, Farringdon Avenue, to send you a copy.

**ENLARGEMENT CYLBS.**—Can you give me a little information how to work a club for photographs or enlargements, or give me any address where I can obtain the necessary rules?—**F. FUTCHER**.

We know of no rules of the kind. We should advise you to apply to one or two firms supplying enlargements for club purposes. You will find the advertisements of a number in our columns.

**COPYING OIL PAINTINGS.**—Would you kindly tell me how best to copy old oil paintings, which plates to use, etc.? Can get very little result on ordinary plates.—**OIL PAINTING**.

To obtain satisfactory copies of oil paintings and all coloured objects it is essential to use colour-sensitive plates. If there are no browns or reds in the picture then an ordinary ortho plate with a deep yellow filter may answer, but much more satisfactory results can be obtained in all cases with a panchromatic plate and a yellow filter. Special filters, which give reproduction in correct luminosity of all colours are advertised in our pages, but it may sometimes be advisable to sacrifice a little correctness in order to ensure contrast between two colours. This is entirely a matter of personal opinion.

**COPYRIGHT.**—Will you kindly answer the following in the "B.J." this week, as it is a most urgent case? I have taken the photograph of a young lady. Some one has copied same and printed and finished them. The young lady's parents are indignant, and thought I had sold them. They wish me to stop them. Can I take proceedings against the offenders?—**A. K.**

If you were paid for taking the photograph the copyright in it belongs to the person who paid you—that is, the young lady, her parents, or whoever paid you for the work. They can register the copyright at once and stop the further sale or exhibition of the photograph. If you received no payment the copyright is yours, and you can take the same steps. You had better refer to the article on "Copyright" in the 1906 "Almanac," for your present and future guidance.

**HALF-TONE PAPER, ETC.**—1. Where can I obtain Lindenmeyr's half-tone writing paper mentioned in "Ex Cathedra," "B.J.," February 22? 2. Please give addresses of some wholesale bottle manufacturers (I require bottles suitable for retailing developers, etc.).—**HILL-Top**.

1. Messrs. Lindenmeyr's address is Upper Thames Street, E.C. If as wholesalers they will not supply you with the paper, they will give you the name of an agent. 2. H. Poths and Co., 5 and

6, Bury Court, E.C.; and F. H. Taylor and Sons, No. 1 Wharf New Wharf Road, King's Cross.

**PHOTOGRAPHS FOR SALE.**—I have some interesting little bits of country scenery, and also picturesque photographs of country cottages, which I wish to turn to some account. Are such pictures much in demand for postcards? If so, to whom would you advise me to sell them? If of no interest except as a picture, would they be of use to the Press? Also, which postcard producer would be likely to buy photographs of cats and dogs, etc.?—**L. M. C.**

We advise you to submit a selection to the leading postcard publishers, whose names and addresses you will find in the "Picture Postcard and Collectors' Chronicle," 42-44, Imperial Buildings, Ludgate Circus, E.C. It is impossible to name a publisher as specially likely for a given class of subject. As regards the Press, it is impossible to say. We advise you to study the elements of this branch of photography, as you may do in "Photography for the Press" (Dawbarn and Ward, ls.).

**DAGUERREOTYPES, ETC.**—1. Please let me know where I could obtain an apparatus for taking, developing, and fixing Daguerreotypes in one. 2. Also where I could obtain colour transfers to make lantern slides.—**JOHN R. CAVEDASEA**.

1. It is not possible, so far as we know, to obtain any Daguerreotype apparatus of any kind now, except by chance at some second-hand shop. So far as we are aware, there never was an apparatus made to do all the operations in one, nor is it practicable. 2. Try W. Butcher and Sons, Camera House, Farringdon Avenue, E.C.

**COLLODION PROCESS.**—Kindly give me through the *JOURNAL* a formula for bromo-iodised collodion for wet plates for lantern transparencies, as I have mislaid my formula. In *JOURNAL* of February 22, there is one, but to me it seems too weak in bromides. Is not the developer in same incorrect, viz.:—

Iron sulphate .....	1 oz.
Acetic .....	1 oz.
Water .....	1 oz.

I have been experimenting with some collodion made with Schering's cotton (in shavings), which have given much superior results than the ordinary cotton, and which gives films free from structure.—**W. B. WOOD**.

The formula to which you refer is a very good one. It gives 1 grain of bromide to each ounce of collodion, which is ample in the wet collodion process. There is a printer's error in the formula for the developer; instead of 1 oz. of water, it should be 1 pint—or 20 oz. The mistake was corrected in our last issue. Would it not answer your purpose to buy the collodion ready for use rather than to prepare it yourself? If you do that, you will ensure having what is suitable for the work.

**ENLARGING APPARATUS.**—1. I am about to fit up some enlarging apparatus (artificial light). Would you kindly inform me what I can get particulars and sizes for making a suitable enlarging table. 2. Also can you give me any hints on purchasing a condenser—what to avoid, etc.?—**A. S.**

1. In "Photographic Apparatus, Making and Repairing" (Dawbarn and Ward, ls.). 2. We advise you to get the usual pair of planoconvex lenses. No further advice can be given.

\* \* **NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

The Oldest Photographic Journal in the World.

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## SUMMARY.

In this week's editorial we emphasise the importance of a photographer keeping a system of accounts sufficient to enable him to check the variations in his business. Our notes are introductory a series of articles dealing, in as brief a space as possible, with the actual form which such book-keeping may take in the case of average medium-sized business. (P. 191.)

Messrs. Horace C. and Conrad Beck provoked an interesting discussion at the R.P.S. on Tuesday last by their account of a new anastigmat lens (the Isotigmat), possessing very high corrections though not fulfilling the Petzval condition. (P. 205.)

Messrs. John J. Griffin and Sons, Ltd., on Wednesday last obtained a large company at their new house in Kingsway, on the occasion of the formal opening of a new demonstration gallery and information bureau. (P. 198.)

Mr. Henry C. Spink, of Brighton, has been elected president of the P.P.A., in succession to Mr. Martin Jacolette. (P. 199.)

The first instalment of an article on the photography of machinery and engineering subjects appears on page 197.

The cause of the greater chemical fog on an unexposed plate in comparison with one exposed has been sought by MM. Lumière and Ewertz in the lack of liberated bromide in the former case. (P. 195.)

The virtues of artificial light in the studio are discussed at some length by an American writer and worker. (P. 194.)

Further details are published of the dye process of Dr. Traube, in which silver iodide is used as a base. (P. 196.)

Mr. Gorell Barnes has announced his determination to exclude photographers and draughtsmen from his court. (P. 199.)

The contents of the week include a folding camera, daylight development, and colour photography. (P. 200.)

## EX CATHEDRA.

### How their Leaders Work.

The forthcoming conference in New York of the Professional Photographers' Society of that State, is, as we have already intimated, to be the occasion of a series of demonstrations by acknowledged leaders of the profession in their own studios. The humbler members of the Society are to have the opportunity of seeing Hollinger, Core, Rockwood, Garo, Bradley, and Falk at work in their accustomed manner, and the visit to each establishment is to be made a demonstration of the particular class of work on which the several photographers rest their reputations. Thus Core will have children for his sitters, Garo will demonstrate the photography of draperies, Rockwood will work by artificial light, and Hollinger will deal with the simple poses of heads which characterise his work. The number of visitors in each case is limited to fifteen, and in recognition of the courtesies due to the country members of the Society, as well as to the demonstrators, members residing in New York refrain from applying for admission. The idea, which some day may be applicable in this country, evidently forms a strong incentive to a good attendance at the conference.

### A Word of Advice.

The queries which are continually addressed to us on copyright matters show no signs of diminution, and no doubt those of our readers—and we believe they constitute a considerable proportion—who read queries and replies week by week out of curiosity, discover some amusement in the repetition of inquiries which as likely as not were answered in the very week during which the reader addressed his letter to us. But if the knowledge of copyright law is limited among the less studious number of our readers, the possession of tact in making use of the acquired knowledge is rarer still, and we have reason to know that a professional photographer's difficulties have been increased instead of diminished owing to the high-handed action he has taken when told that the supposed infringement is actually a case for legal action. Among the good resolutions which a photographer can make there is none which will profit him more than to allow his copyright disputes to be dealt with by the Professional Photographers' Association, of which body he should, of course, be a member, or, if the Association does not regard the case as one which it is wise to take up, to be guided by its advice. Many men in business at the present moment would have saved pounds had they heeded and taken this advice.

### The Non-Return of Specimens.

We hear less than we did at one time of specimens being retained by persons or firms to whom they are submitted by applicants for a situation. It will be remembered that we

have cautioned our assistant-readers against sending specimens to box numbers at our office, and no doubt this fact and our publishers' refusal to insert requests for specimens in advertisements appearing under a box number, have reduced the evil to small dimensions. As in all other human affairs, there are two sides to the question, and we have had instances brought before us in which employers who had been accused of retaining specimens were doing so for want of marks on the photographs identifying them with the applicant. Some years ago we published some hints to applicants, one or two extracts from which we may with advantage repeat:—

1. Write clearly and to the point. Answer all the queries in the advertisement.

2. Enclose a stamped envelope for a reply.

3. If enclosing a portrait of self, let the sender's name be upon it.

4. In sending specimens, let stamps for return invariably accompany them, with also a suitably addressed wrapper for their return.

5. Let every specimen have its owner's name (and preferably address) written plainly on some part of the picture or mount; if on the picture itself, there is little danger of dishonest persons retaining them.

\* \* \*

### Composite Developed Images.

Mr. Sterry, in his paper on "The Action of Oxidisers on the Development of the Latent Image," read at the R.P.S. and reported on p. 165 of our issue for March 1, stated that he had been led to the view that light produced three products or practically three latent images. In connection with this hypothesis, it is interesting to note that the finished negative contains more images than one, the traditional single image of pure silver in clean gelatine being apparently a myth. There is a main image in silver that can be removed by a silver solvent, but there is also a residual image of mysterious composition that is unaffected by the silver solvent (excepting, perhaps, when cyanide is used) insoluble in hypo, and practically undevelopable. In a negative made on an ordinary rapid plate this residual image is almost invisible but still detectable. In a "gaslight" lantern plate it is obvious, and looks very much like a weak sulphide-toned image. It is evidently of a complex nature, as silver compounds can be found in it. To a certain extent it can be chlorised and either redeveloped or dissolved in hypo, but the actions are only partial. It is, of course, difficult to determine when the image comes into existence. It may be a result of development, or it may have existed prior to development. If iodide existed in the emulsion it can generally be found in the residual image in an insoluble form, and if the developer gives an organic deposit, that also can be found. But even when both these constituents are avoided, the image still exists. Whether it has any bearing on Mr. Sterry's theory or not, it appears to us that further investigation of this residual negative image is desirable. If such investigation does not add to our knowledge concerning the latent image, it may give some information with regard to little-known silver compounds, and no item of information is too small to be worth consideration in the domain of photographic chemistry.

\* \* \*

### Store Competition in Photography.

If our New York contemporary, "The Photographer," were able to observe professional photography in this country it would probably sound a less alarmist note than that which it is prompted to emit in its current issue, because competition with portrait photographers is being actively put forward by New York stores in the shape of cabinet photographs at a dollar a dozen. If the

American photographer has nothing much worse than this from the competitors outside the business he need not begin to grumble—time enough for that when "free portraits" from religious papers and beef extract companies have made inroads in his territory. According to our contemporary, a policy of retaliation, adopted by photographers in concert, will provide a remedy: "If the various local organisations of photographers would band together to fight this 1 dol. business and, in combination, also offer 1 dol. pictures, advertising the offer through the papers and in other ways, each member of the organisation being taxed *pro rata* for his share of the advertising expense, this 1 dol. rate would soon cease, for the public would undoubtedly rather go to the regular studio, all things being equal. The public would rather have the signature of a regular studio than that of a department store at the foot of its pictures."

\* \* \*

### Extra "Wall Space" at Exhibitions.

Hanging committees of the smaller societies, to whom the necessity of rigorous selection does not apply with such force as it does to the better known exhibitions, may at times be at a loss for space sufficient to display the whole of the selected frames. Under these circumstances they may be glad to make a note of an expedient which we remember having seen in practice several times, and which consists simply in the manufacture of a few frames from wood about a couple of inches wide and  $\frac{1}{2}$  in. thick, with one or two cross-bars for the sake of strength. An amateur carpenter with a hammer, saw, and a few nails will put the affair together in an hour or two, and the frames will support themselves like a clothes horse if hinged together with strips of webbing. They may be covered with materials, fitting the mural decorations, a matter of little difficulty if the fabrics from such firms as Burnetts of Long Acre be requisitioned, or even sheets of the stouter mounting papers might be employed. A professional photographer anxious to make a special feature of new work might do worse than instal a similar device into his establishment.

\* \* \*

### Important and Interesting.

The recent discussion at the annual general meeting of the Royal Photographic Society on the improvement which might be made in the "Journal" of that body was forcibly brought again before us on our turning up during the past few days a back number of the journal of the Camera Club, in which was an article by Sir William Abney dealing in very readable and humorous fashion with the theory of the latent image. To invite the reader to understand a possible change caused by light, imagining the chemical bodies to be partners in a dance, some staid and respectable and others more volatile and lively, was a happy inspiration which might be breathed again with advantage upon the text of some of the papers which are delivered to a listening world at 66 Russell Square. Is it too much to hope that Sir William who for some years has assumed responsibility for the contents of the Royal Photographic Society's journal, may persuade some of the readers of papers to take a leaf out of his book of ten years ago?

—♦—

THE LATE MR. M. L. ISAACS.—We regret to record the death, on March 2, of Mr. Meyer Lewis Isaacs, a director of the firm of Houghtons, Ltd., and formerly head of the firm of Joseph Lee and Co., Hatton Garden, the affairs of which branch of Houghtons Ltd., the deceased gentleman superintended up to within a few days of his death. Mr. Isaacs' death will be felt throughout the trade where he was greatly respected.



## BUSINESS METHODS IN THE STUDIO.

the railway ticket-collector who, so it is said, for lack of definite instructions on the point, declared "dogs is cats and cats is dogs, but tortoises is hinsects," would, doubt not, be in a like dilemma had he to determine whether the professional photographer is following an art, a business, or a trade. The good photographer rightly regards himself as an artist, but, inasmuch as professional photography involves the purchase of materials, and, generally, the employment of hired help, the cost of both which bears no small proportion to the amount obtained for the photographs, he is to that extent a business man, and should therefore follow what are generally known as business methods in his studio. However uncongenial attention to detail may be to the artistic temperament, stress of competition makes insistent demands that the studio shall be conducted on business lines, and unless be one in which there are two or more partners, one of whom can devote himself to the business side, the proprietor must endeavour to combine in himself the qualities of business man and artist.

Let it be distinctly understood that we do not wish to detract from the dignity of professional photography in the slightest degree when we plead the necessity for thus combining the commercial with the artistic. Photographers so closely into almost every phase of the complex civilisation in which we live, that the photographer who would be in the front rank must, of necessity, conform to prevailing conditions. In an age which is frankly commercial, he must be commercial, too. But it need not be at the expense of professional dignity.

Mr. Charles Wesley Hearn, the President of the P.A.A., expressed it, when he foretold the success of the moving-picture exhibition of the Professional Photo-

graphers' Society of New York, on the ground that "the professional, if he be sane, must always remember that *his profession is a business*, and that just as much attention must be paid to business as to making pictures, and that both of these attributes are combined in the exhibition."

If this be so, it follows that business methods should be employed in the studio, methods which will ensure systematic dealing, not only with sitters and employees, but, most important of all, the photographer's own affairs—in other words, there should be an efficient system of accounts.

In a great many studios no proper system is in force, and in those in which one is most needed there is none at all. How often does one read in the reports of bankruptcy proceedings, "Debtor does not appear to have kept any books"; "he did not realise that he was insolvent until the principal creditor obtained judgment." The owner of a studio which is known to be paying may urge that he is careful to live within his means, and therefore has no need to keep accounts; but there are many reasons why he should do so. In the event of his wishing to sell or, after his death, his executors wishing to do so, a set of accounts that can easily be verified is of immense value. So it is, too, in dealings with the Income Tax officials. Again, a business of any kind rarely, if ever, remains stationary. It either grows or diminishes, and, although one may be very observant, it is extremely difficult, in the absence of proper accounts, to determine in which direction a business is moving, especially when credit is both taken from manufacturers and given to sitters. Having thus suggested the desirability of keeping proper accounts, we now draw attention to the first of a series of articles, giving directions for keeping such records as will suffice for the requirements of the average studio.

## BUSINESS METHODS IN THE STUDIO.

### I.

we will assume, for the purpose of these notes, that we are dealing with the studio of Mr. A. Darkslyde, a photographer besides devoting the whole of his time to the business, employs an assistant operator and a receptionist, sharing out touching between them, a girl for mounting and spotting, a girl, and a boy—a total wages bill of £6 10s. per week.

Mr. Darkslyde will, of course, keep a sittings book or studio register. Fig. 1 shows a good form of ruling, providing as it is a record of the whereabouts of negatives and the time taken with any order. It will be noted that there are no columns—the reason for this will be explained later. For the studio register, Mr. Darkslyde will require three small account books—the day book, the cash book, and the petty cash book—in addition to the petty cash book and the private

### Taking Stock.

The first step is to take stock. On the one hand Mr. Darkslyde sets down all his liabilities, that is to say, everything he owes; and on the other his assets. These latter include the value of the premises if they are his own property, the apparatus, the stocks of materials—plates, papers, and chemicals—the amounts owing to him by customers, and the amount of cash at the bank and in hand. The surplus of assets over liabilities is called Mr. Darkslyde's capital, and a complete statement constitutes his balance-sheet. If, at the end of a year, another balance-sheet be prepared, it may likely be found that the capital is less; the amounts

due to creditors may be more, while those owing by sitters are less, and the cash balances are also lower. This is either a sign that the business is not paying so well, or else that Mr. Darkslyde has been drawing more money from the business than the profits warrant. Thus it is that stocktaking is so valuable; it enables a man to know exactly how he stands, and gives, it may be, a timely warning that retrenchment, in some form or another, is desirable. The stocktaking, of course, does not show how the results of the year's trading have been arrived at. The accounts must furnish this information.

### Simple Account Keeping.

The following system is simple. It assumes that Mr. Darkslyde not only has a banking account, but that he is willing to pay in all cash he receives to the bank, and also to make all payments by cheque, sums less than, say, twenty shillings being paid from the petty cash, which is sustained by amounts of £5 at a time as occasion requires. The writer knows that many photographers of his acquaintance have no banking account, but, as has already been said, the photographer ought to be a business man, and a banking account is a business facility of which he should not fail to avail himself.

### The Daybook.

Some photographers endeavour to combine the day book and the studio register, but the plan is a bad one. A sitting, given upon an order for only a few shillings, may, under favourable circumstances, run into as many pounds. The studio register





book. If there be any discrepancy, the items in the pass book should be run through, when it will be found that the bankers may have entered a few charges, the cost of a new cheque book, commission on out-of-date postal orders, and so on. These amounts should be entered in the cash book under the sundry expenses column. If the pass book balance exceed that of the cash book, it is most likely owing to a cheque drawn near the end of the month not having been presented for payment. Any differences beyond these should be looked for carefully. They may be the results of clerical errors—very occasionally on the part of the banker—or they may be actual mistakes in the money itself, mistakes which should be investigated at once.

good many entries, while it is an easy matter to place a new card in the fortunate event of one ever completely filling.

Each day the entries in the day book and the cash book are posted to the ledger, the former to the left-hand, or debit, column, and the latter to the right, or credit, column. If, instead of the conventional "To goods" of the debit side, we substitute the order number when posting from the day book, we at once introduce a time-saving feature, because, in the event of a sitter re-ordering at any time, the one reference to the ledger gives the order number in the register, with its full particulars of the original instructions.

Monthly or quarterly the accounts are rendered to sitters from the ledgers, and the amount is jotted down in pencil,

Date.		Paid into Bank.	Accounts Stock-taking	Materials	Wages.	Advertising.	Rent, Rates, Taxes, Insurance.	Light and Fuel.	Repairs.	Apparatus, Renewals.	Trade Expenses.	Private Drawings.	
		£ s. d.	£ s. d.		£ s. d.			£ s. d.			£ s. d.	£ s. d.	£ s. d.
1906													
Jan. 1	Balance at Bank ... ..	98 0 0											
" 6	Receipts 101 to 150 ... ..	40 0 0											
" 6	Petty Cash ... ..												
" 6	Wages for Week ... ..												
" 13	Receipts 151 to 180 ... ..	80 0 0			6 10 0						5 0 0		5 0 0
" 13	Rent ... ..		10 0 0										6 10 0
" 13	Thomson & Co.—Dealers ... ..		62 0 0										10 0 0
" 13	Jackson & Co.—Enlargers ... ..		12 0 0										62 0 0
" 13	Wilson & Co.—Mounts ... ..		14 0 0										12 0 0
" 13	Wages for Week ... ..												14 0 0
" 20	Receipts 181 to 240 ... ..	50 0 0			6 10 0								6 10 0
" 20	Robson & Co.—Paper ... ..		38 0 0										
" 20	Electric Light ... ..		14 0 0										38 0 0
" 20	Gas ... ..		8 0 0										14 0 0
" 20	Johnson—Coal ... ..							4 0 0					8 0 0
" 20	Self—Private Account ... ..												4 0 0
" 20	Petty Cash ... ..												20 0 0
" 20	Wages for Week ... ..										5 0 0		5 0 0
" 27	Receipts 241 to 260 ... ..	18 0 0			6 10 0								6 10 0
" 27	Dickson Bros.—Stationery ... ..												
" 27	Wages for Week ... ..										4 0 0		4 0 0
" 31	Receipts 261 to 270 ... ..	8 6 0			6 10 0								6 10 0
" 31	Bank Charges as Pass Book ... ..										0 1 6		0 1 6
	Paid in ... ..	244 6 0	148 0 0		26 0 0			4 0 0			14 1 6	20 0 0	212 1 6
	Cheques drawn ... ..	212 1 6											
	Balance carried forward ... ..	32 4 6											

Fig. 3.

### The Ledger.

This book is, of course, the record of the accounts with the sitters. It may be the book form, known to most of our readers, or it may be the comparatively unknown card ledger. The card ledger is far preferable in any business involving a number of accounts with but a few transactions in each. Each sitter has a card headed with name and address, and these are filed alphabetically, cards called guides, with projecting tabs on which are written the letters of the alphabet to facilitate reference, being inserted in their proper positions. A rod runs through the holes at the foot of the cards, screwing the back of the drawer in which they are kept. The cards are ruled both back and front, so that there is room for a

so that if it be not settled before the accounts are again sent out (an experience which is, unfortunately, only too common) this amount heads the account, "To account rendered." At stocktaking time all accounts are closed, and the amounts of the balances needed to make the two sides agree are brought down. It may happen that a sitter has paid a deposit, and thus the balance will be on the opposite side to that of the majority. Such a one will, as far as the accounts are concerned, of course, be a creditor, but these items may be provided for by reckoning them as work in course of completion, as will be shown next week, when we propose dealing with Mr. Darkslyde's profit and loss account.

S. E. KAYE.

**PHOTOGRAPHERS** will probably be interested to know that the Service Company, Ltd., of 292 and 293, High Holborn (with which the Service Photographic Society is associated), are holding an exhibition at the present time of cycles and the accessories relating to them. A special display will be made at the same time cameras and accessories which can be used in conjunction with cycle.

**MARTIN AND CO.**—The business of Messrs. J. Martin and Co., enlargers and printers, of New Southgate, is to be carried on by Martin, Godwin, and Co., under the management of Mr. Stanley Godwin. The new firm has improved its means of dealing promptly with high-class trade work, and invites inquiries from dealers and trade generally.

**THE "STANDA" DAYLIGHT DEVELOPMENT TANK.**—The Standard Patents Company, Ltd., of 11, Bond Court, Walbrook, London, E.C., write as follows:—"We beg to inform you that we have acquired the patents controlling the 'Standa' Daylight Time Development Tank, which, as you may be aware has now been on the market for a couple of years, with an ever-increasing popularity. This season we are issuing the tank with several improvements. Will you be good enough to notify your readers that we shall be pleased to demonstrate the tank at the above address at any time during business hours, and to develop any plates brought for the purpose for the bare cost of the chemicals used? Messrs. Houghtons, Ltd., who have been associated with the 'Standa' tank from the first, will continue, in conjunction with ourselves, to supply the trade."

## ARTIFICIAL LIGHT VERSUS DAYLIGHT.

[The following observations of the comparative efficiency of the two sources of illumination which appear in "The Camera" under the signature of a very well-known worker in professional photography should provide some thoughts for consideration by those who have not adopted artificial light in their businesses.—Eds. "B. J."]

WELL, the time has come when the question is being asked "Do you think artificial light is better than sunlight or daylight?" A few years ago we should have laughed at this question and treated it as nothing more than a joke, but to-day it is no joking matter, and in my humble opinion within five years there will be more artificial lights used than the oldtime skylights. It is surprising how anxious the photographers are to become independent of "old Sol." The operator swears at him when the day is dark, the printer joins in the chorus, and the "boss" stands off and applauds them both, for he knows he is losing trade by the bad weather. When the public realises the fact that the operator is able to make as good work on the cloudy day as on the clear, it will begin to come into the studio on those days, and there will be no dull days and no unprofitable ones; all will be the same. Notwithstanding the fact that photographers have advertised that "cloudy weather is as good as sunshine," if they will but be perfectly honest for a moment, they will have to come right down to brass tacks and acknowledge that cloudy weather is *not* as good as clear and that the work done on those days is not so good. We have tried to convince ourselves that it is as good, for many years, but have never been fully convinced, and neither has the dear public.

### It's all in the Operator.

But now come the artificial lights, and all we have to do is to press a button or turn a crank and on comes the light; then we go ahead, and the negatives come the same one day as another. Now comes the question that I expect to answer, "Do you think artificial light better than daylight?" And to this question I answer: "Nay, nay; but I do think it more uniform than daylight, and I do think it as good as daylight, but not better." This brings me back to the old assertion that I have made so many times through the columns of "The Camera," "that one light is as good as another if the operator is as good as the other." It's all in the man, and if the man can work one light he can work any other light; but if he falls down on one light he is as apt to fall down on some other light. If he can control one light and make it give him a certain effect, he can control another light and get the same effect. If he comes up under a certain light and says, "I cannot get that effect under this light," or "I cannot get that effect here," he is lacking just that much of being a good operator. If he comes up "bright and smiling" under any light and gets the same effects every time, it may be taken for granted that he is a man who knows what good work is and how to get it, and if he cannot have a pet light he will make one that is not a pet do the work for him.

So it is in the use of artificial light. The operator who can work any skylight will have no trouble in working any artificial light that is on the market at the present time for that purpose. I make special mention here of the "Aristo" light, simply for the sake of convenience and for the reason that I have worked that light and know what it will do; but at the same time I desire to say I think there are other lights that will produce as good work and that are just as easily controlled. The use I have made of this light has convinced me that I can get anything with it that I can get with daylight. The one question that seems to be in the minds of all operators is that it may not work as rapidly as daylight, which would, of course, necessitate a longer exposure, and hence be not so good for work with children or short exposures generally. This is not my experience, for I have found that the exposure can be made quicker than with the average skylight. The exposure by this light can be governed

largely by placing the subject farther from or closer to it. Often in the working of a skylight we find the operator stopping his lens down to control the exposure; he knows the plate will be overexposed if the lens is used open, and not having his light curtained, so that he can close off part of it, he must control the exposure by stopping down the lens. This destroys one of the most pleasing effects in portrait work. When the lens is stopped down to any great extent it destroys that warm, fluffy, atmospheric effect that all good operators like to have their work show. This atmosphere makes the portrait look as if there are certain parts that are nearer than other parts, and so we get the right idea of distance and perspective. This is all destroyed when we begin to stop the lens down, for to stop it down makes the lens cut deeper, and in doing that it brings all parts up on the same plane, making what we call a "flat field." This is anything but desirable in portrait work. It is often impossible to move the subject away from a skylight owing to the fact that the room is so narrow that we have to confine ourselves to a limited space, hence the stopping down of the lens.

### The Effect of Distances.

With the artificial light this is overcome, for the light can be raised or lowered and the subject moved away from it until the exposure is controlled, and at the same time we preserve the atmospheric effect that is so much desired. Any operator who understands the use of the flash machine will understand this condition and be in position to make the most of it. He will remember that the farther from the subject the flash machine is placed the softer the effect of the light and the more powder he must use. So it is with the artificial lamp; the farther from the subject it is placed the softer the effect and the longer the exposure that must be given. Therefore, it will be readily seen that the exposure problem is entirely in the hands of the operator, something that cannot be said of the old-time skylight. There has never been an operator who had complete control over his light when it came to exposure. There are too many conditions governing the exposure problem for him to get complete control of it, and chief among the conditions is the constantly changing intensities of the light. One minute the sun is out strong, the next it has softened considerably, and the next it is cloudy; so on during all the day, so that the operator is never making the same exposure, and when he comes to developing he has to manipulate the developer for every batch of plates—or, at least, he thinks he has to manipulate the developer. With the artificial light the intensity of the light is the same all the time; and if the operator will experiment just a few minutes he will find the distance it should be placed from his subject to secure the same effects at all times and then keep the lamp there all the time, and he will have the exposure problem in his hands so far as the light is concerned. The distance the light should be from the subject will be governed by the lens to be used. Some lenses work at  $f/4$ , and with a 16-inch focus will, of course, work very much faster than a lens working at  $f/8$  and 16-inch focus. So the operator should have the lamp placed where he can get the exposure he wants to give and there leave it. I have an  $f/4$  lens, and the lamp, when in use, is placed so that it is about seven feet from the top of the subject's head, and the average exposure is about one second. This would be the average exposure under a skylight measuring sixteen feet square, where there were no obstructions to the passage of the light to the subject; so it will be seen the lamp works as fast as any other light.



### The Benefit of a Concentrated Lighting.

One other advantage I see in the lamp is that its light is a more concentrated light. I do not mean it is harsh, for it is nothing but that; but, being small, it concentrates the light at those parts at which we want it concentrated and then blends it in a soft effect to all the other parts. This is especially noticeable in the lighting of white draperies. I suppose by this time the readers of "The Camera" have found that I am somewhat of a crank on the subject of lighting white draperies. Now, this light is fine for that part of the lighting. I have not found it necessary to use any of the screens that I used in the skylight lightings to control the light on the lower parts of the figure. The light concentrates at the face, and that is the highest point of illumination, and from there it is a gradual reduction to the lower parts of the figure. This is as it should be, for all operators know their great trouble in lighting white draperies has been to keep the white dress from coming up so fast in the developer that it would give nothing but a white (blank) effect in the finished picture. There have been many methods resorted to to overcome this effect. One was to place a screen between the subject and the light, so that all of the direct light, striking the subject, would have to pass over the top of the screen and then bend downward in a soft, diffused way to the lower parts, and I have found very few operators who could do this with any degree of success. Another method was to locally reduce the white parts after development, and I have found fewer still who could do this. With the artificial light it is not necessary to do either. The subject should be placed so that the lamp is about seven feet more or less, according to the length of exposure the operator wants to give) from the top of the subject's head and raised to a point where it will throw the light on the face from an angle of about 45 degrees. This is another thing the readers have found that I am a crank on. I am most positively a crank on having the light fall on the subject's face from an angle of about 45 degrees, if the picture is to be a portrait. If it is a genre picture it may be different—but that's another story. The lamp should be placed to the front of the subject, so that if he were to close the eye on the light side of his face and try to see the lamp with the eye on the shadow side of his face he could see the entire lamp. If the operator has any doubts of the position his subject should occupy in relation to the lamp, let him take the

seat to be occupied by the subject and experiment until he gets the lamp in the right position. When he can see the lamp with the eye that is on the shadow side of the face he has it placed at the right point in front of the subject. Next he should raise the lamp as high above his head at this point as he can without losing sight of it with the shadow eye. This will place the lamp at the right height to secure the angle of 45 degrees. Now, if he has the subject seated at this point he will get what is known as the portrait effect of light, or broad effect some call it. From this time on he can move his camera from one side of the subject to the other and get anything from a broad effect to a full profile Rembrandt effect, as it is called. Now, for the exposure all he has to do is to remember the exposure for a broad effect, and it will be the same on all occasions. Then remember the exposure on the Rembrandt effects and they will always be the same. So he has the exposure problem in his hands. Now, if the temperature of his developer and its strength is the same, he will have no trouble in following the "tank development" system and developing all his plates in one solution and at one time. The artificial light is destined to simplify the work of the photographer, making it possible for him to make his negatives by it, retouch them by it, and at last to print them by the same light and be able to do the printing at any "old time." It not only makes it possible for him to do these things, but he can so plan his exposure and his developer according to the exposure that he can place fifty negatives into the same solution and leave them for a given time, and when he looks at one, and that one is finished, he can, without taking the trouble to look at the balance, take all out, for they all, having received the same exposure and having the same developer and the same temperature, must develop the same. "Is artificial light better than daylight?" Well, no, not so far as effects in light are concerned, but for the many things it will do and the convenience of it, YES, in great big capitals. The effects to be secured are as good and the conveniences greater; therefore, it must be better in many respects. For groups I have found it just as good by using a soft white screen between the light and the group. The light is screened on all subjects, but in groups it must be reduced more. This does not make it any slower than the skylight; therefore, that is not an objection.

FELIX RAYMER.

## ON THE DIFFERENCE IN INTENSITY OF DEVELOPMENT FOG ON EXPOSED AND UNEXPOSED DRY PLATES.

WHEN a gelatino-bromide plate, which has not been exposed to light, is treated with a developer it is always possible to produce a certain amount of so-called chemical fog; whilst a similar plate which has been normally exposed and developed under the same circumstances results in a negative perfectly free from fog. This fact, although frequently published, has not been hitherto, so far as we are aware, explained.

We have made a series of experiments with the object of discovering the cause of this phenomenon. These tests were carried out with extra-rapid gelatine plates, and we have attempted to

determine the influence exerted on fog by the following factors:—  
Time of exposure, duration of development, nature and composition of the developer, the combined effect of exposure and time of development.

We used the following normal diamidophenol developer:—  
Diamidophenol ..... 5 gms.  
Sodium sulphite anhydrous ..... 30 gms.  
Water ..... 1,000 ccs.

We developed unexposed, correctly exposed, over-exposed, and under-exposed plates in the same bath at a temperature of 65 deg. Fahr. for increasing time of from one to ten minutes. With the unexposed plates the chemical fog is practically nil with a duration of development of one minute, very distinct after two minutes, and increases very quickly with the duration of development. With the correctly exposed plates the fog was scarcely noticeable after about ten minutes' development. Under otherwise equal conditions the fog appears the more intense the less the exposure.

### The Influence of Temperature.

This test was repeated with the same developer, but at a temperature of 77 deg. Fahr. instead of 65 deg.

Drs. Mees and Sheppard state in their paper on the theory of photographic processes (PHOTOGRAPHIC JOURNAL, Aug., 1905, p. 296):—"It is usual in density measurements to subtract the so-called 'fog' from the total density. This is the density due to inherent fog in the plate, extraneous light, &c. Usually a separate reading is made of the so-called fog strip, but, owing to the differential nature of our instrument, the 'fog' reading was automatically subtracted, and taken from the same portion of emulsion as the exposure. But the formula  $D_{\text{net}} = D_{\text{total}} - D_{\text{fog}}$  shows that there is a theoretical error in assuming the fog in the exposed strip to be equal to that in the unexposed strip. For let  $A + B = C$  be total density of Ag Br, where  $A = \text{Ag Br changed by light}$ ,  $B = \text{Ag Br unchanged}$ . Then the fogging is  $(dD/dt) C = K(A + B)$  in fog strip, and equals  $(dD/dt) B = KB$  in unexposed film. Obviously, fog increases faster in unexposed film than in the exposed, "—EDS. "B.J."

The difference in the intensity of the fog which is observed in the plates of two and a half minutes increases in both cases with the duration of development, and only shows in favour of the exposed plate with a development of about ten minutes.

As before, the fog in the last case is more intense the less the exposure.

#### The Influence of the Nature of the Developer

The above experiments were repeated with two alkaline developers:—

1.—Hydroquinone .....	10 gms.
Sodium sulphite (anhydrous) .....	40 gms.
Sodium carbonate (anhydrous) .....	55 gms.
Water .....	1,000 ccs.
2.—Paramidophenol .....	20 gms.
Sodium sulphite (anhydrous) 25 per cent. sol. ....	1,000 ccs.
Caustic lithia .....	8 gms.

The results were the same as with diamidophenol.

When one considers the difference in the composition of the same developer, it will be noticed that in the first case the developer contains potassium bromide, and in greater quantities the more the plate was exposed and the longer the duration of development. The same result cannot occur in the second case, as the very faint reduction of the silver bromide is obviously limited to the formation of fog.

It may thus be assumed that the small intensity of the fog of the exposed plates in comparison with that of the unexposed, also the increase in the intensity of this fog with under-exposure can be ascribed simply to the retarding action of potassium bromide which is formed during development. In order to verify this hypothesis we have repeated the experiments with unexposed plates, and added to the developer as much potassium bromide as can be formed in the development of a normally exposed plate. We have thus determined that unexposed plates only give fog in amount equal to that which they would give if exposed, a fact which appears to support our hypothesis.

#### The Use of Stale Plates.

The above experiments were repeated with plates which had been made for a long time, and which, when unexposed, gave with short development, a fog which was distinctly visible to the naked eye. The fog which was obtained with exposed and unexposed plates, with and without addition of potassium bromide to the developer, did not markedly differ from the fog of the unexposed plates. The negative results must certainly be ascribed to changes in the plates, which were used for these last experiments, as the small quantity of sodium bromide formed during development was not enough to prevent the formation of the intense fog which such plates showed.

A. AND L. LUMIERE AND A. SEYEWETZ.

## COLOURED TONES BY THE TRAUBE IODIDE PROCESS.

[The brief notice which we accorded to the process newly discovered by Dr. Traube, whereby the formation of a silver iodide image is made the basis of a subsequent dye image, has following extract from which supplements the information in our paper, wherein he deals with the application of the process to Photography] Supplement

discovered by Dr. Traube, whereby the formation of a silver iodide image is made the basis of a subsequent dye image, has been further dealt with in our contemporary "Das Atelier," the issue of November 30, 1906. The full text of Dr. Traube's photographic three-colour printing, will appear in the "Colour Photography" Supplement for April 5.—Eds. "B. J."]

THE coloured silver iodide images can be used for purposes other than colour work. Transparencies for projection or window decorative purposes, and also paper prints, can be prepared by this process.

By means of the bleaching and dyeing solutions, which will shortly be introduced commercially under the name of "Diachrome" solutions, the conversion of the positives into coloured pictures can be effected in two operations. The composition of these solutions is such that the reactions take place in the most favourable way. The bleaching solution, which causes the conversion of the metallic silver into silver iodide, works very quickly, so that the process, even with the densest positives, is finished in a few minutes. As soon as the back of the plate appears perfectly white the excess of solution is washed out of the plate, an operation which only requires a few minutes. The subsequent staining takes a longer or shorter time, according to the density of the silver deposit. As soon as complete colouration through the silver iodide image has taken place, which is known by the absence of grey patches on the back of the plate, the process is finished, and one has only to remove the small quantity of dye which has stained the gelatine. As the composition of the dye bath is so chosen that the staining of the gelatine is limited to the utmost degree, the gelatine film will become perfectly clean after a short washing. If in individual cases, however, the dye should be retained by the gelatine, the addition of small quantities of acid, preferably acetic, to the washing water will considerably facilitate its removal.

For the decoration of windows, naturally those basic dyes which are most stable to light have been chosen. The four solutions give pictures in blue, green, red, and brown, which are very stable. The blue- and green-toned transparencies are especially stable, and some hung in a window which daily received the summer sun showed scarcely any change in appearance.

As the pictures were half covered with black paper the process was easily controlled. It should also be noted that "Diachrome" pictures, which, from prolonged exposure to bright and intense light, have become paler, will assume their original colour when again immersed in the dye bath. Besides the four dye solutions prepared for the above purpose there are three others which are not so stable, but which answer satisfactorily for all the requirements of projection work, and transparencies coloured blue-violet, reddish-violet, and light green can withstand for a very long time any projection lamp. As in this last case the characteristic colour of silver iodide, which looks brownish on the screen, plays an important part, the colours of the projected images differ from those of window transparencies. Above all, the shade of colour of the projected picture depends upon the density of the positive produced by development. If the image is very dense the colour tends to black, whilst soft, thin transparencies give almost the pure colour of the precipitated dye. The following are the colours obtained in projection:—"Diachrome blue" projects olive; green gives bronze; red gives reddish-brown; brown gives pure brown; green II. gives light green; reddish-violet gives red-violet; and blue-violet gives blue-violet.

As a general rule it is advisable to keep the positives for projection as delicate as possible; those for window decoration, on the other hand, should be very vigorous.

In order to make coloured prints on paper with the "Diachrome" solutions which possess every appearance of carbon prints, transparency films should be used. They are bleached and dyed as described above for plates. As the prints are produced by transfer of the gelatine film to paper, the transparency celluloid films prepared by Perutz of Munich should be used and printing done through the celluloid. This does not affect in any way the reproduction of the finest details. When the



coloured transparency films are finished, and they must be very thoroughly washed, and ought not to contain any excess of dye, the film and transfer paper should be brought into contact under water, as with ordinary carbon tissue, then carefully withdrawn

together to avoid air-bubbles, left for a short time between blotting paper under light pressure, and dried. When thoroughly dry the celluloid can be easily stripped from the picture.

DR. W. TRAUBE.

## PRACTICAL HINTS ON PHOTOGRAPHING HEAVY MACHINERY AND ENGINEERING WORK.

Of the many branches of photography perhaps none entail more serious thought and care to a photographer than is the case when he has to undertake the ever-varying requirements of large engineering and shipbuilding firms. Many subjects of this kind are not only large dimensions (shaftings being frequently as long as eighty feet), but are also, as in the case of heavy steel castings, of great weight, requiring the most powerful overhead cranes in manipulation. These modern electric cranes may at the outset be stated to confer an immense boon to a photographic operator, permitting, as they do, of his utilising them in placing his apparatus. The platform of the crane will serve in many cases; in others which have occurred in the writer's experience, a cage suspended from the crane and kept rigid by having drawn tight against its under surface four strong uprights from the cage), has been necessary.

### The Type of Camera.

Cameras of smaller dimensions than 15 x 12 inches are of no use this class of work, and, all told, perhaps this size is preferable for larger apparatus, for, in the event of the prints being required larger size than 15 x 12 negatives yield by direct printing, a good negative will easily produce bromide enlargements up to 6ft. or

As to the best form of camera to use, the climber which a photographer has to undertake make portability of the first importance. Still, there is a happy medium between the light and heavy, and I will now describe the alterations and attachments that were made to an ordinary front extension 15 x 12 camera, to make it especially suitable for this class of work.

The worst features in some patterns of large front extension cameras are the want of protection for the focussing screen, and the absence of side swings at the back, whilst in many instances the net upright carrying the lens is not held sufficiently rigid by the supporting rods. A side swing is particularly wanted in engineering work, where large marine engines for paper-making machines—to get two samples—have to be photographed as close as 15ft. from the end, and yet show detail along a 50ft. or 100ft. length.

### Adapting a Front Extension Camera.

On the other hand, a front extension camera has advantages, in respect of weight and bulk, over the old and more cumbersome tilting tail-board form, which, in confined situations, when using objectives of short focal lengths, makes sharp focussing a matter of difficulty by reason of straining the neck to get sufficiently close to the focussing glass. The thickness of a large front extension camera (say, 15 x 12 inches) when folded up is only 3½ inches, whilst a 12 x 10 of the tail-board pattern is nearly 6in. in thickness, when the former, weighing about 16½lbs., is fitted with a good handle to the top of the camera it is surprising how easily the same can be carried by one hand. This is most important when the operator has to climb ladders and cross stages. The writer therefore prefers a front extension, and has provided a side swing as follows:—In this form of camera the back is held by hinged brass plates on both sides of the base board, the brass plates being attached to the milled head screws passing into bushes deeply sunk into the base board. By merely unscrewing these the back bellows is released, and can be lifted bodily on to the brass runners on top of the base board, the flexibility of the bellows permitting the back of the camera to assume any desired position. To hold it firmly in position the milled heads are first unscrewed from the brass plates. Thin laths of wood are caused to bind the back of the camera to the proper amount of side swing has been secured and the final adjustment adjusted to the base board of the camera. The milled head screws will be found to fit exactly the forward bushes intended for

the use of short focus lenses. Having made fast the side of the camera nearest the lens by means of firmly screwing one of the thin laths to the base board of the camera by one of the milled heads and clamping the other end with the screw of the guy rod in the middle of the back, that side of the back is quite rigidly fixed, and then it is easy to press the other side requiring the longer focus into its position. When this is done the other lath is attached by means of the other screw in exactly the same manner. At one end of the lath it is advisable to bore one or two holes, to permit of the screw passing through them somewhat tightly into the bushes. These little laths are preferable to metal struts, such as brass or zinc, but, of course, either of the latter can be substituted if desired.

### A Ground Glass Protecting Board.

As regards protection for the ground glass, the writer's experience has taught him that it is better to dispense entirely with leather cases for such large cameras. Since adopting the following simple method of protecting the focussing screen he has never met with an accident. Provide a ¼in. board and cover one side with black velvet. The board must be slightly larger than the ground glass. At each of the bottom corners are attached two loops of cord, whilst at the top a large single loop or sling passes from corner to corner, just like hanging a picture. The bottom corner loops are merely slipped over each of the milled heads, found at the bottom of all cameras of this pattern; the top cord is then made of the exact length to allow the board to exactly cover the glass, and is held in position by passing it around the leather handle. The board when not in use is utilised for an important purpose, which I allude to below.

### A Practical Tripod Top.

The tripod is a matter of great importance in the work under consideration. What may be termed even a light 15 x 12 camera weighs as much as 17 lbs., and when to this is added the weight of one double back containing two plates, it will be found the tripod has to sustain a weight of about 24 lbs., which it has to do in various situations, ranging from the hard concrete floor to the loose freshly made-up ground.

The writer knows from experience, when working in such places as large foundries and forges, etc., where the floor is "tricky," how liable the camera is to sink during a long exposure unless special precautions are taken.

As a rule, a 12in. top is none too large for a 15 x 12 camera, which, in the most compact form, will measure 20in. x 17½in. when set up, but, of course, there is a limit to the span of the legs of the tripod, and, all told, perhaps a 12in. brass top is as practical a size as any. But to be used in its best form it should be enlarged in the following way (the plan the writer has employed, after many years' experience):—A couple of good cross-ended boards, 17in. long by 13in. broad, are hinged together, like the back of a printing frame. Through the underboard, nearly, but not quite, in the centre, a hole is bored sufficiently large to permit of a strong winged bolt being passed, the head of which is sunk flush with the board. This bolt (which should be 3in. in length) is inserted through the under-board and the stem passed through the screw hole (not screwed in) of the tripod top, and the boards then made fast with the winged nuts. By this arrangement the legs of the tripod can always be at any equal distances from each other, and whenever any tilting has to be done the hinged board can be used instead of tilting the tripod legs. The camera is easily fixed to the top board if desired by the camera screw, but usually it will be found that if the slides and their shutters are working sweetly (as they should do) it is not necessary to screw up the camera on the top board, for if a ¼in. ledge is run along the

hinged end of the board, the camera sits as steady as it would on a studio stand.

### Supporting the Tripod.

For this arrangement to be perfect the legs of the tripod must be very substantial, and possess some arrangement whereby when working in loose ground there is no liability to sink during a lengthy exposure. Probably the best, if, indeed, not the only perfect form, is the good old "professional" pattern—viz., six strong ash sticks without joints, hinged together at a distance of about 3in. from the bottom, to which are attached three well-pointed shods of not less than 3in. in length, well set into the bottom of the longer sticks. This is important, as a precaution against slipping. From the point where the two sticks (forming one leg) are hinged together to the point of the longest leg, is bound with stout copper wire until the metal shod is reached (just like a spinning-top is wound with string). This prevents any liability of the shod splitting the end of the stick, and is most effectual. Three inches is not too long for the shods, so as to provide for a good grip when carrying a weight of 25 lbs. in soft ground, and, as a further precaution against slipping and sinking, the writer invariably passes over the shods three 1in. discs of wood, each having a small hole bored out of the centre for the points of the shods to pass through; by this means both sinking and slipping are prevented.

There are many instances where the best tripod is none at all. A resourceful operator will often prefer to work from a box or other suitable support, such as planking on short trestles. A word of caution at this juncture, however, may not be out of place where work has to be done from high stagings, supported on tall trestles. In very many large engineering and boiler shops the old-fashioned wooden trestles are no longer met with. In their place are portable metal uprights, with a suitable solid base. These are more portable, and are often to be met with up to 30ft. in height. Two of these standards joined by stout planking across them are no doubt safe enough, but the writer's experience is that they do not afford as much stability as the old-fashioned wooden ones. However, a good rule to follow is, never allow any one to go on the staging when the plate is being exposed—even an assistant is liable to cause failure through movement. I know one very useful operator who always provides two stages, one for the camera and another to stand on himself during exposure.

T. NEWTON ARMSTRONG.

(To be continued.)

THE DATE of the volume of "The Photographic News," in which appeared the example of the "Dallastint Natural Grain" process was wrongly given, Mr. Dallas writes us, in his article of December 21 last, as 1868. The year was 1864.

DEATH OF MRS. ARTHUR C. BROOKES.—Many of our readers, we are sure, will join their sympathies to ours on hearing of the death, after a few days' illness, of the wife of Mr. Arthur C. Brookes, of Messrs. Marshall, Brookes, and Chalkley. Mr. Brookes's home life had been one of uninterrupted happiness for many years, and his loss must fall on him as a most severe shock.

DEATH OF GEORG. SCAMONI.—A St. Petersburg reader, Mr. C. T. Chesterman, writes us as follows:—"I beg to notify the death of my friend, Mr. Georg. Scamoni, in his 72nd year, after a short but painful illness. He was for thirty-seven years manager of the photographic department of the State paper manufactory in this city, but has been living in retirement for some years. He was honorary member of the Frankfort and Copenhagen Photographic Societies, also of the Imperial Russian Technical Society, and Cavalier of the Orders of St. Anne and St. Stanislaus, and recipient of several diplomas and prizes for exhibition and literary work."

ROYAL INSTITUTION OF GREAT BRITAIN.—The programme of forthcoming lectures at the Royal Institution of Great Britain includes several subjects of interest to photographers. Professor A. H. Church is to lecture on April 12 on "The Conservation of Historic Buildings and Frescoes," an address which will doubtless deal with the chemical aspects of this important question. On April 29 Mr. James Swinburne lectures on "New Illuminants." After Easter Mr. H. F. Newall delivers two lectures on "Spectroscopic Phenomena in Stars," and the three Tyndall lectures are to be given by Professor Sylvanus Thompson, on "Studies in Magnetism."

### MESSRS. JOHN J. GRIFFIN'S NEW PREMISES.

ALTHOUGH the occupancy by Messrs. John J. Griffin and Sons, Ltd., of the large building in Kingsway has been an accomplished fact for some months it was not until Wednesday last that the formal demonstration of their new enterprises took place. A numerous company then assembled to a press and private view, and had an opportunity of judging of the present magnitude of the firm's business.

It will be news to many people that the business of John J. Griffin and Sons was originally an offshoot from the publishing firm of Richard Griffin and Co. In 1836 a branch for the sale of chemical apparatus was added to the latter business, and in 1849 became an independent concern, the publishing house becoming the well-known firm of Charles Griffin and Co., Ltd. As long ago as the fifties

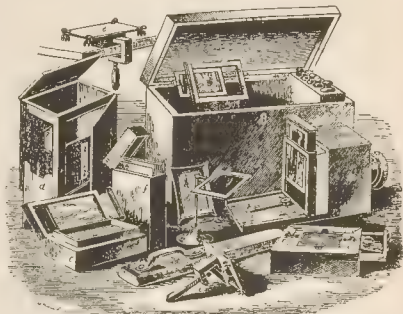


Illustration of Daguerreotype Outfit from a catalogue of Messrs Griffin, issued March, 1852.

the last century Messrs. Griffin were busy catering for photographers as witness their catalogues of apparatus for the Daguerreotype and other processes, one illustration from which, from a list dated March 1852, we reproduce.

From Baker Street, where it commenced, the firm eventually moved to Garrick Street, Covent Garden, thence to Sardinia Street, the premises vacated five months ago for the large and well-organised block, which is now occupied with the photographic and chemical branches of their business.

Messrs. Griffin have followed close on photographic progress—this is, when they have not themselves been the pioneers. When they offered the British public the now universal gaslight paper they



The New Demonstration Gallery.

embarked on a career of education and demonstration that has led them now to set apart a portion of their establishment for the special purpose of showing the photographic worker the proper use of his materials. Our second illustration shows one side of the demonstration gallery, where also exhibitions are to be held from time to time of pictorial work, which, as Messrs. Griffin solemnly promise, "is not beyond the understanding of the average amateur." For this relief, much thanks; another dose of "modern" photography would be too much.

On Wednesday the demonstration included oil printing,



Mr. G. E. H. Rawlins, the modern exponent of the process, and the inventor of its pictorial application. Mr. Rawlins showed how very easy, in the hands of a skilled worker, the process is, and his synthesis of pictures from a semi-visible image should be a stimulant to many to take up the use of the materials supplied by Messrs. Griffin.

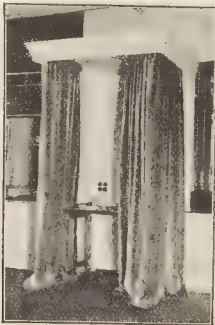


A Corner of the Gallery.

Gaslight printing on Velox paper, the manipulation of "Goldona," Messrs. Griffin's self-toning paper, were also demonstrated, as were also the self-focussing "Autokon" enlarger, and the various types of hand and field cameras. In connection with these demonstrations we should say that one is given on the afternoon of every week-day, except Saturday, and that all are, of course, free to customers of the firm.

In addition to these entirely practical aids to the amateur worker, Messrs. Griffin are placing at their visitors' disposal a library of standard works on photography, and are also providing dark rooms or changing and developing plates.

In the "process" department of the firm was arranged a complete plant for the photo-engraver, with other apparatus for process work which Messrs. Griffin supply. One piece of apparatus was specially



A Demonstration Dark Room.

worthy of notice—namely, a hand engraving tool, worked by a small motor, by which light routing can be done, and small alterations in blocks or stereos made by printers on the machine. Space forbids us to refer at length to the very interesting chemical and chemical apparatus department of Messrs. Griffin, but enough has been said to show the well-considered steps taken by the firm to consolidate still more securely its position among leading houses of supply.

**PHOTOGRAPHY IN COURT.**—At the conclusion of the Kirk divorce case on Monday last Sir Gorell Barnes referred to attempts that had been made to obtain photographs in court during the hearing of this case. When in August last he stated that he would have no more sketching in court he meant to include photographing and all other methods of obtaining illustrations. He held a very strong opinion to the undesirability of directing special attention to cases in the divorce court by means of portraits taken either in or out of the court. He noticed with gratification that since the order made last August with regard to sketching, the Press, with but one or two exceptions, had acted upon it, and he believed those published had been due to a misapprehension of what he intended to convey.

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

THE annual meeting of the Professional Photographers' Association took place on Friday last, March 8, at the house of the Royal Photographic Society. On the previous evening a dinner of the committee and their friends was held at the Villa-Villa Restaurant, Mr. Martin Jacollette in the chair. Amongst those present were Messrs. Alfred Ellis, T. C. Turner, Frank Turner, Henry Spink, Lang Sims, A. Mackie, Thomas Birtles, Arthur Weston, H. E. Hull, P. E. Marshall, Henry J. Comley, R. Fellows Willson, and G. E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY). A number of toasts were proposed, and the evening was interspersed with a



Mr. Henry C. Spink, elected President of the Professional Photographers' Association, March 8, 1907.

series of vocal efforts by members of the Association and their friends.

#### ELECTION OF PRESIDENT.

At the annual general meeting, the report of which will appear in our issue next week, Mr. Henry C. Spink, of Brighton, was elected President of the Association for the forthcoming year, which terminates in March, 1908. Mr. Spink has been a strong supporter of the association from an early stage in its history, and in the position of president may be expected to render to the Association all the aid possible from an experience acquired during a successful business career.

**INTERNATIONAL CHEMICAL COMPANY, LIMITED.**—Capital, £2,000, in £1 shares. To acquire the business carried on at Ravenswood Road, Balham, as the "International Chemical Company," to adopt an agreement with C. H. Whatley and H. J. Bedson (vendors), and to carry on the business of chemists, druggists, manufacturers of and dealers in pharmaceutical, chemical, industrial preparations and photographic requisites, etc. No initial public issue. W. W. Aspinall and C. H. Whalley are permanent directors and joint managers, subject to holding £500 shares each. Remuneration of managing directors, £150 each per annum. Registered office: 70, Ravenswood Road, Balham, S.W.

## Photo-Mechanical Notes.

### Reproductions of Copper Plates.

A PATENT (No. 9,796, 1906) has been taken out in this country by Ernesto Bianchi, 3, Via Po, Turin, Italy, for preparing negatives of musical matter (copper-plate engravings), which can be stored for any length of time, from which can be obtained, after any length of time, as many transfers as is required upon a stone or other lithographic surface.

To this end the copper plate, engraved with the design and duly corrected, is inked with a roller in the ordinary manner with any absolutely black printers' ink, of which the ingredients are finely ground and which is soft, but contains no varnishes; on the plate, inked in this manner, is placed a sheet of very adhesive printing paper made with finely ground pulp, and with a perfectly smooth calendered surface and not coated with gelatine (animal glue) and the whole is subjected to a suitable pressure. A sheet or negative proof is pulled therefrom, that is to say, a proof having a black ground and white design (lines, notes, words), similar to a photographic negative.

The ink should be such as to give the highest possible degree of opacity, so that the black ground transferred on to the sheet of paper may not be traversed in any manner by the ordinary rays of light. For the purpose of ensuring the opacity of the ground the printed surface can be covered with impalpable metal powder which adheres to the ink and forms an absolutely opaque skin, whilst the white parts remain transparent.

This heliographic matrix or negative of cheap and light paper will be found economical and can be very easily used and kept; therefore the chalcographic plates can be melted up and the metal thereof be utilised.

The heliographic matrix obtained by this process is sufficient to effect as many transfers as may be required on to stones, plates, or other lithographic surfaces.

The transfer of this heliographic matrix or negative having an opaque ground and transparent design on to a stone or plate can be effected in the following manner:—

Over the stone or over a suitable lithographic surface is spread a properly measured solution consisting of a mixture of 10 parts of albumen, 25 parts of water, and 0.10 parts of salt of chromium; then the plate is left to dry in a quite dark chamber; a skin, which is sensitive to light will cover the whole surface of the plate.

When the surface is dry the heliographic matrix or negative which has been described is spread over it: the whole is then exposed under suitable pressure to sunlight for a certain time: after having removed the matrix or negative (to be kept) the printed stone or lithographic plate is immersed in a bath of slightly acidulated water.

The salts of chromium mixed with organic substances and exposed to the light for a certain time become insoluble in acidulated water and the parts which have become insoluble will take the lithographic ink; it follows that the skin which covers the surface of the stone or lithographic plate when in contact with the acidulated water bath becomes dissolved at the parts which have not been subjected to the action of the light, these parts correspond to the opaque ground of the matrix, whilst the parts corresponding to the words, figures, etc., which are transparent in the negative, remain insoluble. If an ordinary lithographic roller is run over the plate the parts which remain insoluble, that is to say, which have been subjected to the action of the light, take the ink, whilst the other parts refuse it.

The transfer obtained by this process is very effective, and preferable to the transfers at present obtained by various other processes.

When the printing is finished everything remaining on the stone is wiped off, and the stone can be used as required. If another edition is called for it will be only necessary to obtain another transfer by means of the same heliographic matrix and the described process.

### Grain Relief Printing.

HERREN E. REICHOID and E. Felsing have obtained a German patent for a pigment mixture for grained relief printing. 200 gms. of hard gelatine are soaked in 1,000 ccs. of water, the gelatine then squeezed out, and after the application of fresh water, melted in water not above 100 deg. Fahr. Candy sugar 30 gms., ammonia 10 gms., car-

bolic acid 2 gms., any dye 20 gms., alcohol 5 gms., and glycerine 8 gms. are added and the mixture filtered. The raw paper is softened in hot water for half an hour, till air bubbles are no longer seen. It is then taken out of the bath with a sheet of glass and squeezed down. The four edges are then turned up to the height of 1 cm., so as to form a dish. Of the above-mentioned solution, about 0.15 ccs. are coated on every 10 sq. cm. and allowed, the paper stripped from the glass and dried.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been received between February 25 to March 2:—

CAMERA STANDS.—No. 4,795. Improvements in camera stands.

Thomas Percivale Woolfe, 55, Chancery Lane, London, E.C.

SHUTTERS.—No. 4,830. Improvements in curtain-shutters. R.

Haddan, for the Optische Anstalt C. P. Goerz, Aktiengesellschaft, Berlin.

FILMS.—No. 5,729. Improved holder for films or the like. Gay-

lord Logan, 7, Southampton Buildings, London E.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

COLOUR PHOTOGRAPHY.—No. 15,506, 1906. The invention is intended to obviate the great difficulty in printing photographs in colours, that the positive prints, by the operation of developing and fixing shrink to such a degree that it became impossible to produce colour printing blocks from the same negative.

"The process consists in printing the back of the sensitised photo-print paper in the corresponding colours from blocks prepared from the same negative. The picture is then printed and fixed on the face side in the ordinary way, and the paper rendered transparent, so as to show the colours on the face side, by any suitable means." John Wagner, 12, Beulah Hill, Upper Norwood, London, S.E.

FOLDING CAMERAS.—No. 9,305, 1906. The invention relates to cameras in which the lens board is connected with the camera back by means of a system of shear-levers and in which cords or equivalent means are provided for operating the levers in such a manner that the distance between the objective and the plane of the sensitised plate can be adjusted.

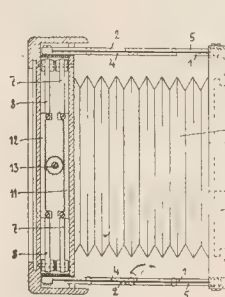


Fig. 1.

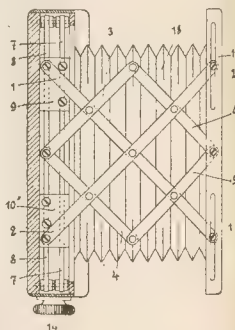


Fig. 2.

According to the present invention the endless wire, band, cord, chain, or other traction-device for operating the connecting levers is arranged so that it surrounds one of the two frames interconnected by the shear-levers, and is therefore, located in a plane approximately perpendicular to the lens axis. This arrangement results in a more compact construction and



safer operation, compared with an arrangement of the operating strips or traction devices in a plane parallel to the lens axis, the latter construction not forming an object of the invention. If several pairs of shears are used one member of each pair may be connected with such a band, so that by moving the latter all the shears are simultaneously operated. To increase the reliability of the action two parallel bands are preferably used, and one member of each pair of shears is connected to one of the bands, and the other member to the other band. In this case the two bands must be moved in opposite directions. This can be effected in a very simple manner by connecting each band with a rack and by causing the two racks to mesh with a toothed wheel arranged between them. The two traction devices being operated together may thus be considered the equivalent of a single traction device. Reginald Haddan, 31, Bedford Street, Strand, London, for the Optische Anstalt C. P. Goerz, Aktien-gesellschaft, Berlin-Friedenau.

**VELOPING BOX.**—No. 7,012, 1906. The invention consists of a chamber to receive plates or films carried (for exposure) in a "film envelope" of the kind described in Patent No. 10,097, 1904, and consisting of (1) an inner sheath in which the film is held, (2) an intermediate safety blind, and (3) an outer cover or case.

The inner sheath is provided with flanges on three of its sides, under which the film is held, and is furnished with a stop to retain it in its adapter when the outer case and the intermediate blind are withdrawn prior to exposure. The outer cover is provided with a strip, which overlaps the joint formed at the junction of the cover and the lower flange of the inner sheath when the envelope is closed.

Figs. 1 and 2 are two shallow trays which form the developing box when fitted one on the other. Fig. 3 is a sectional side view, on line X. X. Fig. 2, of the box supported in its trough, of which one side is removed for obvious reasons.

According to one plan of carrying out the invention, there is provided a shallow rectangular tray *a*, Fig. 2, of any suitable material, and of such dimensions as to receive the light-proof envelope containing the exposed film. The tray is provided with right-angle flanges *b b b* on three of its sides, the fourth side *c* being left plain. A recess is made at *d* to accommodate the retaining stop fixed to the inner sheath of the envelope when the latter is placed in the tray.

A cover is provided to fit accurately on the tray *a* so that the two parts combined form a shallow box open at one end. The trays may be either hinged, or held together by suitable clips, *g g* Fig. 1.

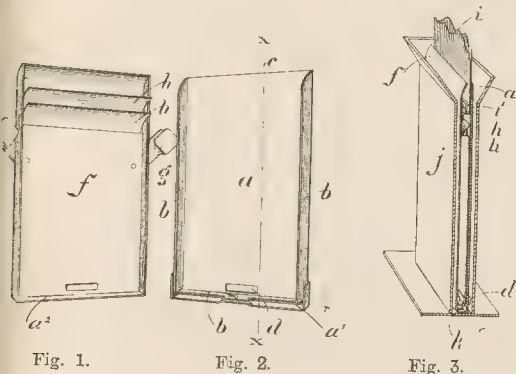


Fig. 1.

Fig. 2.

Fig. 3.

On the cover, and near the open end, is fixed a double spring light-trap *h h* which may conveniently consist of hard rolled metal coil, or spring-operated hinged flaps, the purpose of the same being to close the open end of box and yet allow the outer cover envelope *i* with its strip *i*<sup>1</sup> to pass through without admitting light when preparing the film for development. The spring light-traps extend the whole width of the developing box, and are so adjusted that the inner one opens and closes before the outer one, during the passage of the light strip. In Fig. 3 the

strip is shown at *i*<sup>1</sup> in the act of passing the outer spring trap, the lower or inner one being closed.

At the lower end of tray *a* there is a fluid way *a*<sup>1</sup>, into which the flange *a*<sup>2</sup> on the tray *f* enters, and admits of the developer and other fluids to flow in and out, at the same time preventing light from passing through.

The flanges of the tray *f* are slightly shallower than those of the tray *a*, so that the flange *a*<sup>2</sup> is suspended from the bottom surface of the fluid way *a*<sup>1</sup> when the parts are together, to allow free access to the various solutions. This condition is clearly shown at *k*, Fig. 3.

In a modification of the invention a rectangular box is furnished with a series of divisions, each of which contains a double spring light-trap at the end, the opposite end being left open for the insertion of the envelopes containing the exposed films. After filling, a cover provided with a sinuous fluid way is placed over the open end and the whole immersed in a suitable trough after the removal of the outer covers and the intermediate blinds, but we prefer to form the boxes as described above and place them *en bloc* in an upright trough of a size proportionate to the number of films to be developed.

In either plan of carrying out the invention the outer covers of envelopes project slightly through the light-traps to admit of their being pulled away from the inner sheath. William Albert Edwards, 66, Cassiott Road, Tooting, London, S.W., and Houghtons, Limited, 88 and 89, High Holborn London, W.C.

**CINEMATOGRAPHS.**—No. 22,429. The invention relates to a cinematograph projector, and describes the formation of a centering device, in which the centring plate is in the form of a stirrup, with a handle, carrying the actuating roller, that operates the film, at a point eccentric from the centre on which the moving stirrup-plate revolves, so as to set the film accurately to the luminous point and to the aperture, the actuating roller having a Maltese cross pressing upon a wheel on which a pin is fixed by which the actuating drum and the Maltese cross is caused to revolve through one quarter of a turn. R. W. James, for the Compagnie Générale de Phonographes, Cinematographes et Appareils de Precision, 5, Rue Richempanse, Paris.

**PROCESS FOR CONVERTING COBALT OXIDE IMAGES INTO MANGANIC OXIDE IMAGES.** Ger. Pat. 180,947. September 26, 1905.

The purpose of this invention is to convert pictures in cobaltic oxide into those which can be readily toned. This is effected by conversion of the cobalt images into such as consist of the same dyes as the toned manganese images. The original images may be obtained by a catalytic process, as, for instance, by bringing into contact a paper prepared with cobalt acetate with a negative treated in the well-known way with hydrogen peroxide, so that a green image of cobaltic oxide is formed. If such an image be treated with a 4 per cent. solution of manganese acetate, or other manganous salt, and sodium acetate, at normal temperatures, the green image will become brown. The amines with their derivatives and salts, such as aniline, naphthylamine, toluidine, etc., are especially useful for further toning. The conversion of the image into a manganese oxide compound can be combined with the dye toning, by adding a manganous salt to the toning bath. The following bath reacts very quickly with manganous compounds: 50 ccs. saturated solution ammonium chloride, 20 ccs. 10 per cent. solution chrome alum, 5 ccs. 20 per cent. solution aniline hydrochlorate, 10 ccs. 10 per cent. solution of citric acid, and 30 ccs. water. If to this bath a manganous salt is added, the cobalt images are very rapidly toned, as though composed of manganese compounds, Claims.—1. A process for the conversion of pictures of cobaltous oxide compounds into manganous compounds by treating the same with manganese acetate or other manganous salt in the presence of an alkaline acetate. 2. A process for toning pictures in cobaltous oxide compounds by conversion of the same into the manganese images, according to Claim 1, and then treating them with suitable dyes, such as the amines, their derivatives, and salts. 3. Method of carrying out Claims 1 and 2 by using a combined bath of manganese salts and the dye. 4. A dye-bath for the process in Claim 3, distinguished by the addition of a manganese salt.—Neue Photographische Gesellschaft, Steglitz, Berlin.

**PROCESS FOR THE CONVERSION OF SILVER IMAGES INTO THOSE OF THE HIGHER OXIDES OF MANGANESE, AS WELL AS TONING SILVER IMAGES.** Ger. Pat. 180,948. October 13, 1902. An addition to Patents No. 157,411, of August 23, 1903, and 161,406, 1903.

The object of this patent is the use of manganous salts instead of the manganic, which are very difficult to prepare, for replacing the silver with the aid of acids or acid salts. A positive or negative bromide print is immersed in a bath of potassium ferricyanide and a manganous salt, so that the manganous ferricyanide replaces the silver. The following baths are suitable:—1. 100 ccs. of 0.5 per cent. solution potassium ferricyanide, 20 ccs. 2 per cent. solution manganous sulphate, 15 ccs. 10 per cent. solution potassium bromide. 2. 100 ccs. 5 per cent. solution potassium ferricyanide, 20 ccs. 2 per cent. solution manganous sulphate. 3. 100 ccs. 0.5 per cent. solution potassium ferricyanide, 23 ccs. 2 per cent. manganous sulphate, 15 ccs. 10 per cent. solution potassium bromide, 5 ccs. normal hydrochloric acid. 4. 200 ccs. saturated solution manganous ferricyanide, 10 ccs. 10 per cent. solution potassium bromide. 5. 100 ccs. saturated solution manganous ferricyanide in 25 per cent. solution of sodium tartrate, 10 ccs. 10 per cent. solution of potassium bromide. The action of the baths may be accelerated by heat. The pictures thus obtained are treated as described in the principal patent with alkaline solutions of potassium ferricyanide, and the manganous pictures toned with suitable dyes. Solutions of cobaltous salts may also be used. Claims.—1. A process for the conversion of silver images into images of the higher oxides of manganese, according to Patent 157,411, but instead of the manganic salts and potassium ferricyanide there used, solutions of manganous salts and potassium ferricyanide, with or without addition of acids, are used. 2. A method of carrying out Claim 1 by the use of a solution of manganous ferricyanide. 3. A method of carrying out Claim 1 by the addition of substances which form complex manganous salts. 4. A process of toning silver images in which, according to Claims 1, 2, and 3, they are converted into manganous images, which can be then subsequently toned by suitable dyes. 5. A method of carrying out Claim 4, by colouring the manganous pictures with cobalt salts. 6. A bath for the conversion of silver images into those of the higher oxides of manganese, according to Claim 1, which contains manganous salts and potassium ferricyanide. 7. Method of making the bath claimed in 6, in which, instead of using a manganous salt and potassium ferricyanide, manganous ferricyanide is used. 8. Method of making the baths in Claims 6 and 7, in which substances are added which form complex manganous salts.—Neue Photographische Gesellschaft, Steglitz, Berlin.

### New Trade Names.

**OKRO.**—No. 289,637. Photographic papers and photographic prints. Rae, Limited, 100, West Regent Street, Glasgow, opticians and photographic dealers and manufacturers. January 11, 1907.

### Analecta.

*Extracts from our English weekly and monthly contemporaries.*

#### Photographing Cobwebs.

A dark background is a great convenience (writes Mr. T. Hudson, in "Photography," of March 12, recommending an early hour in the morning for the photography of cobwebs), but it is not easy at an early hour to find a companion who will hold it. It is, however, generally possible so to fix the camera that a dark bush or hillside will form a good background. This is essential. If a photograph is taken of a web with the lower half against a dark bush and the upper part against the sky, it will be found that the part backed by the sky is invisible.

A warm, still day, followed by a calm, cold night, are the ideal conditions for giving a heavy deposit of dew. A valley through

which a river flows is the best, though by no means the only place to find an abundance of subjects.

#### Multiple Portraits.

Just use a dark background (writes Mr. J. Peat Millar, in "The Amateur Photographer," of March 12), and have a dark cover over the table; that is all. You will see the idea—light dresses against a dark background. Nothing could be more simple. But the background must be dark, and is better if of a dark red colour. Art seating does very well, and the same will do for the table cover. Focus someone at each end of the table, also in the centre, so as to be sharp all over the plate. Then place the sitter in light clothes at one end of the table, and give an exposure only long enough to secure the light dress; then shift the sitter over to another part, and expose again. This can be repeated as often as there is room at the table.

Remember the plate remains in the camera all the time, and is exposed every time, and the same exposure must be given every time. Also bear in mind, if anything is to appear on the table, such as a cup and saucer and plate, only one of each must be used and moved along with the sitter. The idea is that the background, being dark, would require a long exposure to have any effect on the plate, say, ten seconds, and half a second might do for the sitter in the light dress (or even less), and if you expose four times on the sitter—that is, only two seconds altogether that the background has got—there is no much chance of veiling.

#### Wherein R.R. Exceeds Anastigmat.

To a large class of workers (writes Mr. John B. Hodges in the special "Spring" number of "Focus") whose photographic work is ostensibly of a pictorial character, the special properties of the R.R. should strongly appeal (and this particularly applies to the more rapid working types at apertures of from  $f/5$  to  $f/6$ , both on account of the soft delineation, and the power afforded of concentrating the definition on the principal object, whilst the remaining and less important parts of the picture are allowed to be more or less out of focus). In directing attention to this extremely valuable property of the "R.R.," the writer must not be understood as in any way desiring to depreciate the value of the anastigmat for general photographic purposes, for, if the analogy is permissible, the two types may be compared to the stage-coach and the modern locomotive, and although no doubt can exist as to the comparative value of the two methods of conveyance, yet there are still occasions when the stage-coach is infinitely to be preferred to the up-to-date locomotive.

#### FORTHCOMING EXHIBITIONS.

1907.

March 2 to 24: Marseilles Photographic Society.—Sec., M. Cullin, Rue St. Saviourin, 38, Marseilles.

March 7 to 16: Leicester and Leicestershire Photographic Society. Entries close February 16.—Sec., Lewis Ough, "Fernleigh," James' Road, Leicester.

March 14 to 16: Coventry Photographic Club. Entries close March 9.—Sec., T. J. Mercer, 6, Cope Street, Coventry.

March 22 to April 13: Northern Photographic Exhibition. Entries close March 8.—Sec., C. F. Inston, 25, South John Street, Liverpool.

March 23 to April 2.—Glasgow Southern Photographic Association. Entries close March 16.—Sec., Charles Young, 217, Oxford Road, Partick, Glasgow.

April 10 to 13: Ilkeston Arts Club, Photographic Section. Entries close March 27.—Sec., A. Smith, 11, Graham Street, Ilkeston.

April 17 to 19: Belfast Y.M.C.A.—Sec., J. W. Bushey, Y.M.C. Camera Club, Belfast.

April 25 to 27: Wallasey Amateur Photographic Society. Entries close April 10.—Sec., W. Hayes, 110, Brighton Street, Seacombe.

April 29 to May 14: Photographic Society of Ireland. Entries close April 22.—Sec., R. Benson, 35, Molesworth Street, Dublin.

May 6 to 10: Chemists' Trades.—Sec., A. Norman, "British and Colonial Druggist" Offices, 44, Bishopsgate Street Without, London, E.C.



## New Materials.

Specimens of Printing for Photographers. Produced by Walter Pearce and Co., St. George's Press, Brentford

Almost as essential nowadays as plates or camera, the modern album, booklet, or folder, drawing attention to a photographer's work, has risen in character immeasurably within the past few years. A less-favourably situated photographer has recognised that in the matter of his printing he need not be handicapped by his more fortunate rival. He has clothed his appeal in the best dress at his command, and has thus created in advance a favourable impression of himself and his methods in the minds of those who are persuaded to visit his studio. Messrs. Pearce, in laying themselves out to originate and design both the words and the style of a photographer's printed matter, have had the advantage of the resources of a practised printer of colour printers, as well as of the knowledge of a photographer's numerous specialties. As a result, we have to commend the appearance of their productions and the direct yet refined language employed. "In the Springtime," a little booklet that stimulates business at the present time of year, is daintily thorough as betrays its title, and is exactly the kind of leaflet to mark a photographer out as a cut above his fellows. Another booklet, "The Gift That Pleases," is equally attractive. At the prices which Messrs. Pearce undertake the execution of these booklets, collaboration with them should quickly pay a photographer with even slight additions to the production of distinctive work.

**HALIFAX WHITE BROMIDE PAPERS.**—The Halifax Photographic Company, 4, Victoria Terrace, Halifax, send us samples of the bromide papers (Glossy, Platino-Matt, Rough-Matt, Extra-Rough, and High-Cream), manufactured by them under the above name. Employing our customary developer of metol-hydroquinone, we were struck by the behaviour of the papers, the range of effects on the different brands being amply sufficient for all ordinary purposes.

## New Apparatus, &c.

**ALDIS "DUO" LENSES.**—Since the appearance last week of our report on the new "Duo" lenses of Messrs. Aldis we have received from the firm the circular of prices of the lenses now ready for the market. The circular also announces the issue of the Series II. "Duo" element to give a rapidity of  $f/12$  in conjunction with the element of the Aldis anastigmat. No. 2 is the only member of



series yet ready, and gives a focal length of  $11\frac{1}{2}$  inches. Its price is £10s. 6d., that of the Aldis, with iris mount, being £1 13s. The price of the No. 7 received last week, affording a focal length of 15 inches, at  $f/16.5$ , is £1 15s. 6d., the "Aldis" lens, with which it is used, being priced at £1 18s.. The facilities thus afforded for making the exchange from the front of the lens will be appreciated. The figure shows the exact size of the No. 2 with the "Duo" in place.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, MARCH 15.

Bromley Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper." Cardiff Photographic Society. "Some Notes on Pictorial Photographs." J. B. Hopkins.

#### SATURDAY, MARCH 16.

Photo Art Club. "French Pictures." J. A. H. Hector.

#### MONDAY, MARCH 18.

Equitable Photographic Society, Oldham. "Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning Bromide Paper." Preston Camera Club. "North-Eastern Railway Slides and Lectures: 'A (Yorkshire Coast) and D (Wharfedale, Nidderdale, and Wensleydale)." Stafford Photographic Society. "Landscapes by Gaslight." A. L. Yapp. Southampton Camera Club. "The Photographic News Prize Slides." Bowes Park Photographic Society. "Portraiture and Figure Work." E. T. Holding. Catford and Forest Hill Photographic Society. "Affiliation Slides, 1906." "Photography Prize Slides." Sutton Photographic Club. "Outings." J. W. S. Burmester. South London Photographic Society. "A Visit to the English Cathedrals." H. W. Bennett, F.R.P.S.

#### TUESDAY, MARCH 19.

Royal Photographic Society of Great Britain. "A Year and a Half among Savages, British New Guinea." A. H. Dunning, F.R.C.S., F.R.P.S. Altrincham Photographic Society. "Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning Bromide Paper." Hackney Photographic Society. "By the Severn Sea." A. J. Linford. Darlington Camera Club. "Recent Advancements in Photography." Harry Wade. Sheffield Photographic Society. "The Carbon Printing Process" and "Toning of Zia Paper." Demonstrated. T. Illingworth & Co. Blyth and District Camera Club. "Members' Lantern Slide Night." Redhill and District Camera Club. "Ozobrome." J. O. Grant. King's Heath and Moseley Photographic Society. "Exhibition and Musical Evening." Rotherham Photographic Society. "English Gothic Architecture." Mann and Coys. Birmingham Photographic Society. "Orthochromatics." J. W. Charlesworth. Wokingham Camera Club. Subject to be chosen. W. J. Gardiner.

#### WEDNESDAY, MARCH 20.

Birmingham Photographic Society. "Bromide Enlargement and Printing." E. D. Taylor. Chorley Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper." Hampstead Scientific Society. "Holiday Papers." Woodford Photographic Society. "The Spectroscopic Camera in Connection with Three Colour Work." J. McIntosh. Borough Polytechnic Photographic Society. "Fifth Lantern Slide Competition." Everton Camera Club. "Lantern Slides." Tunbridge Wells Amateur Photographic Association. "1906 Affiliation Slides." E.P.S. Leicester and Leicestershire Photographic Society. "Lantern Slide Making." A. Bailey. Bristol Photographic Club. "A Trip through the Delectable Duchy." J. Steger. North Middlesex Photographic Society. "Elementary Pictorial Composition." H. Barnard. Deal and Walmer Camera Club. "Telephotography." C. P. Goerz.

#### THURSDAY, MARCH 21.

Oldham Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper." Richmond Camera Club. "Richmond Self-Toning Paper." E. C. Morgan. Liverpool Amateur Photographic Association. "Amongst the Dutch." S. L. Coulthurst, Manchester. Hove Camera Club. "Open Night." Hull Photographic Society. "Oxford and Cambridge." Godfrey Bingley. North London Photographic Society. "Social Evening." Blenheim Club. "Smoking Concert." Handsworth Photographic Society. "Backing Plates." E. G. Collins. "Halation." J. W. Baker. L.C.C. School of Photo-Engraving. "Powder Processes in Photography." E. W. Foxlee. L.C.C. Staff Camera Club. "Page-Croft Pigment Paper." Mr. W. T. Sadler. Chelsea and District Photographic Society. "English Church Architecture." H. Wrench. Rugby Photographic Society. "Photography" 1906 Prize Slides. Batley Photographic Society. "The Photographic Lens." C. P. Goerz.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held March 12. Mr. C. Welborne Piper in the chair.

A demonstration of the properties of dissolved acetylene was given by the Acetylene Illuminating Company, Ltd. The acetylene was used in solution in acetone, which, at the ordinary temperature and pressure, dissolved 25 times its volume of acetylene, and under increased pressure dissolved 25 volumes for each additional atmosphere. The solution was supplied in cylinders at 10 atmospheres pressure, so that the cylinder contained ten times its own volume of the gas. The demonstrators showed the use of the gas in ordinary lighting, and stated that, in consequence of the presence of the acetone, there was no carbonising in the burners, with the result that ordinary burners, such as the Bray 00000, might be used. The dissolved gas was very suitable for the oxy-acetylene light, and could

also be employed with a mantle. A vote of thanks was accorded to the demonstrators.

A paper on "The Isostigmat Lens, a new anastigmat lens that does not fulfil the Petzval condition," by Messrs. Horace C. and Conrad Beck, was read by the former. The authors pointed out that it had been stated by opticians that for a lens to be anastigmatic and at the same time to have a flat field, the so-called Petzval condition had to be fulfilled. That condition was that the sum of the focal powers of the individual lenses, multiplied by the reciprocals of their respective refractive impress, should be equal to zero. The authors' work, however, had led them to the conclusion that the fulfilment of this condition was not essential to producing anastigmatism over a flat field. The lens, which was the result of this work, was a 5-lens system, having the Petzval product mentioned above equal to .04 of an inch, the lenses being treated as infinitely thin in making the calculation. Contrary to expectation, the image at 35 deg. was only 1.50th of an inch from the plate instead of .48 inches, as it should be, according to the figure .04. The authors thought that the approximations employed in calculations in regard to the Petzval condition might account for errors in the conclusions drawn from it. In the case of the lens in question, the authors showed its ability to give freedom from anastigmatism over an angle of 70 deg.

In regard to oblique spherical aberration in the new construction, the authors showed the high correction obtained by means of microscopic images of a minute disc of light formed by the lens at angles of 5; 10, 15, etc., degrees (up to 35 deg.), on one side of the axis, showed the great differences between anastigmats in this respect. In some instances it was seen that the central correction was not perfect, a fact which depreciated a lens for such work as telephotography where the centre of the field was employed. This same freedom from oblique spherical aberration had a great influence on depth of focus in the margins of the field. If the correction was poor, the full depth was not obtained.

In the new construction the system of using lenses of low power and therefore of small errors had been adopted in preference to that of high powers and large errors. No component had a shorter focal length than that of the complete lens.

The authors then proceeded to discuss, with the aid of diagrams, the removal of the most important oblique aberrations from a lens, summing them up as astigmatism, symmetrical, and unsymmetrical oblique aberration, regular chromatic aberration, unequal magnifications of different coloured images, and distortion.

In reference to the commercial introduction of the lens, it was stated that two rapid ones would be placed on the market—viz., series working at  $f/5.8$  and  $f/7.7$  respectively. The single combinations with moderate stops could be used on the size of plate for which the whole lens was listed, and the foci were conveniently distributed, so that the new instrument acted as a three-focus lens. Thus in the  $7\frac{1}{2}$ -inch lens, the foci of the components were 11 inches and  $13\frac{1}{4}$  inches.

Mr. S. D. Chalmers said that it had been proved beyond all possibility of doubt that for a small angular field the Petzval condition must be fulfilled, and the Petzval condition would determine the value of the lens if there were no aberrations of a higher order. It was possible, from the value of the Petzval expression, to work out the figures of aberrations. Mr. Chalmers, from the theoretical standpoint, discussed the aberrations of the Isostigmat, and pointed out that, at the edge of the field—i.e., at an angle of 35 degrees—they would be one quarter what would be calculated from the differences named by the authors.

Mr. Cheshire referred to the original paper of Petzval, in which the limited expression employed by opticians was confined to a small area of field near to the axis of the lens—viz., to the vertex of the curvature.

Mr. F. J. Selby thought that the Petzval condition would hold good over such small angles as 15 or 20 degrees, and that the departures from truth after that would not be greater than the variations in other factors affecting the aberrations. He had calculated the differences of the "Isostigmat" curve from a flat surface at the various angles, and on comparison with the numbers given by Mr. Conrad Beck, in reply to the speaker, it appeared that the reduction was somewhat as stated by Mr. Chalmers.

Mr. Conrad Beck said that he had no intention of admitting that

the Petzval condition had been understood to apply over only a small angle. Opticians have talked of photographic lenses which complied with the Petzval condition, and these lenses embraced angles much greater than the range which was apparently granted to the Petzval condition by the previous speakers. If the Petzval condition applied only to angles of a few degrees, then it was of very little use to makers of photographic lenses who needed to design instruments of considerable angle. He believed the condition was advanced by Coddington as applying to a considerable angle, though there were passages in the early portion of Coddington's work which perhaps showed the existence of approximations in the calculations. The object of his brother and himself in the paper had been to call the attention of mathematicians to the fact, and he hoped that the result would be to provide opticians with a better working theory.

Mr. C. F. Lan-Lavis said that the Petzval condition was useful in producing a lens without aberrations of the first order, and then aberrations of the higher orders might be eliminated.

Mr. C. P. Butler, Mr. E. J. Wall, Mr. Gordon, and the chairman joined in the discussion, to which Mr. Horace Beck replied.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—The organising committee of the South Suburban Photographic Society met last week, at 75, High Street, Lewisham, Mr. P. R. Salmon in the chair. After inspecting the new rooms the committee drafted the rules of the new society, and fixed the annual subscription at 5s., with an optional subscription of 1s. a year, in addition, for members who join the portfolio to be run in connection with the society.

A proposal to raise capital for initial expenses of furniture and apparatus, and for the cost of providing club facilities later on by a combination of members, to be registered as a friendly society, was adjourned for further discussion at the next meeting of the committee on the 20th inst. Amongst the letters read at the meeting was one from the vicar of Lewisham, suggesting that the Catford and Forest Hill Photographic Society (of which he is vice-president) and the South Suburban Society should be amalgamated in the common interest of the two societies. The secretary reported that he had replied to the effect that this was, and is, the object of the committee, and that it rested entirely with the Catford society to carry the suggestion into effect. The committee unanimously approved this reply.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—Meeting held March 7, Mr. Teape in the chair. Mr. Ernest Human lectured on "The Selection of Apparatus." Prefacing his remarks by some general advice on the choice of an instrument for a beginner, he advised a half-plate stand camera, with as good a lens as the purchaser could afford. Passing to hand cameras, the lecturer referred to the reflex type of instrument, the usefulness of which, he said, could not be too greatly extolled. The camera, however, must be of the highest possible make and workmanship, or things were liable to go wrong. Its good points were:—1st. It is an ideal hand camera, as one is enabled to focus the picture up to the very instant of exposure, the image being shown the right way up, but reversed left to right. This ensures sharp focus for every negative, and also that what is being aimed at is on the plate. The camera is usually of sufficiently long extension to allow of the single combination of the lens being used, is fitted with a front giving a fair amount of rise, and a reversing back, the shutter more often than not being of that most effective type, the focal-plane, the lenses, as they should be in such a camera, being usually of a leading maker. By the kindness of his employers, the City Sale and Exchange, 90-94, Fleet Street, E.C., Mr. Human was able to show some fifteen different models of cameras, illustrating his different points. The lecture was throughout highly appreciated, and a hearty vote of thanks was proposed by the chairman and seconded by Mr. E. T. Wright.

**SOUTHAMPTON CAMERA CLUB.**—The members of the above enjoyed on their last two evenings of meeting, the unusual circumstance of a divided lecture, a lecture the interest pertaining to which in the first half was so great that an even enhanced attendance greeted the second portion. The lecturer was Mr. W. R. Kay, one of the keenest workers in the club, and his subject was a description of the Swiss district of Valais, the first half being the itinerary, "From Visp to Zermatt," the second half being "Zermatt and Beyond." It is entirely impossible to follow the lecturer through his lecture, and



qually impossible to adequately refer to the magnificent collection of slides by which it is illustrated. Mr. Kay has in him that enthusiasm for the mountain which is leading him on through the more modest climbs to those of ever increasing difficulty, but his artistic temperament forbids him to return without those photographic spoils which give so much delight to the members of his own and the surrounding societies. In this lecture the differing characteristics of the Swiss scenery were finely displayed. The first journey showed the more gentle aspect of the lovely country, its beautiful valleys, its snug little hamlets, its rushing streams and foaming torrents, enough here and there came in a giant peak and glittering glacier. Beyond Zermatt, the Mecca of all Swiss tourists, the lecturer treated the sterner aspect of the country. Here were seen in panorama and in detail the mighty mountains, in all their lovely and their terrifying phases. The chaotic moraine, the icefall, and glacier, the condourous Serac, and the yawning crevasse, were all marvellously depicted in slide and in lecture. It was, however, the dreadful uttermost which proved the climax of the lecturer's skill, and while the tales of the dreadful tragedies, which have their history bound up with it, could not but impress the audience, the majesty and beauty of the lordly mountain grew upon those present in an overwhelming degree, as slide after slide of entrancing beauty was projected on the screen. Mr. Kay was most heartily thanked for his great effort, and the club members are extremely proud of the work that he has done; his series of slides must now be almost unique.

## Commercial & Legal Intelligence.

**PHOTOGRAPHS OF A GYMNASTIC SOCIETY.**—In the Belfast Recorder's court, last week, Mr. George Kennedy, photographer, 119, York Street, sued Wm. J. Young, 31, Oxford Street, to recover £2 19s., balance of account alleged to be due for photographs sold and delivered.

Plaintiff said defendant gave him an order in 1905 to go to the Whitehouse Gymnastic Club to take some photographs. He complied with the order, and supplied £4 9s. worth of photographs. Defendant gave him 30s. on account, but never paid the balance. On one occasion, when he asked him the reason why he did not pay him, defendant blamed witness for having sent postcards to some of his friends, but he never did so. He remembered the case being before the Court at the last sessions when his Honour threw out the suggestion that "defendant should collect the money," but witness had not received any money since.

Defendant denied that he had taken any personal responsibility in connection with the matter. He understood that plaintiff was to take the photographs as a speculation. Since his Honour made the suggestion that he should collect the money, he endeavoured to do so, and got 25s. 6d., which he was prepared to hand over. He thought the committee were liable for the amount.

Mr. Bulkinghorn, Whitehouse, a member of the committee of the gymnasium, gave evidence that the plaintiff came to Whitehouse and asked permission to take the photographs, and they said they did not object. He took the photographs two days afterwards, and it was arranged that they were to give the order for the number of copies when they saw the proof.

A decree for the full amount claimed was granted.

### NEW COMPANIES.

**SATINO, LIMITED.**—Capital, £500 in £1 shares. To acquire the photographic department of the business of the James S. Nunn Company, Limited, at 11, Queen Victoria Street, E.C. No initial public issue. Table "A" mainly applies. The first directors are: J. S. Nunn and F. M. Brooks. Registered office: 6, Church Road, Egate, E.C.

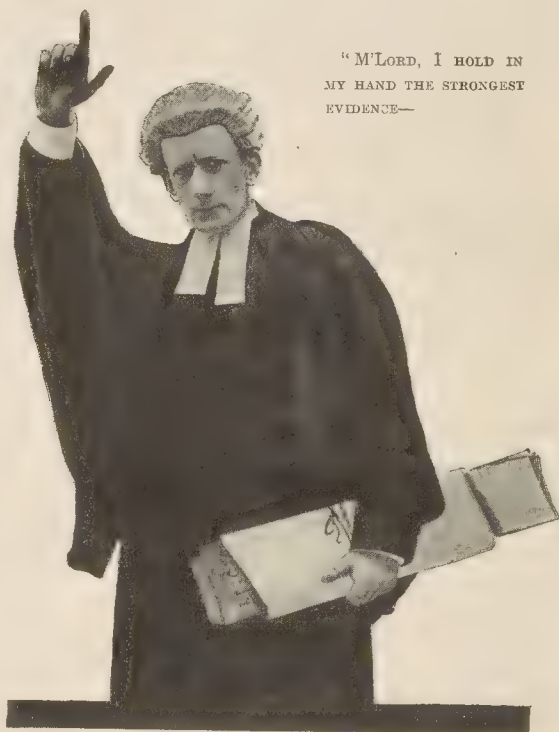
**HALLIWELL AND DAWSON, LIMITED.**—Capital £5,000 in £1 shares to carry on the business of chemists, druggists, drysalterers, oil and varnishmen, manufacturers of photographic, surgical, and scientific apparatus and materials, etc. No initial public issue. The number of directors is to be not less than two nor more than five. The first are: F. S. Halliwell, F. Dawson, and A. Constantine. Remuneration, £8 each per annum. Registered office: 6, Imperial Buildings, Le End, Birmingham.

**NEWMAN AND GUARDIA, LIMITED.**—Capital, £1,000, in £1 shares. To acquire the business carried on at 92, Shaftesbury Avenue, and

Pine Grove, Tollington Park, London, as "Newman and Guardia, Limited," to adopt an agreement with P. Mason, and to carry on the business of manufacturers of and dealers in scientific instruments, cameras, photographic lenses, and photographic apparatus materials and accessories of all kinds. No initial public issue. The number of directors is not to be less than two nor more than five. The first are:—A. S. Newman and J. W. Belsey. Qualification (except first directors), £100. Remuneration as fixed by the company.

## Dews and Notes.

**ADVERTISING PHOTOGRAPHY.**—From the Percie T. Edwards Illustrating Company, Thanet House, 231, Strand, London, W.C., we have received a mnemonic circular of the firm's work, which is such an excellent example of the photograph made for advertising purposes that we reproduce it herewith. Those who know Mr. Edwards will recognise him in the counsel addressing the Bench with obviously incisive eloquence, and it is a happy idea to associate himself in this way with the Law Courts, opposite to which his place of business is situated. The document, which can be seen in the counsel's bundle of papers, is removable—it is impos-



"M'LORD, I HOLD IN  
MY HAND THE STRONGEST  
EVIDENCE—"

sible to resist the temptation to examine it—and is found to contain a statement of the firm's offers to its customers in the following form:—

We make Illustrations for Commercial Purposes—Booklets, Catalogues, Show-Cards, and Magazine or Newspaper Advertisements. We make Photo-Studies from Life—one of the strongest and most direct methods of illustrating any advertisement.

We originate Ideas and put them into effective shape for advertisers. We photograph Catalogue Articles and retouch prints in such a manner as to show the selling points to their best advantage.

We make Technical Drawings for Engineers.

We model Designs in Clay for advertising purposes.

We also make Modelled Type Designs—an attractive style which has not yet been overdone.

We have alluded several times of late to advertising photography,

and have reproduced several examples of this branch of work from American sources. It is all the more gratifying, therefore, to mention the work done by Mr. Edwards in the heart of the London advertising world.

**SUNDAY TRADING.**—It is perfectly preposterous (says the *Globe*) that any village fanatic who chooses to do so can summon a local shopkeeper under a musty statute of Charles II., and can continue to do week after week until he grows tired of the pursuit, or is touched by a dim sense of the absurdity of the proceedings.

MR. CARL HENTSCHEL, the founder of the firm of photo-engravers of that name, has written a paper on "The necessity and advisability of limited liability companies being placed on the list of voters." It is evident, since this prominent City politician invited the public to take shares in his business, that he has been impressed with the importance of his body of shareholders. The grievance, however, is genuine; limited companies are heavily mulcted in rates and taxes, and at present they have no direct representation. For years past many chairmen, especially of companies owning large blocks of property, have agitated for voting power. Just imagine the huge sums paid by the leading railways throughout the United Kingdom, rates which certainly have become burdensome. As large taxpayers limited companies have a just claim to representation, but the difficulty is to find the practical remedy. "One company one vote" would not greatly affect the position, except in the City of London, and it would require miniature elections among each group of shareholders to decide how that vote should be cast.

## Correspondence.

\**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed by our correspondents.*

### DEVELOPMENT WITH INSUFFICIENT REDUCER.

To the Editors.

Gentlemen,—In reference to the article by Messrs. Mees and Wratten on the above subject, the following note may be of interest.

Mr. Ernest Marriage wrote to me in April, 1905, that he had found a very good method of securing regularly graduated negatives of subjects with a great range of contrast. It was to over-expose the plate, then to commence development with a developer very weak in pyro, and strongly restrained by bromide. Development was slow, but as soon as the image was well out, the plate was washed, and the requisite printing density obtained by further development, with a strong unrestrained developer.

He asked me to examine the method quantitatively, and accordingly many experiments with measured strips were made which showed:

(a) That the higher densities were kept down owing to the deficiency of pyro in the developer.

(b) That owing to the large amount of bromide used, the apparent speed of the plate was reduced, and so the extra long exposure ensuring the shadow detail did no harm, while on washing out the bromide it rendered the further development easy.

(c) That on further development with the strong unrestrained developer, the increase of densities occurring in the period of correct exposure took place in a constant ratio.

To sum up, the method apparently lengthened the range of even gradation (increased the latitude of the plate), details in the shadows were well secured, and the high-lights not blocked up.—

Yours truly,

Arosa, Suisse.

W. B. FERGUSON.

### DAGUERRIAN PORTRAITURE.

To the Editors.

Gentlemen,—The portrait of Mr. Andrew Shanks, reproduced in your issue of March 8, is said to have been taken in or before

1843, but we are not told that the date was recorded till 1904. An interval of sixty-one years is a test of memory that few of us are likely to have to face, and that fewer still would encounter with success. Accepting, however, both the date and Mrs. Gardner's statement that her brother suggested to Daguerre the possibility of portraiture, and furnished him with his first sitter, it is, I think, probable that the portrait reproduced in your pages was not the result of that initial experiment. I base this opinion on the evidence afforded by the portrait itself. It is probable that, with an experience based only on the taking of buildings and landscapes, a good many portraits would be taken before the use of an artificial background of any kind came to be recognised as advisable. It is equally probable that many backgrounds would be tried and found capable of improvement before their evolution reached the landscape-with-the-pedestal-and-vase stage, of which Mr. Shanks' portrait is a good example.—I am, dear Sirs, yours faithfully,

Meadow Place, Wembley.

DONALD GUNN.

March 9, 1907.

### THE ACTION OF CHROMIC ACID UPON THE DEVELOPMENT OF THE LATENT IMAGE.

To the Editors.

Gentlemen,—In your article (p. 671) it would appear that there has been some misunderstanding with respect to the development of the papers and slides shown at the R.P.S. meeting. The subject of physical development was then only introduced to illustrate my statement, that "failure to obtain any development was no proof that the latent image had been destroyed."

All the rest of the papers and plates shown were developed in the ordinary manner with an alkaline developer. There was, however, a point of interest in the two physically developed slides which did not in any way relate to the subject. They were made to illustrate a paper on "The Two Latent Images (organic and inorganic) Development Before and After Fixing." (*Phot. Journ.*, 1898, p. 264.)

Both were exposed and fixed at the same time; one was at once developed with Wellington's Intensifier, whilst part of the other was developed in the same manner nine years later. I asked the society to keep both slides, as it might prove of interest to develop another portion twenty or thirty years hence. With respect to the point you have raised—that is, the effect of chromic acid, etc., upon a plate, fixed and physically developed—I may say that, so far, I have always been able to obtain development, but that the results are by no means the same as those obtained by direct development. I hope, however, that experiments in this direction may throw further light upon the constitution of the latent images.—Yours faithfully,

J. STERRY.

69, Elgin Crescent, Notting Hill, W

March 12, 1907.

### PROFITS ON POSTCARDS.

To the Editors.

Gentlemen,—I see Mr. Corkett did not reply to my query re reasonable price for the local photographer to take negatives for wholesale publisher.

Your correspondent "Postcard" is clearly in a unique position, and his experience can hardly be a guide for the great majority. He is, no doubt, right in not lowering prices to meet all. There will always be those who go in for the cheapest. Let them have it. Our aim should be to provide the best at a fair price. Photographs are not to be sold like sugar and tea.

The last clause but two in his letter, is, however, very hazy. He speaks of his professional friend "selling real photographic postcards from whole plates," and "exposing the cards in the camera, giving fifteen-minutes' exposure," and "pleased to get threepence each for them." Perhaps, Mr. Editor, you can interpret this, or perhaps you will prefer "Postcard" doing so.

It seems to me about on a level with another correspondent in your answers column last week who wanted "an apparatus for taking, developing, and fixing Daguerreotypes in one." I wondered whether he had ever seen a Daguerreotype. PROFESSIONAL.



# Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given. Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

## PHOTOGRAPHS REGISTERED:—

Desmond, Priory Street, Cardigan. Two Photographs of D. and J. Evans, the Welsh cancer healers.  
 Ven, 48, Broad Street, Newtown, Montgomeryshire. Photograph of the Newtown Baptist Ladies' Choir in Welsh costume.  
 Lugg, 3, The Arcade Okhampton, Devon. Photograph of Mr. S. Simmons.  
 Owen, 14, High street, Montrose. Photograph of Irish Street, Montrose, in snow. Photograph of a view of cutting, North British Railway, near Montrose, in snow. Photograph of a view of churchyard, Montrose, in snow.

## DESIGNS REGISTERED:—

Mills, Market Place, Ramsey, Isle of Man. Two Drawings of Crests of Ramsey Town, Isle of Man.

—From A. W. Isenthal and Co., Mortimer Street, London, W.  
 —The Schroeder lamp or the Ideal flash-lamp, either obtainable from Messrs. Houghtons, Fallowfield, or any dealer in London or the country.

ISH BELL.—We cannot say. Better address the manager, at 3,210, Locust Street, St. Louis, Mo., U.S.A.

—S. H. Fry, Frisian House, 5, Highbury Grove, Highbury, N.

ADA.—(1) Would it be advisable to go out to Canada without having a situation to go to? (2) If so, what part would you advise me, and when there where to make inquiries? I may say I am a good assistant operator-retoucher, and used to good-class work.—OSBORNE EDWARDS.

(1) Except that the general prospects of trade throughout the Dominion are very bright, we can give you no definite recommendation. If you are resourceful enough to turn your hand to other jobs which turn up, we say "go." (2) We cannot say. You might obtain some information from the "St. Louis and Canadian Photographer," 3,210, Locust Street, St. Louis, Mo., U.S.A.

ANCY.—(2) I believe there is a law to the effect that a person living in a house for a certain number of years without paying rent cannot be compelled to commence paying rent at the expiration of the term, nor can he be turned out—this would, of course, include studios. Should there be such a law, would you kindly extend your kindness and allow me to benefit by your knowledge of the British law? (3) I am wanting to obtain an appointment in India or thereabouts. Will you advise me as to the best course to take to obtain this, and if you think an advertisement or two in "B.J." would bring answers from India or representatives in England?—J. A. R.

(1) Against our rules. (2) A solicitor is better qualified to answer this query than we are. We have an idea, however, that the possession of real property for twenty years without acknowledgment of any previous ownership gives an absolute title to the property. But you had better consult a solicitor on the subject. (3) "The British Journal of Photography" circulates largely in India, and it is very probable that an advertisement or two in it may bring about what you desire.

STRATUM FOR CARBON TRANSPARENCIES.—Would you be so good as to advise me in your valuable columns as to the following? Is the coating of the glass for carbon transparency tissue, using the following formula, right? Gelatine, 1 oz.; water, 20 ozs.; bichromate potash, 1 oz. The emulsion is, of course, applied warm on a glass, washed in warm water, allowed to drain off slightly, and then another coating given, and then dried in a rack in the

light. I enclose transparency for your inspection.—S. LONGMAN.

The solution you are using is unnecessarily strong. The proportions usually employed are: Gelatine,  $\frac{3}{4}$  oz.; water, 20 ozs.; and just sufficient solution of bichromate of potash to give a golden sherry tint. Most workers apply the substratum to dry glass, after it has been thoroughly cleaned, but there is no reason why it should not be employed, as you have been doing, if the glass is warm at the time of coating.

COPYRIGHT.—(1) Has the owner of a non-copyright picture the right to give for reproduction a copyright photograph of that picture without the consent of the owner of the copyright photograph, the photograph being at the outset taken by permission of the owner of the picture for reproduction by himself? (2) In the event of a newspaper reproducing a non-copyright photograph do the proprietors become liable to the owner of the photograph if they sell copies of the newspaper containing the photograph after the latter is copyrighted, the newspaper having been printed before the registering of the photograph took place? Perhaps you would like to know the whole history of the matter, as it is a very interesting one. As brief as I can put it, it is as follows: I (say A) commission B to take a photograph for me of the picture belonging to C, C having given me permission to take this photograph of his non-copyright picture, in consideration of my publishing my photograph in the Press (this being to his interest, as it is of a certain scheme he is promoting). I impress on my agent B that on no account must any one have a copy of the photograph before I have sent mine off to the Press. In my absence from home C calls on B and gets two copies of the photograph taken for me, and gives one to D (a rival journalist), who reproduces the photograph without any arrangement with any one for so doing, and making my work entirely worthless. Over-tures are made to D's paper, with no effect, but after publication I copyright my photograph (the same one as used in D's paper). I afterwards buy copies of D's paper direct from his office, and also from newsagents. (3) Have I a case against the proprietors of D's paper? As I now stand, I have gone to all the trouble and expense of obtaining the photograph which D has used and got paid for, and my claim for payment is ignored.—J. S.

(1) Any one has a right to give a photograph, copyright or otherwise, to any one else. There is nothing in the Copyright Act against his doing so, but a person who receives the photograph has no right to multiply copies of it. Your agent, B, in the first instance, had no right to supply copies to C; but C, having got them, could give them to whomsoever he pleased. As the copyright was clearly yours, D had no right to reproduce, though if the copyright was not registered he could do so with impunity. (2 and 3) The photograph, having been registered, the owner of the copyright can take action for the delivery to him of the copies and can also restrain the further sale of copies by parties other than the actual producers of the copies. We would ask you if you are certain that the copy used by D is yours? C can allow any number of persons to photograph the picture and copyright is created in the work of each.

VARIOUS.—(1) What is the best way of mixing up the following acid fixer: Hypo, 16 ozs.; sulphite of soda,  $\frac{1}{2}$  oz.; alum,  $\frac{1}{2}$  oz.; acetic acid,  $1\frac{1}{2}$  ozs.? (2) What should you think would be the life of a gaslight print fixed in above bath? (3) Would potass carbonate, being used in developer instead of soda carbonate, affect the permanence? (4) Should you advise the toning of P.O.P.'s in sulphocyanide bath rapidly, or would five to ten minutes be correct? (5) What effect would an unripened bath have upon P.O.P.'s?—PERMANENCE.

(1) Dissolve the alum, acetic acid, and sulphite in one part of the water (you do not state the quantity of water in the formula, it should be 64 ozs.), the hypo in another, and mix the two solutions, adding the alum to the hypo, and not vice-versa. (2) The prints should last indefinitely if kept moving in the fixer for ten minutes. (3) No. (4) Ten minutes is an average time. (5) It reduces the strength of the print and tends to give double toning.

BROMIDES BY VIGNETTING.—(1) Can you kindly give me formula for toning bromide prints by copper and ferricyanide, one solution

which I like, as it gives varying shades? (2) Can you please give me the name of a good book that treats fully on this subject? (3) Will you also tell me how to vignette busts in the camera? What sort of vignetting board is put in front of lens to vignette off lower part of body in a bust, and how far away from lens should it be placed? Must vignetting board be same colour as background?—ANXIOUS.

(1) The copper formula given in the "Almanac" gives excellent results:—

A. Copper sulphate .....	60 grs.
Potass citrate (neutral) .....	240 grs.
Water .....	20 ozs.
B. Potass ferricyanide .....	50 grs.
Potass citrate (neutral) .....	260 grs.
Water .....	20 ozs.

To prepare the toning solution, use equal parts of A. and B. (2) "Toning Bromides," by C. Winthrop Somerville (Dawbarn and Ward, 1s.), or "Toning Bromide Prints," by Blake-Smith (Iliffe, 1s.). (2) A serrated mask is used in front of the lens. You can purchase the apparatus from any of the professional supply houses. See the announcements in our advertisement pages.

**LANTERN SLIDES.**—(1) Would you kindly give me a formula for making varnish for lantern transparencies? Also (2) what is the reason of the whitish appearance when looking down on to a lantern plate collodion process?—C. BARRY.

(1) Gum dammar, 250 grs.; benzole, 10 ozs. Apply by flowing over cold or by using a broad camel's hair brush. (2) Without seeing an example we cannot definitely locate the cause. It is, however, probably due to the silver bath being slightly out of order. The addition of a little more acetic acid to the developer will perhaps avoid the opalescence. If the veiling is but slight it will usually disappear on varnishing the slide with a spirit varnish, such as is used for negatives. With a spirit varnish the plate must be slightly warm before it is poured on, and made fairly hot afterwards. If this does not get you over the trouble send us an example of your failures.

**PORTRAIT.**—Will you kindly inform me where I can procure a picture of Mary Queen of Scots, reproduced in carbon or in any other process, and in sizes from 12 x 10?—A MAN OF KENT.

H. T. Leach, 3, Turl Street, High Street, Oxford; Miss Caswall Smith, 305, Oxford Street, W.; G. W. Wilson and Co., 2, St. Swithin Street, Aberdeen; John Stabb, Babbacombe Bay, Torquay; or Valentine and Sons, 32, Charing Cross, London, S.W. One or other of the above should be able to supply you.

**BLISTERS ON BROMIDES.**—I have been troubled by the formation of bubbles between the film and paper of bromide prints, when placed in the washing water after fixing. Paper supplied with hardened gelatine gave the same trouble as unhardened. Will you kindly tell me: (1) the cause, (2) a method of remedying (if possible), and (3) a method of avoiding this trouble.—A. W. HUTCHINGS.

This trouble arises in nearly every case either from marked differences between the temperature of the fixing bath and the washing water, or too strong a solution of hypo. The remedy for the first cause is obvious; that for the second is to immerse the prints after fixation in a 10 per cent. solution of common salt for about five or ten minutes and allow the washing water to mix gradually with the salt solution. Another remedy is to immerse the prints after fixation in a mixture of equal parts of methylated spirit and water, and then wash. Most probably a little attention to the temperatures will completely stop the trouble.

**W. L. KNIGHT.**—You do not state what paper you used, whether printed out or developed, nor what toning bath. We can only assume that you are toning with platinum and did not wash the prints before placing them in the hypo bath. We await sufficient information before saying more.

**A STUDIO QUERY.**—I shall be very much obliged if you can inform me how the very pleasing lighting, in which the head of a sitter is fully lighted and the drapery kept in quiet repose, is managed. I particularly refer to a set of portraits hanging outside the Palace Music Hall, which are exceedingly artistic and clever. I could not see any name of the photographer, but from my

knowledge and observation have no hesitation in thinking are unmistakably by H. Walter Barnett. Can you tell me such a light could be obtained in an ordinary studio, and mine, which you will see by the enclosed print? And also shape screens would be required to keep back the drapery. S. E.

1. There are several ways of producing the effect to which you refer. It is preferably done in the lighting by preventing full force of the light striking those parts of the figure to which you desire to subordinate; but the effect may be obtained modified, during development, by retouching, or in printing. We hope to print a short article on the matter in our next issue, which will give practical details. 2. We believe the studio is the largest in the South of England.

**E. P. C.**—Odd volumes of a journal are never of much value, they are usually wanted only by libraries, and it is a chance that you will meet with a purchaser for yours. We should say 2s. a volume would be a good market price for them. I might offer them to a second-hand bookseller, such as Sotheby's, Strand, London.

**H. EDWARDS.**—We will deal with your letter next week.

**R. D.**—The "Cusway" masks are stocked by the larger dealers, as Fallowfield and Houghtons. Vignetting masks of the type you name are a specialty also supplied by them. Salmon & Son, 52, Mattock Lane, Ealing, W., have a special article.

**A LEGAL QUERY.**—Would you be kind enough to give me information respecting the transaction as under? I sub-let a business to a tenant, who sub-lets, with my permission, to another tenant the same rent—viz., £60 per annum. My tenant has filed a petition, and the lease has been annulled. Now the present tenant refuses to pay more than £55 per annum. Can I claim possession of the premises, as he says he is no tenant of mine and he holds no lease, as the lease he had was annulled at the same time as mine was with my tenant, but I hold the original lease, and am answerable for the rent, etc.—G. STONE.

Without knowing the terms upon which you, already a landlord, granted the lease, and those under which you gave a sub-lease, I cannot advise you, more especially as the matter is complicated by the bankruptcy. The only advice any service that we can give is that you consult a solicitor, and show him copies of your lease and the sub-leases.

**ARTIFICIAL LIGHT.**—Can you tell me if a strong enough light cabinet full lengths could be obtained by fitting, say, twelve ordinary incandescent mantles in the acetylene apparatus illustrated in last year's "B.J. Almanac" (by Mr. Corke), instead of acetylene gas, and then connecting by a tube to an ordinary gas fitting? Would any special fitting for forcing the gas be required if it was only a five-light meter.—G. E.

The light would certainly do, but we expect you would find the exposure very long if it were used for full-length figures. To get even illumination it would have to be placed at a distance off. We should doubt if you could get sufficient light through a five-light meter to well supply a dozen burners as they were used under pressure. We should advise you to get a prospectus of Adamson's gaslight arrangement for portraits from Messrs. Still and Co., Charles Street, Hatton Garden, E.C.

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## The British Journal of Photography

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## SUMMARY.

A paper read by the Brothers Beck, at the R.P.S., on "An Ignat which does not fulfil the Petzval Condition," has an important bearing upon the production of a cheap, efficient as well as a theoretical interest. Therefore, an understanding of the Petzval Condition (p. 211) is important.

The business, or the "bread and butter" side of photography, is given attention in articles on pp. 212 and 214.

A sulphite solution that is cheap and efficient and that will keep indefinitely needs no other recommendation. (P. 215.)

Full experiments which throw light upon the theory of the latent image are recorded on p. 216.

The preparation of the subject goes a long way towards securing success in many branches of photography. This is especially so in the case of the "Almanac," and the article on p. 217 is therefore especially interesting, noting by the photographer who may occasionally have to be "sitters."

A new method of arranging sitter, camera, and flash-light, to give good results at first attempt, or to repeat lightings once more, is given on p. 218.

Convention arrangements, promising a most enjoyable week, are summarised on p. 219.

Fallowfield Jubilee, a most unusual and interesting trade is described and illustrated on p. 220.

The Professional Photographers' Association presents a good case and deserves more support. (P. 221.)

## EX CATHEDRA.

### The Professional Photographers.

The report of the annual meeting of the Professional Photographers' Association, which we publish on another page, refers to general matters which deserve attention from every photographer desirous of seeing the increased prosperity of his profession. The association has been actively engaged during the year in negotiations with the Artistic Copyright Society in reference to the alterations in copyright law which are being promoted by the latter body. Photographers generally have to thank the P.P.A. for what it has done up to the present, though it must be regretted by everyone who can see the danger in which photographers' rights stand, that the majority of the profession should complacently watch those who are fighting for them without moving to their assistance.

### The P.P.A. and Canvassing Frauds.

We are glad to see, also, the heartless frauds which have been perpetrated in all parts of the country, in connection with the alleged free supply of enlargements, have been occupying the attention of the association. The business, however, is so managed that a charge of actual fraud is not easily brought against the canvassers, and, therefore, the association has moved in the direction of warning the public, through the local Press, of the essentially fraudulent nature of the offer made by the agents of the "free-portrait" firms. In one town—Northampton—the members of the association together advertised in the local press addressing a vital caution to the public. The association, we would point out, has drawn up a letter which can be addressed to the local Press in a member's district in the event of a visit from a gang of canvassers.

### Photo-graphers and the P.P.A.

We commend these and other matters in the report to the consideration of photographers outside the association. Every owner or manager of a studio who has held aloof from the association has the strongest reasons for seriously asking himself, why? The amount of the annual subscription (5s.) can be no obstacle, and we are at a loss to imagine that there can be individual antagonism towards a body which, throughout its six years' history, has shown itself both wise and energetic in protecting photographers' interests. In our judgment, nothing but a deficiency in the quality of *esprit de corps* among photographers is to blame for the disparity between the membership roll of the association and that to which its labours in advantaging photographers entitle it. If the association were in the hands of a less able committee, we should be reluctant to write of it as we have just done, but our hopes for its future are sustained by the support which

the inner body has rendered during the past year. Out of a committee of twenty, twelve of whom reside at a distance from London, the average attendance was 11 7-11.

\* \* \*

### The Photographic Convention.

The circular making a preliminary announcement of the Hereford meeting, to be held from July 15 to July 20, was issued last week, and, although only a very partial programme of the forthcoming proceedings, says sufficient to show that the twenty-second annual meeting of the Convention is to sustain the record of its predecessors. Among the papers will be the inaugural address by the president (Mr. Alfred Watkins), one by Dr. W. Scheffer on "Microscopical Researches on the Gelatine Film," and another by Mr. E. J. Humphery on "A New Aid to Pictorial Photography." Mr. Martin Duncan is to lecture on "The Romance of Insect Life," and the other features of the Convention, so we gather, will present the current aspects of photography in a complete and representative manner. Among the places to be visited in the Valley of the Wye are Ludlow and Ledbury, Weobley, Pembridge, and Goodrich. Yet Hereford itself provides almost sufficient opportunities for those intent on photography, and special facilities will be granted to members of the Convention for photographing in the Cathedral and other buildings.

\* \* \*

### Unseasonable Specimens.

On more than one occasion we have commented upon the way the majority of photographers neglect their showcases by exhibiting in them what may be termed out-of-season specimens. We have been forcibly reminded of this as, during the past few days, we have stopped to "take stock" of the specimens shown in the showcases of a dozen or more photographers in different parts of London. In all of them, with one or two exceptions, the whole of the portraits shown were taken in spring or summer attire. In the one or two exceptions, it may be mentioned that the portraits had evidently been taken a long time ago, for the costumes were much out of date. If photographers were to change their specimens with the seasons their showcases would prove far more attractive than, as a rule, they are, and consequently bring in more business. No draper would think of filling his windows with a show of summer fabrics during the winter months; he only shows those suitable for the season, whichever it may be. But photographers appear to take no heed of seasons. In winter they show specimens in the lightest summer attire, or, may be, in summer those in heavy winter costumes; in either case they look little less than ludicrously out of place. Now, ladies clad in winter costumes, with heavy furs, make most attractive pictures, yet these seem to be conspicuous by their absence in the showcases of the majority of photographers at the present time—the season they should be shown.

\* \* \*

### Defacing Proofs.

A Canadian reader of "The British Journal of Photography" endorses the principle of disfiguring proofs sent to customers in such a way that they cannot be used as originals for copies, or in other ways utilised by a customer who has no intention of paying for them. In preference to the perforating stamp which we suggested he writes "with a copying pencil the number of the negative near the face on each proof sent out. If any one attempts to tone the print he will speedily learn the peculiar properties of copying ink pencil, and the print is not likely to be very acceptable to the customer." It may be well to utter a word of caution as to the use of copying ink pencils in a studio or printing room. Any dust from them will be a very

likely cause of spots on prints, and therefore a rule should be made to keep the leads in holders, and never to sharpen the points.

\* \* \*

### Burners for Acetylene.

In the course of the meeting of the Acetylene Association, held a week or two ago, a paper was read by Mr. Arthur Bray on the construction of burners in which acetylene can be conveniently burnt. The ordinary burner, as Mr. Bray pointed out, suffers from several disabilities when it is employed for acetylene. The gas cannot be turned down to a pin-point, and the burner chokes or carbonises. Mr. Bray's firm had devised a burner which could be turned down low owing to an open superstructure erected over the tip proper. When the flame is turned on full, the superstructure is not in action. But when the flame is turned down to a small jet, what in the former type of burner would have been a small, luminous flame, is expanded by the superstructure, which expansion allows the surrounding atmosphere to come in contact and combine with the larger area of the flame, which renders it practically non-luminous, more especially that part of the flame which comes in contact with the vital parts of the burner tip proper, thus preventing the deposit of carbon. As regards carbonising, the lecturer's opinion was that it arose, in the case of air-injecting burners, from some slight obstruction at the point where the gas entered the minute gas passage that is to say, the underneath side of the tip. This obstruction checks the speed of the gas jet and prevents taking a sufficient quantity of air into the mixing tube, with the result that improper combustion causes deposit of carbon. Mr. Bray's experience that in the majority of cases the obstruction arose from impurities in the gas due to faulty generation, confirms the statement of the Acetylene Illuminating Company, reported in our last issue, that in the case of the dissolved gas there is no trouble from carbonising.

\* \* \*

### Some Old Literature.

An exploration around some London secondhand bookshops brought us to Wheldon and Co., Great Queen Street, where a valuable stock of old books of photographic interest was unearthed. Hunt's "Photography," Monckhoven's "Photography" and Barreswil and Devanne's "Chemistry of Photography" (1854) were in the list, but the optical books available were more particularly remarkable. These included Monckhoven's "Photographic Optics," and Brewster's "Stereoscope," and the following valuable series which we place in order of dates:—Newton's "Opticks," 1704; Smith's "Opticks," 1738; Wood's "Optics," 1818, and Coddington's "Optics," 1825. Of these four, Newton is, perhaps, of least practical value, though its historical interest is considerable. Coddington is scarce, and still of great value, so much so that many would like to see it reprinted. It is styled "An Elementary Treatise," but is very mathematical, and the greater part of it is probably quite beyond the comprehension of many people. So much has lately been said of this book in "The Photographic Journal" and elsewhere, that many are no doubt desirous of obtaining it; it may therefore be as well to point out that though it is invaluable to serious students it is of little use to most mathematical readers. Further, it is not in any case an easy book to read, for there are numerous misprints in the formulae which have to be checked by the reader, and the geometrical expositions are very much involved. It does not appear to us advisable to reprint this book as it stands but rather to rewrite it, eliminating the misprints, revising the Euclid, which in some cases is very bad Euclid, and enlarging the diagrams, which are all too small. The author himself apologises for the diagrams, and suggests



that readers should copy them on a larger scale, and so this much-needed alteration is quite justifiable. The two other books we have mentioned are referred to (amongst others) by Coddington, who states that his own book "is to be considered as a compilation rather than an original production," and he owns special indebtedness to Wood's "Optics."

#### Smith's "Optics" and Wood's "Optics."

These two books are less well known than the others we have mentioned, but their interest is quite remarkable. The first one, by Dr. Robert Smith, LL.D., is a colossal work compared to modern text-books, as it is four books and makes two large quarto volumes. It is especially notable for its thoroughness, as it covers practically the whole ground of optics, from popular, mathematical, mechanical, and philosophical standpoints. It is most fully and perfectly illustrated, and throughout shows the great knowledge of the author, who was, if anything, rather in advance of his time. The book finishes with a long essay by Dr. James Jurin upon "Distinct and distinct Vision," and the subject of vision is treated generally throughout the whole work in a remarkably apt fashion. Indeed, the photographic interest of the book is mainly in the section devoted to binocular vision, and reference to some of the interesting experiments described will be found in the "B. J. Almanac" for 1905, page 874. In an article by Dr. von Rohr, Wood's "Optics" was published much later, there being a difference of eighty years between the editions we are referring to, and it is a much smaller and more easily digested book. As before stated, Coddington found it of great value, but it is a remarkable fact that in his book he has apparently ignored one of the most important features. Dr. Wood treats not only of thin lenses, but also of thick ones, and the case of the latter he makes use of points which he calls "focal centres," which correspond to the points we now style "principal points" or "nodes." He measures the focal length of a thin lens from the optical centre, and that of a thick lens from one of the two focal centres, that is from the "node of emission." If we remember that this was a Cambridge text-book in 1818 it is most remarkable that this important conception of focal centres or nodes should have been ignored in later books. It seems to have been quite neglected, until the elaboration of the Gauss Theory, which theory again had a hard and long struggle for recognition. Only last year (1906) a somewhat important text-book was published, which completely ignored the theory of thick lenses. This was not a very creditable production, even if we allow for the obvious fact that it is a book intended to get university students through examinations, and that for such purposes it is only necessary to understand hypothetical thin lenses that cannot exist, real lenses being of no importance so far as examinations are concerned.

THE GERMAN PHOTOGRAPHERS' UNION is to hold its thirty-sixth meeting this year in Bremen, from August 26 to 30, favoured with co-operation of the Bremen Union of Professional Photographers and the Bremen Photographic Society. The Mayor of Bremen, Dr. Reuss, has accepted the honorary presidency. The place appointed for the sittings of the Union is the Parkhaus. An exhibition, which is usual to be connected with the meeting, will be open to the public till September 15. The North German Lloyd has extended its hospitality to this occasion, inviting the members, on August 29, to visit the works of the Bremerhaven docks and harbour as well as to express steamer "Kronprinzessin Cecilie," and afterwards to go far as Rotesand Lighthouse on board the steamer "Vorwärts," taking at the same time of an entertainment to be offered by the Lloyd Company. Persons interested either in the meeting or the exhibition will receive detailed information on applying to the president of the Local Committee, Mr. Willy Dose, Photographer, am Allee 117, Bremen, or to the President of the German Photographers' Union, Mr. Karl Schwieler, Weimar.

#### THE CORRECTION OF LENSES AND THE PETZVAL CONDITION.

THE paper on "A New Anastigmat that does not Fulfil the Petzval Condition," given by Messrs. Horace C. and Conrad Beck at the R.P.S. last week, led to a very technical discussion on the Petzval condition, which, no doubt, many of the audience failed to understand. A brief description of what is meant in optics by a "condition" may therefore be of interest, and, perhaps, of some service to those who wish to study Messrs. Beck's paper when the full text appears.

The correction of a lens is attempted in accordance with principles founded on a close mathematical analysis of the defects observed with uncorrected lenses. Such an analysis reveals the presence of a number of separate aberrations, each of which can be measured and described in terms of known quantities, such as curvatures of surfaces, density of material, distance of object, focal lengths of lenses, etc., etc. In this way a definite mathematical value can be assigned to an aberration, which value takes the form of a complex algebraical expression, including quantities that can be varied more or less at the will of the optician. It must be fairly obvious that if the optician can so vary the quantities as to make the complete expression equal to zero, then the aberration must vanish, and this is practically what he endeavours to do.

The requirements of photography as regards lenses are somewhat comprehensive, hence the number of possible aberrations is very considerable. The general principles of correction can, however, be very fairly understood if we consider only the five aberrations that are allowed for in Von Seidel's five conditions. These aberrations are central or axial—spherical aberration, coma, astigmatism, curvature of field, and distortion—and they must be considered exactly in this order.

The simplest of these aberrations is the first, and its measure in terms of known quantities (as previously described) may be denoted by the symbol  $S_1$ . If the aberration is absent,  $S_1$  must equal zero, and the equation  $S_1=0$  is the first Von Seidel condition, sometimes known as the Euler condition. This first condition being fulfilled, the measure of the second aberration, coma, can be represented by the symbol  $S_2$ , and this also must equal zero if the coma is to be eliminated.  $S_2=0$  is, therefore, the second Von Seidel condition, and it agrees with what is sometimes called Fraunhofer's condition, and sometimes Abbé's sine condition. To render the correction of coma possible this second condition must be fulfilled, but to effect the correction the first condition must also be observed. This interdependence of the various conditions is an important feature that is often overlooked.

The third aberration is astigmatism, and the Von Seidel condition is that a certain value,  $S_3$ , shall equal zero. When this is the case, and  $S_1$  and  $S_2$  also equal zero—i.e., when all of the first three conditions are fulfilled—the lens is free from astigmatism. If a fourth condition—viz.,  $S_4=0$ —be also fulfilled, then curvature of the field is corrected, and this fourth condition is the much-talked-of Petzval condition. The fifth condition is that a certain other sum,  $S_5$ , must equal zero if distortion is to be removed. This is often called the tangent condition. If all five conditions are fulfilled, then the lens is comparatively free from the five aberrations mentioned, but it is still subject to chromatic aberration, for the cure of which other conditions must be observed. It may be noted that there are difficulties in the way of applying all the required corrections simultaneously. For example, condition 5 alone will not completely cure distortion unless condition 1 applies to the pupils of the lens as well as to the object and image foci, and this double appli-

cation of condition 1 is more or less compatible with the fulfilment of condition 2 or the sine condition. Further, this latter condition is also antagonistic to the attainment of maximum depth, which requires the fulfilment of a quite different condition. At the best the result is a matter of compromise between different degrees of correction, while the actual manufacture of a lens requires a great deal of rule-of-thumb work in the way of tentative modifications. The mathematical calculations cannot be carried so far as to enable one to write an exact prescription for a lens that will do all that the photographer requires of it.

It should be clearly understood that the majority of the so-called conditions, including the Petzval condition in particular, are not absolutely corrective, but rather permissive conditions. That is to say, if the Petzval condition is fulfilled, it is possible to attain a flat field, but the actual attainment of that flat field depends upon the fulfilment of certain other precedent conditions.

The Petzval condition, stated briefly, is this: With combination of a positive and a negative lens a flat field can be attained if the focal lengths of the two lenses are inversely proportional to their refractive indices. If chromatic aberration is to be cured, then the focal lengths must be in the same ratio as their dispersive powers. It therefore follows that if both aberrations are to be corrected the refractive indices must vary inversely with the dispersive powers. This condition could not be realized even approximately with the old types of crown and flint glass, and owing to the importance of the chromatic correction, the Petzval condition could not be practically applied before the introduction of Jena glass.

Those who wish to make further study of the various conditions of correction will find the subject very fully treated in Prof. Sylvanus Thompson's translation "Lummer's Optics," and in Mr. Dennis Taylor's "System of Applied Optics."

## BUSINESS METHODS IN THE STUDIO.

## II.

LAST week's notes having shown the methods in which the general accounts are kept, it now remains to describe the private ledger, the book in which the various figures are brought together, and the results of the year's trading arrived at.

Perhaps the simplest way in which to do this will be to give Mr. Darkslyde's accounts in full for one year, and this is done in Fig. 4. A few observations may well be added.

### Profits and Drawings.

The capital account is the record of the value of the business itself. It increases or decreases each year by the amount

of the balance, which is transferred from the profit and loss account. Be it noted, by the balance which, as a reference to the latter account will show, is arrived at after Mr. Darnley's own drawings from the business have been reckoned. A business in which the proprietor is drawing £150 when profits are £180 per annum, is in a better state than one in which £220 is being drawn on profits of £200. This distinction between profits and drawings is very important, alike to the beginner and to the proprietor of the old-established business which, as is only too frequently the case, is on the decline. Unless some such system of accounts as is here

## PRIVATE LEDGER FOR ONE YEAR

		CAPITAL ACCOUNT.	
1905.		£ s. d.	
Jan.	To amounts owing to creditors	148	0 0
	„ deposits on sittings	3	10 0
	balance carried down	464	4 6
		£515	14 6
1905.			
Jan.	By apparatus	195	0 0
	„ materials	42	0 0
	„ deposits for sittings	3	10 0
	„ cash at bank	98	0 0
	„ petty cash in hand	2	4 6
	„ amounts owing by sitters	225	0 0
Dec.	balance from Profit and Loss Account	50	0 0
		£515	14 0

APPARATUS ACCOUNT.		
1905.	£	s. d.
Jan. To capital .....	195	0 0

		SALES ACCOUNT.	
1905.		£ s. d.	1905.
Dec.	To Profit and Loss Account .....	1,560 0 0	Jan. By monthly totals from day book ...
			Feb. Ditto .....
			Mar. Ditto .....
			Apl. Ditto .....
			May. Ditto .....
			June. Ditto .....
			July. Ditto .....
			Aug. Ditto .....
			Sept. Ditto .....
			Oct. Ditto .....
			Nov. Ditto .....
			Dec. Ditto .....
		£1,560 0 0	£1,560 0 0

		MATERIALS		ACCOUNT.	
		£	s. d.		
1905.				1905.	£
Jan.	To capital - value of materials at stock-taking .....	42	0 0	Dec.	By value of materials at stocktaking carried down .....
Feb.	To monthly totals from cash book.....	40	0 0		By Profit and Loss Account .....
Mar.	Ditto .....	30	0 0		
Apl.	Ditto .....	40	0 0		
May.	Ditto .....	35	0 0		
June.	Ditto .....	50	0 0		
July.	Ditto .....	40	0 0		
Aug.	Ditto .....	50	0 0		
Sept.	Ditto .....	45	0 0		
Oct.	Ditto .....	60	0 0		
Nov.	Ditto .....	86	0 0		
Dec.	Ditto .....	111	10 0		
	To amounts owing for materials unpaid at stocktaking .....	120	0 0		
		£748	10 0		£748

1905.						
Jan.	To	balance brought down—stock on hand.....	£48	0	0	
			<b>WAGES</b>		<b>ACCOUNT.</b>	
			£	s.	d.	
1905.					1905.	
Jan.	To	monthly totals			Dec. By Profit and Loss Ac-	
		from cash book ...	26	0	0	count .....
Feb.	Ditto	.....	26	0	0	338
Mar.	Ditto	.....	26	0	0	
Apr.	Ditto	.....	26	0	0	
May.	Ditto	.....	32	10	0	
June.	Ditto	.....	26	0	0	
July.	Ditto	.....	26	0	0	
Aug.	Ditto	.....	32	10	0	
Sept.	Ditto	.....	26	0	0	
Oct.	Ditto	.....	32	10	0	
Nov.	Ditto	.....	26	0	0	
Dec.	Ditto	.....	32	10	0	
			£338	0	0	£338

ACCOUNT.		£
1905.		
Dec.	By value of materials at stocktaking car- ried down .....	48
	By Profit and Loss Ac- count .....	700 1



LIGHT AND FUEL ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To monthly totals from cash book .....	4 0 0	Dec. By Profit and Loss Account .....	60 0 0
Ditto .....	10 0 0		
Ditto .....	6 0 0		
Ditto .....	15 0 0		
To amounts owing at stocktaking .....	25 0 0		
	£60 0 0		£60 0 0
ADVERTISING ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To monthly totals from cash book .....	10 0 0	Dec. By Profit and Loss Account .....	25 0 0
Ditto .....	15 0 0		
	£25 0 0		£25 0 0
REPAIRS ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To monthly totals from cash book .....	3 10 0	Dec. By Profit and Loss Account .....	7 10 0
Ditto .....	4 0 0		
	£7 10 0		£7 10 0
RENT, RATES, TAXES, AND INSURANCE ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To monthly totals from cash book .....	2 0 0	Dec. By Profit and Loss Account .....	60 0 0
Ditto .....	13 0 0		
Ditto .....	20 0 0		
Ditto .....	15 0 0		
To amounts owing at stocktaking .....	10 0 0		
	£60 0 0		£60 0 0
APPARATUS RENEWALS ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To monthly totals from cash book .....	5 10 0	Dec. By Profit and Loss Account .....	25 0 0
Ditto .....	6 0 0		
Ditto .....	3 10 0		
Ditto .....	10 0 0		
	£25 0 0		£25 0 0
TRADE EXPENSES ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To petty cash in hand .....	2 4 6	Dec. By petty cash in hand—carried down .....	3 5 0
To monthly totals from cash book .....	14 1 6	By Profit and Loss Account .....	90 10 0
Ditto .....	5 0 0		
Ditto .....	5 10 0		
Ditto .....	5 0 0		
Ditto .....	5 0 0		
Ditto .....	5 0 0		
Ditto .....	5 0 0		
Ditto .....	7 10 0		
Ditto .....	5 0 0		
Ditto .....	10 0 0		
Ditto .....	8 8 6		
Ditto .....	16 0 6		
	£93 15 0		£93 15 0
To balance brought down .....	3 5 0		

PRIVATE DRAWINGS ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To monthly totals from cash book .....	20 0 0	Dec. By Profit and Loss Account .....	200 0 0
Jan. Ditto .....	10 0 0		
Feb. Ditto .....	20 0 0		
Mar. Ditto .....	10 0 0		
Apr. Ditto .....	20 0 0		
May. Ditto .....	20 0 0		
June. Ditto .....	20 0 0		
July. Ditto .....	20 0 0		
Aug. Ditto .....	30 0 0		
Sept. Ditto .....	10 0 0		
Oct. Ditto .....	10 0 0		
Nov. Ditto .....	10 0 0		
Dec. Ditto .....	20 0 0		
	£200 0 0		£200 0 0
PROFIT AND LOSS ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To balance from : Materials Account .....	700 10 0	Dec. By balance from Sales Account .....	1,560 0 0
Wages .....	338 0 0		
Light and fuel .....	60 0 0		
Advertising .....	25 0 0		
Repairs .....	7 10 0		
Rent, rates, etc. ....	60 0 0		
Apparatus renewals ..	25 0 0		
Bad debts .....	3 10 0		
Trade expenses .....	90 10 0		
*Private drawings .....	200 0 0		
*Balance to Capital Account .....	50 0 0		
	£1,560 0 0		£1,560 0 0
* Added together give profit for year £250.			
BALANCE-SHEET, JANUARY 1, 1905.			
£ s. d.	1905.	£ s. d.	
To capital .....	414 4 6	By materials in stock .....	48 0 0
„ trade creditors .....	148 0 0	„ sitters (deposits) ..	3 10 0
„ sitters (deposits) ..	3 10 0	„ apparatus .....	195 0 0
		„ amounts due from sitters .....	225 0 0
		„ cash at bank .....	93 0 0
		„ „ in hand .....	2 4 6
	£566 14 6		£566 14 6
BALANCE-SHEET, JANUARY 1, 1906.			
£ s. d.	1906.	£ s. d.	
To capital .....	494 4 6	By materials in stock .....	48 0 0
„ trade creditors .....	165 0 0	„ sitters (deposits) ..	8 0 0
„ sitters (deposits) ..	8 0 0	„ apparatus .....	195 0 0
		„ amounts due from sitters .....	250 19 6
		„ cash at bank .....	116 0 0
		„ „ in hand .....	8 5 0
	£627 4 6		£627 14 6
BAD DEBTS ACCOUNT.			
£ s. d.	1905.	£ s. d.	
To amounts written off in ledger — Mrs. Hobson .....	1 10 0	Dec. By Profit and Loss Account .....	3 10 0
Ditto Miss Dobson .....	2 0 0		
	£3 10 0		£3 10 0

Fig. 4.

lined is kept, there is always the danger of overdrawing—once any business man does that, he is only accelerating own downfall.

Apparatus Account.

This account covers all the apparatus at the time of the stocktaking. Any purchases made afterwards are not entered under this heading, but to another account called Apparatus Renewals, which, it will be seen, is included in the profit and loss account as an expense. This is not quite in accordance with the usual accounting methods, but most studio apparatus depreciates in value so quickly that if the first valuation be allowed to stand from year to year, the value of the new backgrounds, lenses, etc., bought each year in the average studio will just about offset the depreciation. Bad debts account represents amounts that are written off the sitters' ledger as being beyond any expectation of payment.

The other accounts are the monthly totals from the day book cash book. Referring to the latter again as shown in the last week, the stocktaking accounts column contains payment of the accounts due to the various creditors at the time of stocktaking, the £148 in the balance-sheet, January 1, 1905, and the £155 in that of January 1, 1906. The

various items making up these amounts being charged to their respective accounts before they are closed, it will, of course, not be right to dissect them again at the time they are paid; hence the special column for stocktaking accounts.

Income-tax Assessments.

It may be mentioned that the profit and loss account as here shown furnishes the information required by the income-tax authorities when an appeal is made against an assessment. In assessing, if there be any mistake at all, it is unlikely to be in favour of the taxpayer, and therefore it is as well to be prepared to resist any over assessment by appealing within the time allowed. In the accounts shown, Mr. Darkslyde will not, of course, pay on the £250; he will fill in the exemption claim for £160 which is allowed on incomes under £700 per annum, while he may, if he wish, show the last three years' accounts, and pay on the average of the three. Thus, supposing that the three years' profits have amounted to £180, £200, and £250 respectively, the average, after deducting the yearly exemption of £160, is £50, on which amount he can appeal to be assessed instead of on the £290.

These notes will be brought to a conclusion next week by a few hints on the conduct of business between the photographer and the wholesaler.

S. E. KAYE.

## BREAD AND BUTTER SIDE OF PHOTOGRAPHY.

[The importance of the consideration by photographers of business details was the dominant note in the following address by Mr. L. D. Hicks, at the sixth annual convention of the Photographers' Association of the Pacific Northwest, for the text of which we are indebted to "Camera Craft." The address should confirm our professional readers in adopting a strict system of book-keeping, such as that advocated by a contributor on another page. —Eds. "B.J."]

An important subject this, for experience has taught me that photographers possess hearty appetites and that it requires much bread and butter to satisfy them. Robin Hood's friends were fond of a song which ran: "It takes nine tailors to make a man." We of the camera fraternity can truly reverse this song and sing: It takes nine men to make a photographer.

If the fairies could roll into one human form a diplomat, a politician, a chemist, a mechanic, a draughtsman, a financier, an expert salesman, a shrewd, level-headed modern business man, and an artist, the result would prove to be a remarkable and perfect photographer; one whose stock of bread and butter would accumulate to a degree that would start the Rockefeller and Morgans in the direction of the photographic stock house. We haven't any fairies, so which of these nine men shall we choose as our pattern? Give me the diplomat every time. It may be the reception-room lady, or in our smaller cities the proprietor himself, but, no matter who it is, the one who receives your prospective sitter, shows him his proofs and takes his money, surely must be more or less of a diplomat or there will not be much bread and butter.

All photographers are artists; some of them are realists, some impressionists, and many of them are just naturally poor artists; but that is equally true in the great art world that lies outside the photographic field. The poor ones will improve, or quit, so don't worry about them. The others are coming closer together every day. The impressionists' fuzzy-types grow less fuzzy; the realists' wirytypes grow less wiry, and the result gives the world a product that is a portrait and a picture all in one. This helps to spread the butter. But the bread must still come from the reception-room.

### A Lesson from the Manufacturer.

The photographer is a professional man, but he is also a wholesale and retail dealer in pictures. Do you run your studio on a business basis? Not many of you, I fear. You send to the dry plate manufacturer for a case of plates, he glances at your order and knows to a fraction of a cent not only what the cost of producing that box of plates was, but what each item that goes to make up the whole cost, even down to the labels on the boxes, and he can tell you the exact amount of his profit on that sale. You were by no means a stranger to him when your order arrived, for his card index system had long since claimed your address, and in all probability the little square of cardboard will tell him many other things; how long you have used his plates, for instance, and, incidentally, how much bread and butter you possess. Had you failed to send that order in when you did, doubtless a notice would have come to you in a short space of time from this same source, asking why your orders had dropped off, or, better still, the thirsty and travel-worn demonstrator would have called upon you and extolled the mighty virtues of this same dry plate. There's nothing strange about all this; it is simply a modern business house following the even tenor of its way.

### "Photographers Don't Keep Books."

Now suppose we reverse the case. We have a call from the factory man. He orders a dozen pictures; we deliver the goods, take his money, and—well I guess that's all. Do we know how much net profit there was in the sale for us?

Probably not. Do we know exactly what the material that went into that dozen pictures cost? I'm afraid not. And our factory friend hadn't voluntarily come for the sitting would we have gone after him either by letter or in person? And, if he doesn't come back next year, will we stir him up? Maybe. But not all of us, I'm afraid. Let me give you a secret that I heard back East: They say that "some" photographers don't keep books." How in the world can they tell where next month's bread and butter is coming from? The happy-go-lucky fellow with a few dollars in his pocket and a stock bill of unknown dimensions hanging off his head may be a photographer, but he is certainly not a business man.

A Philadelphia publication recently printed a story, which if it did not happen to be new, is one that most of us can take home to ourselves. An Episcopal bishop, while visiting in the country, heard that a certain farmer had long sung the praises of that creed and boasted that he was a mighty good Episcopalian. Naturally this pleased the bishop, and upon meeting the farmer he asked: "Who brought you into our church? Who confirmed you?" "Who what?" inquired the farmer. "I don't know what you're talking about, but this is how it happened: I was in New Orleans on Sunday and went to church, as I didn't have anything to do. While I was there all the folks in the congregation got up and said: 'We have left undone those things which we should have done, and have done those things which we should not have done.' Well, sir, that fitted me very exactly. I asked the man that sat next to me what kind of a church that was, and he said Episcopal, and I've been a good Episcopalian ever since." I wonder what percentage the membership of this Association this cap fits. Now we do some of these things that we should do and have left undone.

### An Index of Customers.

First, we want to install a simple and practical system of keeping a clear record of our business. This isn't going to cost very much. For one dollar and twenty-five cents we can buy a substantial box, black cloth covered and fitted with a good follow block. This box contains 400 white linen record cards, ruled in colours. It has twenty alphabetical, twenty monthly, and thirty-one daily guides. Here one can index customers and prospectives, with their addresses and general information. It is true that four hundred cards won't fill the larger galleries very long, but additional cards will cost us one dollar per thousand, and when the first box is filled one can buy another for sixty cents. Let this set of cards contain all the necessary data in connection with the filing of negatives, the delivery of proofs, as well as the names of every person who has come to your studio in the past years, and, no matter whether they ordered or not, follow them up. Don't let them forget for a day that you are ready, willing, and anxious to make the best pictures they ever

### Lists of Possible Customers.

A separate box should be used to record the arrival of the new babies that the stork brings to town, and another for the veterans and pioneers, for all the dear old folks past seventy need your special attention. They are treated to the down-hill of life. The sun will soon set for them,



must convince them and their loved ones that it is their duty to let us make a permanent portrait of the dear one who hasn't long to stay. Do it now. Go home and get after these folks. If you can't call on them, send somebody. If there's no one to send, write, not once, for one letter of this kind seldom brings results, but follow it up; try at least three times, if necessary, but don't give up until you are convinced that that particular person has no intention of contributing to your "bread and butter."

Buy still another box; this one only containing one hundred dollars or so, and use it as a record of the cost of the materials are consumed. Who sells you your supplies? How do you know that you can't save money by buying them from another fellow? Have you any record of the quotations that your firm in Portland made you last year? Aren't there a great many chemicals that you always buy in ounces, yet use in great quantities to justify purchasing in pounds? Amidol, metol, for instance, list at seventy-five cents an ounce, ten dollars per pound. Granting that you receive the same discount on both size bottles, the saving when buying in pounds is two dollars net. Figure pyro the same way, and you will find a clear saving of a dollar and a half. I take an interest in this as an example. Ounces are quoted at twenty-five cents and pounds at two dollars and fifty cents. Here's the "bread and butter" for you. Never use cheap chemicals. They are, always the most expensive.

### The Need of Advertising.

Keep books! Simple, plain, single-entry book-keeping is plenty good enough for most of us. Any book-keeper or business college graduate will be glad to start you in the right direction for a nominal sum. But know just "where you are at" at the end of each month, and have each day's work recorded in its proper place. Take advantage of your cash discounts, or, better still, pay cash, providing your ready funds will permit. Watch the little things, and advertise all the time. How? There are thousands of ways, and they are all good. A famous San Francisco photographer, now dead, used to advertise his business through his fine dogs. People were attracted by the dogs, and remembered and talked about the photographer. A Cleveland man advertises that he is the highest priced photographer in Ohio. A New York photographer said to a newspaper reporter who was an old friend: "Jim, say something about me in that paper of yours. If you don't know anything good, say something bad; but say something." The services of a printing press are as necessary to the success of a modern studio as that of a printing frame.

Make the public think about you all the time; then they can't possibly overlook you when they want pictures. Keep your prices up, keep your stock bills down, and root all the time. Go home and do just one of the many things I have suggested, and the bread-and-butter side of photography will immediately begin to look up.

## A PERMANENT SULPHITE SOLUTION.

E. KÖNIG, of Hoechst, in the current number of "Photochemische Korrespondenz," gives some details of a permanent solution of sodium sulphite, his satisfaction with which as regards keeping properties has been confirmed by a lengthy series of experiments. The solution is obtained from the commercial sodium bi-sulphite lye, which is neutralised with a solution of caustic potash, the result being a highly concentrated solution of sodium potassium sulphite, 3 ccs. of which correspond to 2 gms. of crystallised sodium sulphite. According to Dr. König's experiments this solution even when in only half-filled corked bottles preserves its properties undiminished for longer than a year. Carbonate of potash should be used for neutralising the bi-sulphite solution, inasmuch as a good deal of bi-carbonate is thereby formed, the restriction of which is very noticeable, particularly when alkaline developers are employed. As Namias has pointed out, a mixture of sodium bi-sulphite and carbonate of sodium developer is to be deprecated, on account of the formation of bicarbonate.

In order to prepare the permanent concentrated solution of white the following proportions should be followed: One litre of commercial fresh bi-sulphite lye of specific gravity 1.34, and containing practically 350 gms. of Na HSO<sub>3</sub>, mixed with a solution of 185 gms.; 100 per cent. caustic potash in about 400 ccs. of water. The last additions of caustic potash are carefully made, and the solution tested

by means of phenolphthalein, to see that it is alkaline. Indicators such as litmus and curcuma are useless for the purpose. The addition of the alkali should be made until the white phenolphthalein paper is turned red, and the solution is diluted to 1,270 ccs. It is then of a strength corresponding to 2 gms. of crystallised sulphite, or 1 gm. anhydrous sodium sulphite in 3 ccs. of the liquor. The neutralisation can be done, also, with a concentrated soda liquor, but in this case the anhydrous sodium sulphite separates out. It is not possible to make nearly such a concentrated solution by using the soda. The above method of preparing the sulphite solution will be seen to work out very cheaply from the following figures:—

One kilogramme bi-sulphite .....	.13 mks.
500 gms. caustic potash liquor, 36-38 per cent. ....	.18 mks.
1,270 ccs. sulphite liquor .....	.31 mks.

corresponding to 850 gms. crystallised sodium sulphite—that is to say that one kilogramme of the crystallised mixed potassium and sodium sulphite costs only .36 of one mark (= 4.32d.). It should be noted, of course, that in the preparation of the sulphite solution the pure chemical caustic potash is not employed, but the ordinary commercial caustic liquor.

\* Dr. König is evidently writing of the products above mentioned purchased on a manufacturing scale. The prices given do not apply to the retail market. In fact, the caustic liquor used for neutralisation is not an article obtainable retail in small quantities.

THE GRAND PRIX of the Milan Exhibition has been awarded to Messrs. Voigtländer and Sons for their photographic lenses.

PORTRAIT OF MARY QUEEN OF SCOTS.—If "Man of Kent," page 208, cannot obtain the above portrait, I have a 15 x 12 copperplate engraving in which the above Queen is shown in an oval, with appropriate design around, and should be pleased to make him a copy, or supply prints.—Archer Clarke, 20, Larkhall Rise, S.W.

ANATICS AND THE PHOTOGRAPHER.—Intelligence has just reached of a murderous attack on a French visitor at Fez. He was attempting to take a photograph of the sanctuary when he was set

upon by a number of fanatics and received severe injuries. He lies in a dangerous condition. Several arrests have been made, and the French authorities are demanding the immediate punishment of the offenders.

DR. GRÜN AS A SPY!—According to the "Daily Mirror," Dr. Edward Grün, the well-known exponent of large-aperture photography, while seeking moonlight photographs, was mistaken for a spy aiding plans for a German invasion. When the police, however, interviewed Dr. Grün, they found that he had been assisting the War Office in connection with tactical exercises in the district.

## EXPERIMENTS ON THE DEVELOPMENT OF THE LATENT IMAGE WITH INDOXYL COMPOUNDS.

(From Photographische "Korrespondenz.")

THE experiments described in my previous paper have proved that the image developed with indoxyl or thioindoxyl is not of a homogeneous nature, but consists of metallic silver and indigo or thioindigo. This corresponds with Lüppe-Cramer's statement of the nature of the negative image produced with ordinary developers.

We now come to the important question: Is the substance of the latent image of a homogeneous nature, and is the splitting into two only effected by development or fixation, or is the substance itself of the latent image not homogeneous?

The experiments already described show that the substance of the latent image, or a part of it, is an extraordinary oxidising agent, which can oxidise indoxyl to indigo and thioindoxyl to thioindigo.

If we adhere to the well-known sub-haloid theory of the latent image, we must come to the conclusion that silver sub-bromide must exert this action. It appears to me to be extremely improbable that such oxidising properties should exist in the sub-bromide, which is poorer in bromine, whilst the normal bromide, which is richer in bromine, behaves in an indifferent manner towards the two indoxyls. It would be much more probable to expect such an oxidising action with a per-bromide of silver. The results of the following experiment support this view.

An unexposed dry plate was bathed in the dark room in a 1:2,000 bromine water for fifteen minutes, then washed for an hour in running water and placed in a two per cent. aqueous solution of indoxyl. A development immediately resulted—that is to say, the plate became dark-coloured quickly. It was then washed for a short time and fixed in an acid fixing bath. When examined by daylight the fixed plate appeared a deep blue without metallic lustre; the blue "indigo image" dissolved immediately in a three per cent. faintly alkaline solution of sodium hydro-sulphite and a plate as clear as glass without a trace of a silver image was obtained. In order to exclude any possible action of the gelatine vehicle, an experiment was made with a bromide plate which was fixed, and therefore free from silver bromide. This was washed for two hours in running water, then bathed for fifteen minutes in bromine water 1:2,000, again washed for an hour in running water, and then immersed in a two per cent. solution of indoxyl. The plate remained colourless and clear as glass. The free bromine had obviously produced in the first case from the silver bromide the same substance which oxidised the indoxyl to indigo (in the latent image). As, however, the action of bromine on silver bromide cannot well form anything but a product richer in bromine—that is to say, a per-bromide—we must assume that the part of the latent image which oxidises indoxyl and thioindoxyl is a silver per-bromide. In contact, the per-bromide image, the indoxyl, is oxidised to indigo, and the chief image is itself reduced to silver bromide, not to metallic silver. The question now arises as to the formation in indoxyl development of the second or silver image. To this question the following experiment gives a satisfactory answer.

Professor R. Namias, of Milan, has found that a gelatino-bromide plate, on being bathed for a short time in a 1-200,000 solution of stannous chloride is brought into a "latent," that is, a developable condition, exactly as though it had been exposed. I have found Namias' statement to be correct, but at the same time I have determined that the "latent image" produced by stannous chloride differs in a very important detail from the true latent image obtained by exposure. It lacks the substance (silver perbromide) that oxidises indoxyl to indigo, which is contained in the substance of the latent image produced by light.

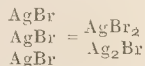
If an exposed dry plate is bathed for about ten minutes in a 1-200,000 stannous chloride solution, then washed for an hour in running water, and then placed in about a 2 per cent. solution of indoxyl, the plate is rapidly developed. If rinsed for a short time, fixed in an acid fixing bath, and examined by daylight, the fixed plate shows a black-brown silver image, and a trace of an indigo image. Naturally the plate becomes white in a sublimate bath, and bleaches glass-clear in a cyan bath.

The extremely dilute stannous chloride solution has thereby converted the silver bromide into the same substance as is the latent image caused by light, which substance, in contact with indoxyl, gives the silver image. As, however, stannous chloride is one of the most powerful reducers, the substance question must, in comparison with silver bromide, be a product poorer in bromine. Whether this is metallic silver ("silver germ") or a silver sub-bromide cannot be determined from the above experiments. Practically this is of no importance. One can assume a sub-bromide, for instance,  $\text{Ag}_2\text{Br}$ , decomposed into  $\text{Ag} + \text{AgBr}$ , in which sense it would act in the development that is to say, under the reducing action of the developer the silver atom, "the silver germ" would separate the silver bromide into silver and bromine, the former furnishing the silver image, the latter oxidising or forming a substitution product with the substance of the developer.

According to these views, one should have an indigo as well as a silver image when developing the "latent image" produced with stannous chloride with indoxyl, since the silver sub-bromide, or the complex  $\text{Ag} + \text{AgBr}$ , must act as an oxidising agent towards the indoxyl, even if it is infinitely milder than silver per-bromide.

In opposition to this it should be noted that indigo does not appear as the sole and only oxidation product of indoxyl; it is well known that indoxyl can be oxidised to indigo white and not to indigo by very weak oxidisers. Besides this, as mentioned above, in the splitting up the complex  $\text{Ag} + \text{AgBr}$  the bromine set free may act, not as an oxidiser, but as a substituting agent with the indoxyl.

According to these observations I am inclined to describe the substance of the latent light image as an equimolecular mixture of silver per-bromide and silver sub-bromide, the formation of which may be shown perhaps by the following equation:—



in which, in place of the sub-bromide,  $\text{Ag} + \text{AgBr}$  finally occurs. The existence of a per-bromide can certainly be assumed. Schmidt has proved the existence of a per-iodide (Zeit. f. Anorg. Chemie. IX., p. 418, Eder's Jahrbuch, 105, p. 88).

The development of the latent image caused by light, as an ordinary developer takes place, we may suppose, in the following manner:—The developer is oxidised by the silver sub-bromide, by which it is first converted into silver. If the developer gives a coloured oxidation product, then this is a part of the visible negative image. This assumption undoubtedly explains the totally different character of images obtained with different developers. The silver sub-bromide, the complex  $\text{Ag} + \text{AgBr}$  is then reduced to metallic silver by the developer, so that a silver germ action must be assumed very probable.

"Developers," therefore, are those substances which are capable of reducing the silver sub-bromide or the complex  $\text{Ag} + \text{AgBr}$  to metallic silver and bromine. B. HOMOLKA



## PRACTICAL HINTS ON PHOTOGRAPHING HEAVY MACHINERY AND ENGINEERING WORK.

[In the following article is continued the series of hints on the photography which is required by large engineering firms. The selection of apparatus and one or two useful preliminaries were dealt with last week.—Eds. "B.J."]

The preparation of large pieces of machinery for photographing is a very important part of our subject. In all Government work, which, of course, has to undergo a close inspection at the hands of officials, no painting or special preparation is permitted. The natural skin of the metal, either in its rough or finished tooled condition, must be maintained. On the other hand, where ordinary commercial jobs are concerned, many engineers make a rule to bestow good deal of preparation on their work by painting and hand planing, in order that it may be rendered specially suitable for a photograph. Others, again, among whom it may be stated are some of the highest class firms, rigidly set their faces against any special painting being resorted to for photographic purposes, confining their preparation merely to a careful hand cleaning and oiling by means of waste, etc., in any case quite a variety of colours are met with, ranging from black and dark olive green, down to red. Very often these surfaces partake of an enamelled form when cleaned up, and frequently give some trouble when a strong top light has to be used.

### Preparing the Subject.

In cases where painting is permitted, a good dark grey should be employed on such subjects as crank shafts and bright metal parts. The paint should yield a good matt surface when viewed from the standpoint of the camera, and if the job appears patchy, by likely by waiting an hour or so until the paint be quite dry, these patches will disappear. The unhardened paint is easily removed by exposure.

If, as is very often the case, the entire surroundings have to be blocked out on the negative, a colour should be chosen that will contrast with the margins of the machine showing a good contrast against a white background of the final print. This applies particularly to all attachments on the outline of the machine, which will not show well unless painted a dark colour.

Another very important matter when painting is performed is to be sure it is done just prior to the photograph being taken, so as to leave no opportunity for markings by the dirty hands of workmen. The lapse of a day or two often means that the job has to be repainted. In the case of inside portions of a machine being painted for the photographer the colour cannot be too white, and frequently great advantage can be gained by painting portions only of a subject, so as to bring up one part from the other. White paint is used for this, but much can be done also by chalk.

### The Advantages of Chalking Machinery.

In cases where large tools that are in daily use are concerned, painting, of course, is out of the question, but the same may be used up in an effective manner by means of a little chalk. First of all, the maker's name, which almost invariably will be found cast, or as a name-plate bolted on, or otherwise cast on some part of the tool, will call for attention. By chalking over the raised letters and then by means of the ball of the forefinger softening the chalk marks down, the same will be found to stand out in bold relief, and appear very telling in the finished photograph. Other things amenable to this treatment are the gearing wheels, springs, bolts, and any fine detail found in the dark portion of the object. It is really wonderful how the teeth of a gearing wheel may be made to show up in the finished photograph by means of careful preparation with a little chalk. A typical case may be mentioned. Since the introduction of electricity as a motive force to large lathes, etc., the gearing wheels form a very prominent part of the machine, in some of the newest patterns are enclosed in casings or covers, sometimes it is desired to photograph portions inside such casings without removing the entire cover, or, at least, to do so means of the cover door being open. By chalking the parts that appear through the open door they at once come into view, and show up well in detail in the finished photograph, otherwise they

would not appear at all, being simply buried in darkness. In cases also where outlines of portions of a tool are backed up with other dark parts, and therefore do not appear with enough contrast, much may be done by chalking the edges, so that they appear with a light line against a dark background. The lighting of the machines has often to be taken as it is found by the photographer, yet it is often possible to counterbalance the excess of top light (a usual defect) by making the ground into a reflector, as the writer remembers doing on one occasion, by having a concrete floor whitewashed, and so obtaining the detail in a machine, the projecting top rail of which cast a shadow over it. Similarly whitewashing all round a stationary engine will do a lot in the way of helping matters. In some instances very dark portions in large machines can be lighted by means of small electric lamps being placed so that the light is thrown on the parts it is desired to illuminate, the lamp, of course, being out of view. As a rule, such aids are but of low value, and require lengthy exposures, the light being very deceptive in its actinic value. The writer has also seen magnesium powder, with which a few grains of gunpowder was incorporated, prove of great service in lighting up hidden or dark recesses in heavy machinery; this, of course, requires to be burned in an open pan, simply igniting same with a smoker's vesuvian, stuck in the cleft of a long stick.

It often happens that makers desire a photograph of their tools as soon as possible after they are fitted up in some new shop, and before the flooring or other parts of the surroundings are in their finished condition. When this happens it is best to block out the entire floor space in the negative and print the same with a white floor, then sun down the whole portions and tone and fix as usual, and when the print is dry, by means of a parallel ruler, draw on the face of the print flag stones by means of cross lines at their proper angles. This looks well, and after the print is carefully doctored, the same is rephotographed. By this means nasty eyesores are got rid of. As to the method of working up the face of the print, the writer hopes to refer later on.

### Preparing Rough Castings for Photography.

The preparation of large steel castings for the purpose of being photographed differs materially from that of ordinary finished machinery. Such pieces are often met with of great weight, in some cases running as high as forty tons, and varying in shape and dimensions after these pass through the dressing shop. They are generally photographed without any painting. In this condition the pieces are likely to appear somewhat patchy, and show an abundance of chisel marks from the hands of the dressers. In the rough casting these marks will very likely, at certain angles of lighting, present a bright silvery appearance, quite unlike the dull grey look of the rest of the piece, whilst in other portions large patches of darker coloured metal will almost be sure to be present.

The writer knows of no better method of getting rid of these markings and eyesores than by forcibly throwing or dusting the moulder's sand on such parts as require to be doctored. In all dressing shops these castings will be found simply smothered in such sand, so there is no lack of supply. After the dry sand is forcibly thrown upon the parts the surface is gently dusted over with a little dry waste, and immediately a practised eye will be satisfied with the improvement effected. Bright glaring chisel marks will be seen to disappear, and large patches of dark metallic appearance will show up as grey as the rest of the piece. In all rough castings, even at the stage where such leave the dressers' hands, there will be on the surface small holes or indents which appear in exaggerated form under side lighting. It is always advisable to doctor the more pronounced of them before exposing the plate. For this nothing is better than a little moulder's putty, which, when applied to fill up these little holes, may at first show up as dark dots against the light grey colour of the casting; but another few

handfuls of dry moulder's sand thrown forcibly on them soon make them vanish.

In nearly all marine and engineering castings there will be found large and small apertures with sharp edges. All moulders like these lines or sharp edges to be well shown in the photograph, a great aid being to "dress" the castings beforehand with chalk, as before stated, and then the lines can be either intensified on the negative or on the print. With too much front or too low a light these apertures will often show a lack of shadow, and tend to spoil the solidity of the piece. The natural remedy is to select a better lighting, but where this cannot be done an immense amount can be put in on the print. The photographer of machines soon finds that he must use brush and air-brush in the perfection of his work.

#### Preventives of Halation.

Halation will often be found difficult to prevent, especially when working right up against a strong light. If the subject be situated and a fixture under the worst possible conditions, it is often best to blind off the window with brown paper. This can be had in web of almost any size and shape, so as to cover all the glass, and in such cases the negative will require to be carefully treated and

blocked out. Other cases where bad lights are situated at large distances in front can generally be treated in some way or other by boarding up or hanging shields from a crane, etc., so that the evil is prevented. Prevention is always better than cure, and may be done by choosing the hour for exposure when the direct light is not present. As to backing the plate, the writer's experience is that bitumen dissolved in chloroform is the best to employ when this is used the plate is developed without previously removing the backing. A little practice will soon make a regular worker quick at home in developing after this method.

The working up of the print preparatory to rephotographing it is perhaps the most difficult of all operations connected with this class of work. It takes some experience to be an adept at it, but the air-brush has placed a new power in the photographer's hands, and all high-class block makers know the value to place upon such method of working up a photograph. No doubt quite a lot can be done by the brush alone, but for really high-class finish highly glazed prints, which are so much in request for fine detail in process work, only the best results can be obtained by an expert in the use of the air-brush.

T. NEWTON ARMSTRONG

## FLASHLIGHT PORTRAITS.

[A branch of work in regard to which our advice is often asked by "St. Louis and Canadian Photographer," by Mr. Felix Raymer, who gives the examples, reproduced in our contemporary, should be—Eds. "B.J."]

ONE of the most pleasant and profitable branches of work for the photographer is that of taking portraits at home of friends and patrons by the use of flashlight. This branch of photography appeals to nearly everyone that has ever tried it, from the mere novice to the old experienced operator. We have been using the flashlight method for making portraits for many years, but there is always a charm in every negative we make with it that never wears upon our nerves.

The amateur may gratify this desire for making flashlight pictures at but a trifling cost, as there are many small hand machines on the market that sell for a very little, or he may use the flash sheets, which can be obtained at a small cost.

To make pictures with the flash it is necessary that one have some knowledge of the making of pictures by daylight, but it is not necessary that one be a crack operator if clear and concise directions are followed for placing the camera and the flash machine. I will try and give such directions, and will use a flashlight portrait to illustrate the method and effect of the light.

#### A System for Flash Portraits.

We must imagine the subject as the hub of a wheel, and in our mind's eye draw a circle around her, and this circle will be the rim of the wheel. Now the flash lamp or the flash sheets, whatever is used, should be placed at some point on this rim, and its station on the rim will control the effect of the lighting. If it is at some certain station, the effect of the light on the face will be entirely different from that which would be secured if it was placed at some other station. These stations will represent the "spokes" of the wheel. By reference to the small drawing our meaning can be easily seen.

To secure the effect known as plain lighting, in which there is a three-quarter view of the face, with more of the face in light than in shadow (the kind of lighting which is most suitable for the great majority of sitters), the flash should be stationed at the spoke in the wheel that is numbered "2A," and the camera at "1." And to get the right view of the face, the operator should take his stand at station "2," and then have the subject turn from him until he just misses seeing the ear on the far side of the head.

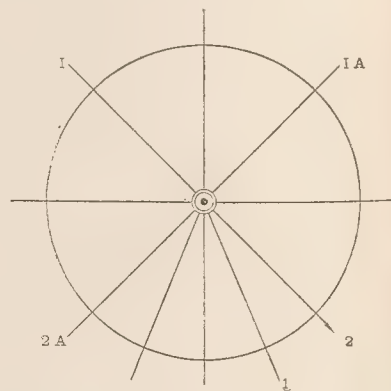
The imaginary circle about the subject should be about five or six feet in diameter, and the lamp or flash, whatever its nature, should be raised above the subject's head, but held over its proper station, to about four feet in height. A few trials will have to be made before the exact height will be fully understood. But after the first trial the negative should be examined carefully to ascertain if all of the points that go to make up this effect of lighting have been secured. If there is no light in the eyes it shows the lamp was

less experienced readers is the subject of some useful notes in this advocates a system which is easily comprehended, and which, according to sufficient for the purposes to which flashlight work is usually applied.

raised too high above the subject's head, and the brows shadowed the eyes so that the light could not get to them. On the other hand, the little spark of light falls on the side of the iris it shows that the flash was held too low. In either case the second trial should result in a better position of the darts of light. The correct position for them is on the edge of the iris, midway between the top and side. By imagining the small drawing which we use and which is referred to as a wheel, to be the iris of the eye, we will say that the darts of light should fall at the point where the spoke is marked "1," or if the light is placed on the opposite side of the face the spoke that is marked "1A" will be the right place for the dart of light.

#### A Characteristic of the Lighting.

Everything depends upon this little dart of light in the eyes. If they are absent it is a foregone conclusion that the lighting is wrong. There is nothing in the entire lighting that can be right if these little darts of light are lacking. Therefore I wish to impress



upon the readers the importance of working to get them. After a few trials it will be an easy thing to get them, for they are dependent upon only two conditions:—First, the height of the flash, which has been mentioned; second, upon the facing of the subject to or from the light. If the operator has chosen the wrong station when he placed the flash at spoke "2," as, for example, he may have gone far to one side, it will cause the light to fall more to the rear of



subject than it should to get the light in the eyes. Remember to take the station first, and have the subject turn from the operator until the ear on the far side of the face is just out of sight, and if the flash is placed at this point the light will fall in both eyes. If it falls in one eye, and that is the eye on the side next to the flash, but does not fall in the shadow eye, it shows that the flash was too far toward the rear of the subject, but not too high. If it does not show in either eye it shows that the flash was too high. With a little study this feature of the work can be understood, although it may seem rather difficult at first reading.

To secure the best results the flash and the pressure of the bulb releasing the shutter should be simultaneous. To have it so, all that is necessary is to have a "Y" made of hollow brass tubing, about the size of the rubber tubing used on the bulb. This "Y" can be made at any tinkers', and each prong of it should be about two inches long. When ready to make the exposure the rubber tubing leading from the shutter should be slipped over one prong of the "Y" and the tubing leading to the lamp (this is assuming that a flash lamp is to be used, and not sheets) should be slipped over another prong of the "Y" and a tube should lead from the bulb to the remaining prong of the "Y." This makes it possible to press the bulb, and both the lamp and the shutter flashed and exposed at the same time. The shutter should be standing on "bulb pressure" if it be one of the automatic pattern. About one teaspoonful of any flash powder will be right for a 5 x 7 plate.

If the flash sheets are to be used they should be pinned on a board in such a way that one will ignite the other, so that all may be burned in the exposure. The more exposure necessary the more of the sheets will have to be used. Pin them over the board so that the corners will lap over each other, and when the exposure is to be made open the shutter and ignite the lowest sheet at the corner. All other light should be closed out of the room, if the sheets are used, as they burn longer than flash powder, and a move may result, especially if the subject be a little nervous. The board containing the sheets should be stationed at the spoke marked "2," as described above, and should be raised above the head as mentioned in connection with the lamp. In fact, all directions for working the sheets are the same as though a flash lamp was used.

If the flash is to be made with one of the hand lamps or pistols that are advertised, everything should be the same, except the operator will have to hold the flash in his hand, but it should be done from the same station or spoke, and at the same height as explained in connection with the lamp. All flashes should come from the same direction, it matters not what medium is used to get them. The developing of plates is the same, except that a flash starts as though it were under-exposed. But leave it alone and it will come out all right. Few flash lights are ever over-exposed. If such a thing should occur, treat the negative the same as though it was made by daylight.

#### THE PHOTOGRAPHIC CONVENTION AT HEREFORD IN JULY.

The following is the preliminary announcement of the programme of the Convention at its forthcoming meeting in July next under the presidency of Mr. Alfred Watkins, J.P. The General Secretary of the Convention, Mr. F. A. Bridge, East Lodge, Dalston Lane, London, N.E., will send a copy of the programme to any photographer anxious to take part in the Convention.

MONDAY, JULY 15.

*Morning.*—Conducted parties to places of interest in and around the City.

*Afternoon at 2.30.*—The members will be welcomed to the City by His Worship the Mayor, Mr. G. J. Caldwell, J.P., who will be supported by members of the Town Council, the President, J. S. Arkwright, Esq., M.P., and Committee of the Herefordshire Photographic Society, and members of the Woolhope Club.

*At 3 o'clock.*—The President, Mr. Alfred Watkins, J.P., will deliver his inaugural address, after which the following paper will be read:—"Microscopical Researches on the Gelatine Film," by Dr. V. Scheffer.

*Evening at 8.*—Conversazione. Official reception by the Mayor of Hereford. Exhibition of pictures and apparatus, musical promenade, refreshments, etc.; also an exhibition of Hereford City Insignia,

plate and ancient charters, which will be specially arranged by Mr. W. T. Carless, the Hon. local Secretary.

TUESDAY, JULY 16.

*Morning.*—Excursion by brakes to Weobly and Pembridge.

*Evening at 8.30.*—Annual General Meeting, to be followed by a meeting of the New Council.

WEDNESDAY, JULY 17.

*Morning.*—Visit to the cathedral, the markets, churches, hospitals, etc.

*Afternoon.*—The President and Mrs. Watkins' "At Home," at the Vineyard Croft. Boating, punting on the Wye, cattle studies, woodland bits. The official Convention Group, etc.

*Evening at 7.*—Annual dinner at the "Green Dragon Hotel."

THURSDAY, JULY 18

*Morning.*—Excursion to Ludlow, Stokesay, etc.

*Evening at 8.30.*—A paper by Mr. E. J. Humphery—"A New Aid to Pictorial Photography."

FRIDAY, JULY 19.

*Morning.* Excursion to Goodrich, etc.

*Evening at 8.30.*—A lecture, entitled "The Romance of Insect Life," by Mr. F. Martin Duncan.

SATURDAY, JULY 20.

*Morning.*—Half-day excursion to Ledbury.

*Place of Meeting.*—By the courtesy of the Corporation of Hereford the use of the handsome Town Hall and a suite of rooms have been placed at the disposal of the Convention for the week.

*Exhibitions.*—The usual Trade Exhibition of apparatus, pictures, etc., will be held, and every effort will be made to render it attractive and up-to-date. Demonstrations of new processes will be arranged if possible.

The City of Hereford is rich in ancient charters and documents from the time of Richard I. It also possesses a fine collection of old and valuable plate, etc. The Exhibition therefore, which will be arranged by Mr. W. T. Carless, should be of exceptional interest.

There will also be an exhibition of photographs by members of the Herefordshire Photographic Society, the series including views of many of the places to be visited during the meeting.

*Hereford Cathedral.*—The Dean of Hereford (the Hon. and Very Rev. J. W. Leigh, D.D., F.S.A.), will arrange to meet the members at the Cathedral on Wednesday morning, July 17, and will see that the many attractions are pointed out. Members wearing their badges will be permitted to photograph in the cathedral at any time during Convention week, except when there is a service.

*Excursions.*—The excursions will be inexpensive, and ample time will be allowed for photography.

*Professional Photography.*—A desire having been expressed that professional photographers attending the Convention should have opportunities afforded them for informal chats on business matters, a special room at the Town Hall will be provided for this purpose on Thursday and Friday evenings, July 18 and 19, at seven o'clock.

*Accommodation, Etc.*—For further particulars, list of hotels, apartments, dark rooms, dealers, etc., etc., see the Official Illustrated Handbook, which will be issued to members as soon as possible.

#### SURREY PHOTOGRAPHIC SURVEY.

The Mayor of Croydon (Mr. H. Keatley Moore) presided on Saturday last at the annual meeting of the Photographic Survey and Record of Surrey, held at Croydon Town Hall. During the year three hundred and seventy-one photographs were added to the society's collection, bringing the total to two thousand three hundred and forty. The Mayor urged members to specialise in their photographic work, so as to enhance the value of the collection of prints for public reference. On the motion of Mr. Hector Maclean, the Croydon Public Libraries Committee was heartily thanked for the practical assistance and encouragement given to the society. Mr. Maclean thought it possible by extra effort to secure an average of one thousand prints yearly for the collection.

KIDDERMINSTER PHOTOGRAPHIC SOCIETY.—Mr. W. Weaver Baker, Westcliffe, Chester Road, has been appointed honorary secretary in succession to Mr. G. F. Griffin, who has taken over the treasurership.

## JONATHAN FALLOWFIELD—THE FIRM'S JUBILEE.

THE house of Fallowfield is to be congratulated on having completed an honourable record of more than fifty years of photographic material dealing. The original business was started in 1855 as a chemist's by Mr. Jonathan Fallowfield, who was, we believe, the first to sell the ferrotypes, which had been introduced from America the year before. The records of these early days are scanty, but it is interesting to note that in 1870 the commercial side was restricted solely to goods and cameras for ferrotypes and wet plates only, and even in 1880 sensitised paper was ordered by the firm in ten-ream lots. The business of Jonathan Fallowfield from its earliest days may be said to have been an outward and visible sign of photographic progress, and the catalogues issued by the firm will doubtless provide material for future historians anxious to obtain a bird's-eye view of photography as practised in any given period. The present writer recollects how his first materials for photography were selected from the red-covered list of the firm of Fallowfield, issued in 1887, a volume which, with succeeding editions, has at length attained a size and copulency, the equal, if not the superior, of any other annual publication.

In 1888 the entire business was bought by Mr. F. W. Hindley, and two years later the photographic portion was removed from the Marsh, Lambeth, to the present address; the chemist part was sold, and still remains on the original spot. The business is now under the management of Mr. Duncan Hindley, who with his father has evidently preserved the happiest relations with their staff, if the proceedings on Monday last may be taken as expressive of their feelings. To mark the successful completion of half a century's steady progress a dinner and smoking concert was held at Frascati's Restaurant.

Mr. F. W. Hindley presided at both events, and at the dinner his guests included Messrs. Kemp Welch (Iford, Ltd.), W. Fullicks, Frank Johnson, A. E. Staley, T. K. Grant (Lumière, N. A., Co.), Ernest Whitfield (Paget Plate Co.), Charles Winter (Imperial Plate Co.), S. Herbert Fry, A. Horsley Hinton, P. R. Salmon, F. J. Mortimer, H. Snowden Ward; and of the firm, Messrs. F. Duncan Hindley, F. J. Goode, W. C. Hardiman, Traise, Wallach, Bennett, Weeks, Ingle, Preece, Sadler, Goulding, Woodward, Fellowes, Fitch, Collis, Podger, Boxall, Carpenter, Marshall, Berry, Collins, Myer, and Trendell.

Notes and telegrams of congratulation were read from Messrs. Jonathan Fallowfield, A. Harman, R. Child Bayley, J. B. B. Wellington, A. Hall, S. H. Wratten, A. C. Brookes, George E. Brown, and Dr. Acworth.

After dinner the time was short, but half a dozen toasts were drunk with enthusiasm, the list, with proposers and responders, being: "The King, Queen, and Royal Family," the chairman; "The Firm," Mr. H. Snowden Ward, Mr. F. W. Hindley; "The Staff," Mr. F. Duncan Hindley, Mr. F. J. Goode; "The Trade," Mr. A. Horsley Hinton, Mr. C. Winter; "The Press," Mr. S. Herbert Fry, Mr. P. R. Salmon; and "The Chairman," proposed by Mr. A. E. Staley.

The chairman, in a most interesting reminiscent speech, said that he believed the business had been built entirely upon the old-fashioned principles of honest trading, promptitude, and consider-

ation of customers' wishes. He rejoiced in the earnest support of a loyal staff, not one member of which had come away from any other photo-material business.

Mr. Duncan Hindley, who fully shares his father's popularity, said that while there was one member of the staff (Mr. F. J. Goode), with a record of twenty-five years' service, and another (Mr. Fellowes) with twenty-two years, it was a young staff, for the average age was under thirty, although the average length of service of the members was over eleven years. There were seven members with more than fifteen years' service, and of the nine departments into which the business was divided, every head had been with the firm for over eleven years.

For the concert, a capital varied programme had been arranged by Mr. Willie Rouse, under a committee consisting of Messrs. H. W. Fitch, F. J. Goode, W. C. Hardiman, H. J. Traise, and F. E. Trendell, with Mr. F. Duncan Hindley as hon. sec., and Mr. J. C. Preece as hon. assistant sec. The whole proceedings were marked by the greatest heartiness, and the roof seemed like lifting when



The Fallowfield Jubilee, March 18, 1907. Photograph of the Dinner by Jacks & Co., Glasshouse Street, W.

the whole party, of some three hundred and fifty, gave "musical honours" to Mr. F. W. Hindley, on the proposal of Mr. Fellowes, seconded by Mr. Hardiman.

## PHOTOGRAPHIC SURVEY OF SUSSEX.

THE annual meeting of the Photographic Survey and Record of Sussex was held at the Brighton Public Library on March 12, the Mayor of Brighton (Councillor Gervis) presiding. The report of the Survey has already been given in our columns, and it is therefore unnecessary to say more than that it was adopted at the meeting, and that appreciation was expressed of the labours of the officers, and in particular of those of Mr. J. C. Stenning, the originator of the Survey, who has acted as its honorary treasurer. At the present time 750 photographs have been secured, 1,100 negatives, and 300 lantern slides, all of which are to be deposited in the Brighton Free Library. It is satisfactory to note that the services of Mr. H. D. Roberts, librarian to the Brighton Municipality, have been retained, he having consented to act as honorary curator and to catalogue and re-arrange the specimens as soon as they are placed in his charge. The Brighton Corporation has voted a small sum of money for the provision of cases in which the photographs and negatives are to be preserved.

In the course of the discussion which followed the Mayor's speech, suggestion was made by Councillor Griffith that in addition to the



photographic survey, phonographic records of the Sussex dialect should be obtained.

The officers for the forthcoming year were elected, and it was stated that the Duke of Norfolk, who is abroad, had been invited to become president.

#### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

The annual general meeting of the Professional Photographers' Association was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, March 8, Mr. Martin Jacolette in the chair.

The report of the Committee was read.

##### REPORT OF THE COMMITTEE.

The most notable feature of the past year has been the evidence of increasing interest in the Association, and recognition of its usefulness to the profession, afforded by the influx of new members. During the twelve months covered by the present report, 77 new members have been admitted. This compares with 53 for the period of seventeen months covered by last year's report. There have been 22 losses through death or from resignation, members having given up business or removed, leaving no address, and 50 members have failed to pay their subscriptions for two years after eight applications. The total membership is therefore 524.

In accordance with the notification made at last year's annual general meeting, a sub-committee, appointed by the Committee, fully considered the position of the assistants' certificates scheme, and, in accordance with their report, the Committee sanctioned the institution of a new kind of certificate to be known as the general assistants' certificate, and, in order that no one should be deterred from application on the ground of not being able to afford the expense, the inclusive fee was fixed at one shilling. The Committee now regret to report that their scheme met with so little support at the hands of assistants, that the expense of continuing the weekly advertisement was deemed unjustifiable, and it was withdrawn.

At the invitation of the Editor of THE BRITISH JOURNAL OF PHOTOGRAPHY, the Committee organised a small exhibition of members' work, which was held at the Gallery attached to the office of the JOURNAL, from October 11 to November 10, last year. There were seventy-nine exhibiting members, each sending one work. The character of the work exhibited was rather severely criticised in some quarters, but on the whole, not unjustifiably. In some respects the conditions it was thought necessary to make in a first exhibition of the kind were not conducive to a strong exhibition, but on the whole the experiment was sufficiently successful to make it worth while to make another attempt during the present year should opportunity occur.

The number of applications from members for advice and assistance in business difficulties continues large, and in most cases the aid of the Association has enabled the difficulty to be met successfully.

The new Copyright Bill promoted by the Artistic Copyright Society is calculated to curtail the privileges of photographers with regard to their copyrights considerably. A sub-committee is now actively engaged in negotiations with that Society with a view to equitable treatment of photographers in the Bill to be presented to Parliament; but it is necessary to warn members that the apathy of photographers generally in a matter that so intimately concerns their interests, seriously impairs our representatives' authority. The opposing interest, that of the illustrated press, is an extremely powerful one, and to enable us to combat it successfully requires at least that photographers should show an intention of fighting for their rights.

During the year the Transvaal Professional Photographers' Association has been formed, and the Committee have established corresponding relations with it with a view to mutual assistance.

Arrangements are now being made with the Fine Art and General Insurance Company for insuring the risks of members under the Workmen's Compensation Act, 1906.

The Committee, mindful of the injury done to photographers arising on legitimate business, by the system of canvassing for free enlargements, etc., have made strenuous endeavours to find means to combat an evil. Their efforts have been of little effect on account of the impossibility of inducing photographers whose businesses are affected to assist them in any way. For instance, an

offer to provide handbills calling attention to the nature of the free portrait swindle, for distribution, which appeared in the January "Circular," was only responded to by one member.

The death of Mr. William Grove, Hon. Treasurer and Secretary, which took place early in the year under review, deprived the Committee of a friend whose counsels were always wise and the Association of an officer whose labours in its interest cannot be overestimated in value.

The thanks of the Association are due to the Royal Photographic Society for allowing the meeting to take place at their house, and to the Editor of THE BRITISH JOURNAL OF PHOTOGRAPHY for publishing notices, reports, and other information relating to the Association. The Committee also wish to express their indebtedness to the Hon. Solicitor, Mr. Percy E. Marshall, for the valuable assistance he has rendered them.—By order of the Committee,

ALEXANDER MACKIE, Hon. Secretary.

In the course of the discussion thereon, the Hon. Secretary said that since the publication of the last "Circular," in which the terms for insurance under the Workmen's Compensation Act offered the members by the Fine Art and General Insurance Company were published, a communication had been received from the company in which they proposed to modify the method of charging. Under the new method the minimum would be 5s., subject to the usual allowance to members upon the aggregate wages and salaries paid.

Mr. Ellis pointed out that one of the advantages of the percentage (on the gross salaries) system was that it would cover casual or season engagements.

A discussion, in which several members took part, ensued upon various points and details regarding the Act.

In reference to a subject dealt with in the report—the free portrait swindle—the Hon. Secretary said:—Of course the members had noticed that the Association was continually dealing with the free portrait swindle. A great many complaints had been received from members in connection with this and requests for assistance. In answer to these requests he was accustomed to write:—"If you can get an actual case of fraud the Committee will take it up," but in no case had he received a reply to his letter. In the January number of the "Circular" an offer was made to print a circular notice calling the attention of the public to the swindle, and supply members with copies at practically the cost of the paper. One member only replied asking the cost of the circulars. He had, however, recently received a letter from Mr. Greenway, of Northampton, from which it would appear that the photographers of that town had combined and were taking action in the matter, and that they would probably succeed. The following advertisement had been inserted in the local papers:

#### FREE PHOTOGRAPHIC ENLARGEMENTS.

ANY NORTHAMPTON RESIDENT who has ANY GRIEVANCE against the OUTSIDE FIRMS who are "Working" this Town with their so-called "Free" Enlargements, are REQUESTED to COMMUNICATE with the undersigned Members of the Professional Photographers' Association of Great Britain—the Executive of which is combating this unfair competition.

(Here followed the names of six local photographers.)

It had been suggested to the Associated Northampton Photographers that they should vary the terms of their advertisement from time to time, and that they should also refer to the Secretary of the Professional Photographers' Association as willing to give advice, and, if necessary, supply legal assistance in cases of fraud. A good suggestion has been made at one of the Committee meetings that the Association should be prepared to supply a letter addressed to the editor of the local paper for publication in the correspondence columns calling attention to the nature of the swindle. This matter was in hand, and in a few days copies of the letter would be available for use in the way indicated.

With regard to the new Copyright Act, members were aware of the fact that in the Bill being promoted by the Artistic Copyright Society, as it stands at present, it was made a condition of copyright, as regards photography, that every photograph issued should be marked with the names of the proprietors of the copyright, the date it was taken, and the letter "C," and that there would be no infringement if the person reproducing the photograph could show that he relied on an unmarked copy, and that he had no knowledge that the photograph was copyright. The difficulties attached to obligatory marking would be obvious to all. In the first place, a

photograph was the only kind of work subject to artistic copyright which could not be marked by the same process used in its production. A painting could be marked in paint, an engraving, which must be printed with a margin, could have the mark engraved on the margin, and so on; but to mark a photograph entailed an after process, involving trouble and expense. Further causes of objection to the proposed system was that a photograph had no natural margin. The mark would naturally be placed as near the margin as possible to avoid disfiguring it. To trim the mark off would be easy, and no one into whose hands the trimmed print fell could tell whether or not it was issued in the state it then appeared. In that case practically the unfortunate proprietor would have no remedy. Amicable negotiations are being conducted with the Artistic Copyright Society, and it was hoped a compromise would be arrived at satisfactory to all interested.

The report was then adopted.

The Hon. Treasurer, Mr. Lang Sims, brought forward a statement of accounts which showed that the Association was in a sound condition financially.

The following were then elected officers of the Association for the ensuing year:—

President: Henry Chas. Spink (Brighton).

Members of Committee:

London.	Country.
Bridge, F. A.	Abraham, G. P. (Kewick).
Ellis, Alfred.	Bacon, W. H. (Newcastle).
Elliot, Ernest C.	Birtles, T. (Warrington).
Fry, Herbert S.	Chapman, J.P., H. A. (Swansea).
Hull, H. Edmonds.	Comley, Hy. J. (Stroud).
Mackie, Alexander.	Gill, Wm. (Colchester).
Mendelssohn, H. S.	Lankester, P. (Tunbridge Wells).
Prodger, Daniel.	Moffat, F. P. (Edinburgh).
Scamell, Edgar.	Mowll, A. F. (Liverpool).
Sims, Lang.	Robinson, R. W. (Redhill).
Skillman, C. H.	Rowe, T. (Eastbourne).
Willson, R. Fellows.	Turner, T. C. (Hull).

In vacating his seat, the retiring President congratulated Mr. Spink on his election, and wished him a happy and prosperous year of office. Mr. Spink then took the chair, and was invested with the President's Badge.

The President returned thanks for the honour the members had conferred on him, and said the pleasing duty devolved on him of asking Mr. Jacolette to accept a replica in gold of the central portion of the President's Badge as a souvenir of his year of office, the gift of the members of the Committee. Mr. Jacolette thanked his fellow members in suitable terms.

Messrs. Frank Turner and C. St. J. Vaughan were elected auditors of accounts.

An alteration of Rule 12, by the omission of the final words "at nine o'clock," was proposed by Mr. Lang Sims and carried.

Votes of thanks to the retiring President, to the other officers, and Committee, and to the auditors, and the responses thereto, closed the proceedings.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between March 4 to March 9:—

**FLASHLIGHT APPARATUS.**—No. 5,171. Improvements in gas flashlight apparatus. Ernest Wagnmuller, 3, Stubenrauchplatz, Steglitz, Berlin.

**TELEPHOTOGRAPHY.**—No. 5,187. Process and apparatus for the electrical transmission of half-tone photographs, drawings, etc., Henri Carbonelle, 111, Hatton Garden, London.

**CAMERAS.**—No. 5,308. Improvements in portable or hand photographic cameras. William Watson, 45, Chestnut Walk, Walthamstow, London.

**TRIPOD HEAD.**—No. 5,371. Improved turntable head for camera tripod. Charles Henry Mills, 95, Day's Road, Bristol.

**LENSES.**—No. 5,406. Improvements in photographic and projection lenses. Conrad Beck, 68, Cornhill, London.

**CAMERAS.**—No. 5,411. Improvements in photographic cameras. Arthur Lewis Adams, 26, Charing Cross Road, London.

**GLAZING PRINTS.**—No. 5,413. Improved process and means for pressing or glazing prints, pictures, photographic, and other papers and the like. Benno Borzykowski, 37, Chancery Lane, London.

**TRIMMING PRINTS.**—No. 5,500. Improvements in apparatus for cutting or trimming photographic or other prints. John Ashton Mann, 11, Southampton Buildings, London.

**CINEMATOGRAH LENSES.**—No. 5,504. Improvements in cinematograph lenses for wide angle work. Robert Alfred Ives, The Northampton Institute, London.

**TELEPHOTOGRAPHY.**—No. 5,514. Improvements in the reproduction of drawings and the transmission of pictures by telegraph. Sherard Osborn Cowper Coles, 82, Victoria Street, Westminster, London.

**TELEPHOTOGRAPHY.**—No. 5,635. Improvements in the transmission of pictures and messages. Sherard Osborn Cowper Coles, 82, Victoria Street, Westminster, London.

**COLOUR PHOTOGRAPHY.**—No. 5,692. Improvements in the production in colour of pictures of an object photographed by means of a combination of photography with a particular four colours in pigments or dyes. George Woodiwiss, Sunbridge Chambers, Bradford, Yorks.

**TELEPHOTO LENSES.**—No. 5,719. Improvements in telephoto lenses. Owen Wheeler, 68, Cornhill, London.

**PICTURES.**—No. 5,726. Improvements in the production of pictures. Sherard Osborn Cowper Coles, 82, Victoria Street, Westminster.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

**COLOUR PHOTOGRAPHY.**—No. 4,932, 1907. Method of producing photographs in natural colours. Brasseur.

## New Trade Names.

**WELLINGTON.**—The design of a label, including the words "Wellington Slow Contact Paper, S.C.P." To be kept dry. Open in weak artificial light. Manufactured by Wellington and Ward, Elstree, Herts. Photographic Paper. Wellington and Ward, The Elms, Shenly Road, Elstree, Herts. November 28, 1906.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Flower Portraiture.

Mr. Lionel Haweis, in recommending flower portraiture as an effective method of learning the principles of lighting, writes, in the elegant Spring Number of the "Amateur Photographer":

"The room I hired had but one window, set almost in the corner of it. . . . Parallel with the window, and lengthwise, I placed an ordinary deal table, the narrow end up against the partition wall, so that the centre of the table measured about four feet from my only source of light. Then I tacked a white uncreased sheet of paper to the partition wall two feet above table level, to hang against the wall down on to and along the table in the direction of my quarter-plate camera, perched, if you will, on some books. By this simple means I accomplished a capital continuation background."

"My attention was next directed to the window, which I curtained first with white muslin from top to bottom, and over that with dark blue sateen in two sections—one curtain for top light, and one for side light—to slide with small rings along wires. The light I then found was entirely under control."

### Photographing Boating Crews.

The best position, in my opinion, to take an eight in action (writes M. Alphonse Abrahams, in the "Photographic News," for March 15) is from a bridge, pointing the camera down to the water. The chief difficulty encountered is the distance that boat must necessarily be from the camera, so that it is absolutely essential to use a long focus lens. If a bridge does not occur in any part of the course the boat will traverse, the snap must be made from a bank, and it is well to avoid a high bank, since a picture from a small height



above the water, say, 10 or 12 feet, does not look well, and tends to exaggerate any unæsthetic peculiarities of the oarsmen. In this connection I would say snap at the beginning of the stroke rather than at the finish. Snapping a boat on the level involves only one difficulty, and that is uncertainty of focus. You can never be sure exactly which part of the river the eight will traverse, and the best plan is to carefully watch the course on one day and proceed next day to photograph at the same spot. A good cox steers an ideal course almost daily, so that you may be pretty sure he will not be far out two consecutive days. Another good plan is to follow the crew on a bicycle till they "easy," then run in front for forty or fifty yards. From the direction of the boat's bows you can determine the course it will take past you.

#### Altering Backgrounds in Portrait Negatives.

The best plan (writes "Præcious," in "Photography," for March 9) is to make a print on glossy bromide, getting the figure the right strength, and ignoring altogether the darkness or lightness of the background. It is to be covered up, so it does not matter. Instead of making a contact print, an enlargement three or four times (linear) the size of the original negative makes the work easier and the final result better. Next, some "body colour" must be mixed up. This is made by adding to a thick cream of Chinese white a little neutral tint water colour, the white being necessary to form a body colour—that is to say, an opaque colour which will not allow anything underneath it, whether lighter or darker, to show through. With a fine brush the figure is carefully outlined with this body colour, taking great care not to trespass on the figure itself to the slightest degree, and then with a bigger brush the rest of the background may be covered up. Plenty of colour should be put on, and allowed to get thoroughly dry. The enlargement or print is then fixed up in a good light and photographed down to its original size again, and from the negative so made any number of prints can be got in the usual way. This process gives much better results than can be obtained from mere blocking out of the negative.

#### Controllable Control.

Shielding by means of thin pieces of wood or card (writes Mr. F. W. Bennett, in "Focus") forms the most simple means of modifying negatives during printing. And the difference that can be produced by simple shielding is very great. The card can be supported above the printing frame, the height and arrangement depending on the effect desired. This method is simply vignetting, as adopted for many portraits. For this and the other methods of control illustrated, it is imperative that the printing should be done in a diffused light, and that the frame should be in a horizontal position.

The part of the negative uncovered by the card prints fully; underneath the card the action of the light gradually decreases until it almost ceases. The distance at which there is only a slight action depends on the height of the card shield above the surface of the negative. By regulating this height, any desired degree of softening may be obtained.

A small corner of the larger part of a negative may be shielded in this manner, according to the effect desired. Two shields may be shaped so as to follow the form of a prominent line in a landscape. As another example, a hole may be cut in a piece of card and the card supported over the frame so that the hole is just over a light spot in the picture.

#### CATALOGUES AND TRADE NOTICES.

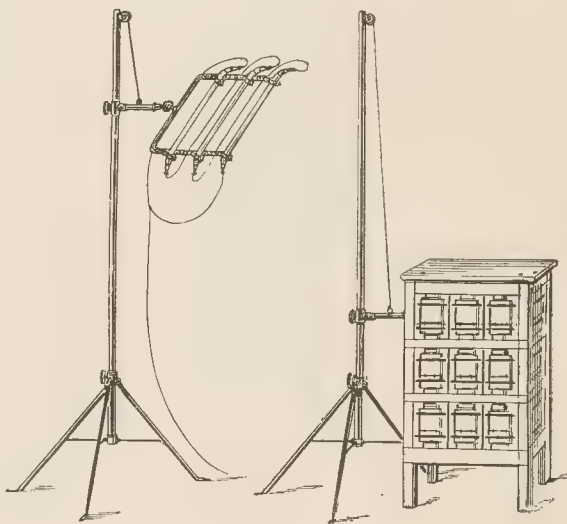
OUR Liverpool readers should make a note of the new list from that popular purveyor of photographic supplies, Mr. Fred V. A. Lloyd, of 15, Lord Street. The list makes a judicious selection of the most approved apparatus, and gives particulars of the developers and printing enlarging obtainable from Mr. Lloyd.

ESSERY, HOSKING, AND CO., LTD.—Registered March 8. Capital 400, in £1 shares. Objects: To acquire the business carried on at 4-5, Morley Street, Plymouth, by W. Essery, and to carry on the business of chemists, druggists, patent medicine vendors, manufacturers of medical, surgical, and photographic appliances, etc. No initial public issue. Registered without articles of association.

## Dew Apparatus, &c.

The Tress Mercury Vapour Portrait and Printing Lamp. Made by the Tress Company, 42, Oxford Street, London, W.

The Tress Company, which has long made a special feature of incandescent gas lamps for photographic portraiture, has now shown its readiness to supply photographers with a more modern and complete installation of artificial light. The mercury vapour lamp which it is now introducing consists of a three-tube frame mounted on a strong, yet portable, standard, which permits of the lamp being raised to a height of ten feet or lowered to within three feet of the ground, a range which should be sufficient for all ordinary purposes. The outfit is supplied complete with all the necessary accessories, such as plugs and resistances, and even includes a supply of polarity paper for ascertaining that the lamp is being correctly connected in the circuit. From a selection of portraiture made with the lamp, we have every reason to be satisfied with its performance in practice, and the Tress Company very rightly draws attention to the great economy in current from using the mercury vapour system. With the lamp now under consideration, and employing current at the power rate, the cost per hour is frequently only one penny, and may be as low as one halfpenny.



A very excellent feature of the apparatus is the arrangement by which the reflector is secured to the lamp frame. This is done in such a way that the reflector is instantly removable, and the lamp can then be inserted in the printing stand, containing, as usually supplied, eighteen printing frames of half-plate size and three of whole plate, although these numbers can be modified within certain limits to suit the customer's choice. The printing stand is very neatly made, each of the frames being held firmly in position between a rabbit on the side facing the lamp, and a stop on the outside of the stand. The frames, therefore, cannot slip into the inside of the apparatus and accidentally cause the fracture of a tube. Each frame has simply to be sprung into place, and the replacement of the frames when taking off prints is consequently done very expeditiously. The prices of the above excellent apparatus are £8 17s. 6d. for the portrait lamp, tubes, and accessories, and £2 15s. for the portrait stand complete with printing frames—prices which, for the facilities which are offered, are admittedly very reasonable indeed.

THE SWINCAM TRIPOD POINTS.—Mr. William Butler, of 20, Crosby Road, Southport, whose "Swincam" camera stand we were able to review favourably some months ago, is now supplying separately the adjustable tripod points which form a feature of his apparatus. The chief purpose of the attachment is to give stability to a tripod, even when the legs are considerably spread out in order

to secure a low point of view, or for other reasons. Under these circumstances, the small angle between the point of the tripod and the ground on the inside of the leg makes the stability of the stand very slight indeed, and many photographers know to their cost that in such a case the slightest touch will displace one of the legs. Mr. Butler gets over this difficulty very simply by hinging the tripod point so that though the leg itself is at a small angle the point may be exactly perpendicular to the ground. For working in interiors of buildings, and wherever a hard surface is the only resting place for the tripod the attachments should be extremely useful. The tripod, of course, under all other circumstances is at no disadvantage from the attachments. The price of a set of three points complete, with a gimlet enabling the purchaser to fit them, is 10s. 6d.

**The Ever-Full Bottle.** Sold by Messrs. Marion and Co., 22 and 23, Soho Square, London, W.

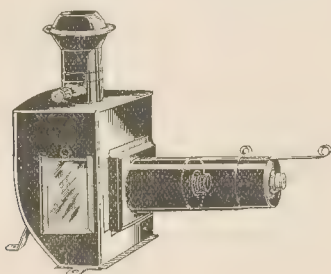
This piece of apparatus is supplied by Messrs. Marion with the object of obviating the storage of photographic solutions in contact with air, the prejudicial effect of which, particularly upon solutions of sulphite, is universally acknowledged. The principle of the bottle consists very simply in the provision in the bottle of an elastic bladder which can be distended from time to time, as the liquid



is removed, so as to expel the air and bring the fluid contents of the bottle level with the neck. The plug passing through the cork which is seen in the drawing is removable to allow of the solution being poured from the bottle, the glass tube with the flexible connection being employed to expand the bladder in order to make up for the space vacated by the fluid.

**An Enlarger for Wet Negatives.** Made by the Tress Co., 42, Oxford Street, London, W.

A very handy and inexpensive piece of apparatus has been produced by the Tress Company in this newly-introduced enlarger. A



chief novelty of the instrument lies in the carriers. These are made to take negatives of the strip form as used in midjet cameras, or may be obtained to accommodate parts of quarter, or half-plates of the sizes usual in making photographs in repeating backs. In any

case the carrier permits of the negative being placed in focus while in a wet state, and of its being removed without injury. The illumination chamber is provided with an inverted incandescent burner with a reflector which fully illuminates the stage in which the negatives are held. The focussing arrangement is simple yet effective, and the whole apparatus, complete with lens, costs 17s. 6d. It is screwed to the enlarging table, and the sensitive paper or postcard is affixed to any convenient easel or board.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, MARCH 22.

Wakefield Photographic Society. "Enlarging on 'Rotograph' Bromide Paper, including Chat on Toning Bromides."  
Sutton Photographic Club. "Carbon Printing." A. P. Hoole.  
Liverpool Amateur Photographic Association. Opening Reception.  
Cardiff Photographic Society. "The Early Scenes of Christianity in Wales."  
F. Murphy.  
Photographic Society of Ireland. "The Origin of Irish Landscapes." Professor  
Glenville Cole.  
Loughton Photographic Society. "Exposure." L. A. J. Hutchins.

SATURDAY, MARCH 23.

Photo Art Club. Backsburn House.

MONDAY, MARCH 25.

Preston Camera Club. General Meeting.  
Southampton Camera Club. "All at Sea with a Hand Camera." F. J. Mortimer.  
F.R.P.S.  
Gravesend and District Photographic Society. "Ozobrome." A. E. Swift.  
Oxford Camera Club. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Rotary Photographic Company.  
Stone and District Photographic Society. "What can be done with a Hand Camera." C. P. Goetz.

TUESDAY, MARCH 26.

Darlington Camera Club. "Flashlight Photography." R. W. Chapman.  
Redcar and Coatham Photographic Society. "Enlarging on 'Rotograph' Bromide Paper, including Chat on Toning Bromide."  
Hackney Photographic Society. "A Holiday in Wales." F. W. Goelling.  
Royal Photographic Society of Great Britain. "Some Methods of Red Sensitising Estimating Colour Sensitiveness. A Sensitometer for the X-rays." T. Thorpe.  
Baker, F.C.S., F.R.P.S.  
Birmingham Photographic Society. "The Three Colour Process." J. B. Fry.  
M.A., B.Sc.  
Hove Camera Club. "Architectural Photography." V. E. Morris.  
Stafford Photographic Society. "Working-up Enlargements." F. Weiss.  
Keighley and District Photographic Association. Yorkshire Union Portfolio.  
Wallington Camera Club. "Marine Photography."  
Burton-on-Trent Natural History and Archaeological Society. Exhibition and Competition.  
Leeds Photographic Society. "The Story of Fountains Abbey." T. W. Thornton.

WEDNESDAY, MARCH 27.

Everton Camera Club. "Intensification." C. R. Stonehouse. "Sanzol Reduction." W. Tansley.  
Leicester and Leicestershire Photographic Society. "Flower and Fruit Photography." E. Seymour.  
Borough Polytechnic Photographic Society. "A Demonstration of the Gun Bichromate Process." J. C. S. Mummery, F.R.P.S.  
North Middlesex Photographic Society. "The Mansions of Old England." H. Fincham.  
Birmingham Photographic Society. "Spotting and Working-up Prints." Fred Lewis.  
Croydon Camera Club. "The Pictorial Side of Orthochromatism." F. W. Hild.  
"The Development of Colour-Sensitive Plates." E. J. Terry.  
Cowes Camera Club. "Latest Kodak Productions."  
Hartlepool Photographic and Sketching Society. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Edinburgh Photographic Society. "Photographic Odds and Ends." J. Johnston.

THURSDAY, MARCH 28.

Hull Photographic Society. "Photographic News Slides."  
Handsworth Photographic Society. Question Evening.  
Tynemouth Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."

**ROYAL PHOTOGRAPHIC SOCIETY.**—Meeting held Tuesday, March 19, the president, Mr. J. C. S. Mummery, in the chair. A lantern lecture was given by Mr. A. H. Dunning, on "A Year and a half among Savages." On the proposition of the chairman, a hearty vote of thanks to Mr. Dunning was accorded at the conclusion of the lecture.

**PHOTOGRAPHIC SOCIETY OF INDIA.**—The following officials and committee have been elected:—Dr. Pearse, Chairman; Mr. W. J. Simmons and Mr. Aninos, Vice-Chairmen; Mr. E. M. Lane, Hon. Secretary; and Mr. W. J. Oliver, Treasurer. The affairs of the society should prosper in such excellent hands. The date of the annual exhibition has not yet been fixed, but the very excellent display at the Lady Minto Fête showed that the society had not been idle.

**CROYDON CAMERA CLUB.**—In the opinion of all present, by far



the most instructive lecture on "Orthochromatism" ever heard at the club, was given by Dr. Mees on the 13th inst. Although exhaustive in character, it was intentionally elementary in treatment, the general principles underlying the subject being dealt with in a way easily understandable by the veriest beginner. We are informed that the essential features of the lecture will be embodied in a pamphlet shortly to be issued by Messrs. Wray, and doubtless many will be glad to secure a copy.

A capital "One-man show," by Mr. F. W. Hicks, chiefly of marine subjects, executed in plantinotype and carbon, has lately been on exhibition. Mr. Hicks manages to retain in his enlarged negatives the somewhat indefinable and subtle "quality" generally associated only with direct work, and to infuse into his pictures a delightful sense of atmosphere and distance.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—On Monday last Mr. Henry W. Bennett's lecture on "A Visit to the English Cathedrals" was read by the hon. sec. A concise history of English Gothic architecture was given, tracing the development of the various styles from the severe and heavy Early Norman through the graceful Early English to the culminating point in English Gothic. A large number of Mr. Bennett's fine pictorial slides were also shown, illustrating every phase of Romanesque and Gothic architecture.

**EDMONTON AND DISTRICT PHOTOGRAPHIC SOCIETY.**—The Second Annual Meeting of the above Society was held on the 13th inst., the chair being taken by the president, Mr. S. J. Solly. There was a good attendance of members. After the minutes of last meeting had been read and confirmed, and the council's report for the year had been read and adopted, the election of president, council, and officers for the ensuing year took place, when Mr. William Quin was unanimously elected president, and Messrs. Biss, Atkinson, Colville, Bennett, Barnes, Day, Herand, and Holmes, as members of the council; Mr. A. E. Worfolk, as secretary (and treasurer pro tem.); Mr. Solly, librarian; and Mr. H. P. Clarke, lanternist.

After the usual votes of thanks had been accorded to Mr. Worfolk for his past services as secretary, Mr. Solly as past-president, and Messrs. Clarke and Atkinson for their services with the lantern, the meeting was brought to a successful close.

## Commercial & Legal Intelligence.

**CHARGE AGAINST A HULL PHOTOGRAPHER.**—A well-dressed, middle-aged man, named Walter Richards, was committed for trial at Hull on March 14, on a charge of robbing his employer of goods valued at £150. He was engaged as manager for Mr. Charles Wilson, a Newcastle photographer, who has a branch shop in Prospect Street, Hull. Mr. Wilson happened to go to Hull one day, and found his shop empty. Inquiries were made by the police, who discovered that about £100 worth of property had been stored with a shipping company, and another lot had been shipped to London. Richards pleaded not guilty, and reserved his defence. He maintained that the property was his own.

**BARRAUDS, LIMITED, PHOTOGRAPHERS, LIVERPOOL.**—A memorandum of satisfaction in full of a debenture dated November 15, 1905, bearing £300, has been filed.

**ART DEALER CHARGED WITH FRAUD.**—George Samuel Webber, aged 55, described as a fine art dealer, of Portland Road, Hove, Brighton, was charged on a warrant at the West London Court with obtaining money by false pretences. Mr. Pierron represented the accused.

Detective-sergeant Burrell stated that on Thursday afternoon he went to High Street, Rochester, where the accused was carrying on business as a photographic artist, and arrested him on the warrant. He accused made a long statement which the witness proposed to read at the next hearing of the case. He asked for a remand on that evidence, and intimated that there would probably be about fifty cases against the accused.

Mr. Pierron said the defendant had been carrying on business under the title of the International Fine Art Company, and he had over twenty branches throughout England. His business was the enlargement of photographs, and his habit was to allow customers to pay for such enlarged photographs by instalments, the photographs not being delivered until all the instalments had been paid. The only thing that could be brought against the accused was

that in some few cases out of thousands he had not immediately delivered the photographs on the final payment of instalments.

The magistrate remanded the accused, and postponed the question of bail to the next hearing.

**INDECENT PICTURES.**—At the Marlborough Street Police Court, on Tuesday, Henry Stanton Morley, who keeps a novelty bazaar in Tottenham Court Road, W., was summoned for exposing for sale indecent postcards in his shop window, and to show cause why they should not be destroyed. Mr. E. F. Barker prosecuted for the Commissioner of Police, and Mr. Freke Palmer appeared for the defence. Inspector Sewell, D Division, deposed that on the 22nd ult. he went to the shop of the defendant, where he found a number of indecent picture cards exposed for sale. There were several mutoscopes in the place, which had characteristic inscriptions on them, and which, when a penny was placed in the slot, exposed to view objectionable pictures. On one of the machines was written "What Tommy Saw Through the Keyhole," on another "Spoonng in the Park," a third bore the legend, "Matilda's Courtship," and a fourth had written on it "What the Butler Saw." Mr. Freke Palmer: "What the Butler Saw" is the name of a play. Surely there is nothing objectionable in that? (Laughter.) Inspector Sewell: Yes, I think there is in connection with these mutoscopes. Continuing, the inspector said that he seized 1,880 picture cards and 224 slides used in the mutoscopes. Mr. Freke Palmer said the defendant had only had the shop for about six months, and had no idea that he was doing any harm. He purchased the cards from wholesale dealers, and it was they who were the real culprits that should be proceeded against, and not little men like his client. One of the pictures which the police complained of was actually a copy of a well known work by Raffaele. Mr. Denman imposed a fine of £2, with one guinea costs, and made an order for the cards and slides to be destroyed.

## Correspondence.

- \**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \**We do not undertake responsibility for the opinions expressed by our correspondents.*

### BLISTERS ON BROMIDE PRINTS.

To the Editors.

Gentlemen,—Replying to the letter of Mr. A. W. Hutchins, if he puts a handful of powdered alum into his fixing bath and dissolves it properly he will not be troubled with blisters. I have tried it and it has never failed. If omitted, I always get blisters—on bromide postcards particularly.—Yours, etc.,

R. GALLAGHER.

### WEIGHTS AND MEASURES IN THE "ALMANAC."

To the Editors.

Gentlemen,—I have the "British Journal Photographic Almanac" for 1907, and have been reading the formulæ, and am at a loss to understand the weights. In the editorial formulæ, as I understand it, you purport to give English and metric weights side by side.

On page 990, under the head of "Carbon Process," you give "potassium bichromate 1 oz. or 35 to 50 grammes." In the next solution for the same chemical you give 1 oz. or 20 grammes. Then, on the same page, under the head of "Waxing Solutions," you give "Beeswax 20 grains or 10 grammes"; then yellow resin 180 grains or 42 grammes, yellow beeswax 60 grains or 14 grammes, alum 1 oz. or 50 grammes. There seems to be no ratio between the metric and the English weights—in fact, there is the greatest variance—whereas, as I understand it, a gramme is practically 15½ grains.

The metric grammes in your formulæ seem to have double, treble, and six times the value in some places to what they have in others. All the way through the formulæ the same thing occurs.

I shall be glad to know the explanation.—Yours truly,

ROWLAND WM. OSBORN.

Eversley, Hampton Road, Worcester Park, Surrey,

March 16, 1907.

[Our correspondent has fallen into the error which has overtaken many before him. He has failed to notice that though the quanti-

ties in the two sets of measures are not identical the proportion of solids to water is the same in both—that is to say, the solutions have the same composition. He should have done himself the justice to turn back to the head of the section from which he quotes (on page 950), where he will see this fact pointed out. The section also of the "Almanac" dealing with weights and measures commences (on page 1084) with a page-long statement of the conventions adopted in drawing up the formulæ. If these explanations are not sufficient for our correspondent we know of no others which we can recommend to him.—Eds. "B.J."]

#### PROFITS ON PICTURE POSTCARDS.

To the Editors.

Gentlemen,—I am sorry that, owing to pressure of business, I have not had time to look at my JOURNAL, and therefore did not see the query *re* the reasonable price for a photographer to take negatives for wholesale publishers.

This is so often a matter of arrangement between publisher and local photographer, that it is somewhat difficult to answer. At any rate, I consider that 10s. 6d. should be the lowest, that is for either half or whole-plate, for 12 x 10 15s. to one guinea. This is, of course, for a number. If really fine negatives are to be given, and subjects require specially photographing at a definite fixed time, and the higher quality of result is expected, then certainly these prices are too low.

There are plenty of small amateur-professional sort of men who work down to absurd prices, but then their work is equally absurd, too, in quality, badly lit, giving unattractive results, and dear at any price. I find really good work in this direction is not often obtained, and the price so much depends on the actual result. But good work, certainly not less than the prices I name.

Really good work in landscape photography is a very rare commodity, and while some men see pictures everywhere, there are others who call themselves "photographic artists," yet have really very little or no conception of the construction of a picture. First-rate portrait men we have (we might almost say) by the thousand, but good landscape photographic workers are scarce indeed. I am not referring to the amateur-fuzzytype-imitating-gravure-species, aiming at something or other. These are in evidence with their haphazard results at every show. No one takes these fellows seriously.

If each photographic worker would specialise something, if only door-knockers or gargoyles, they might be doing some service, instead of the aimless seeking after "art" so-called, the vain search for which their pictures typify.—Yours faithfully,

FREDERIC T. CORKETT.

2, 3, and 4, Cheapside, City.

March 15, 1907.

To the Editors.

Gentlemen,—In reply to "Professional's" letter in your last issue asking for an interpretation of a clause in my last letter *re* a professional friend "selling real photographic postcards from whole plates" and "exposing the cards in the camera, giving fifteen minutes' exposure," and "pleased to get threepence each for them."

It seems to me it is he ("Professional") who clearly places himself on a level with your correspondent who wanted "an apparatus for taking, developing, and fixing Daguerreotypes in one."

I purposely refrained from any attempt at literary style in my letter, and I do not see how it could be more plainly put. Can it be possible that "Professional" never heard of small prints being made by that process known as reduction in the camera from large plates direct on to bromide or postcards?

It does seem so ridiculous for any photographer to do any such thing, and is only equalled by "Professional's" ignorance. I hardly think it necessary to take up any space explaining how it is done, as the merest amateur could explain it to him. However, if "Professional" persists in his ignorance I shall be pleased to explain in another issue.—Yours,

POSTCARD.

#### THE STABILITY OF PYRO AND SODA DEVELOPING SOLUTIONS.

To the Editors.

Gentlemen,—In a previous letter on this question (B.J. 1906, October 19, p. 837), I showed that the action of sulphite in the developer was not that commonly assumed, viz., of an oxygen

devourer, but that the sulphite and organic reducer exert a mutual protective action depending on a complicated cycle of reactions. In studying with quite other views the literature of phosphorescence recently, I came across an independent confirmation of the view expressed, based on quite different grounds. The reference is to the well-known work of P. Lenard and M. Wolf on the luminescence of pyrogallol acid (Wied. Ann. 1888, 34, 918-925). Pyro developer poured into alum solution gives a well-marked phosphorescence. The developer consisted of pyro, carbonate of potash and sulphite. L. and P. showed that precipitated oxide of aluminium condensed oxygen on its surface which rapidly oxidises the pyro. Oxygen dissolved in the solution, is necessary for the reaction, and the remarkable result was obtained, that a developer containing sulphite has more free oxygen dissolved in it than one without. Their words are, "Why a substance such as sodium sulphite, well known to absorb oxygen rapidly, should be necessary to the luminescence, appears a mystery. Sulphite is used to make the pyro solution keep, as we imagined, by virtue of absorbing all the oxygen which enters the solution, so keeping the pyro from reacting with this. But in this case a developer freed by sulphite from oxygen should be incapable of luminescence." In fact, the reverse was found to be the case, and in view of its peculiar action, the only assumption tenable was that "a mixture of water, pyro, sulphite and carbonate—for brevity, pyro-sulphite-alkali—uses up oxygen less rapidly than pyro-alkali alone." The only hypothesis in explanation which could suggest was that the sulphite possibly exercised a disinfectant or antiseptic action by poisoning micro-organisms which might assist the oxidation of the pyro. This, however, as my former letter showed, is neither sufficient nor necessary.—I am, yours, etc.,

Marburg-a-L., Germany.

S. E. SHEPPARD.

#### THEATRICAL PHOTOGRAPHY.

To the Editors.

Gentlemen,—I was much interested in the article, "Theatrical Photography," appearing in the Journal of March 8, and having tried and failed some considerable time ago, I thought of "desperandum," and tried again. This time I have pleasure in sending you my result. The plate used was an extra special "Roy Standard," bathed in pinachrome 1-1,000 for three minutes, and washed about five minutes. This was then put in the slide and



exposed in a wet condition in the evening. It was taken with a stand camera, full aperture of lens, cap on and off very quickly, from the back of dress circle during the performance, and there was a very fair amount of light on the subject. The developer was metal hydroquinone, given with the make of plates, and the light used in development was a red and green glass in front of light (lamp). The exposure was made at the end of sketch, entitled "The Stowaway."—Yours faithfully,

H. EDWARDS

102, Leytonstone Road, E., March 12, 1907.

[The print is a very fair example, we think, of a stage photograph.—Eds. "B.J."]

#### BUSINESS METHODS IN THE STUDIO.

To the Editors.

Gentlemen,—I am glad to find that the method of keeping a tabulated cash book, which I published in my little book on "P



essional Photography" about four years ago, has proved useful to your contributor, Mr. S. E. Kaye. Reference to page 58, Vol. I, of the book I mention will show the specimen page I gave, that of Mr. Kaye in your current issue being in detail almost an exact counterpart. The method enables a business photographer to see at a glance what he is spending in any particular direction, and what he is himself drawing from the business, and the information is obtained without any posting up of a ledger from day-book entries, thus simplifying the account book-keeping and saving much, often being postponed, work.—Yours, faithfully,  
C. H. HEWITT.

309, Regent Street, W

[The columnar form of cash-book is one that is generally known, and is in frequent use. Our contributor says that he has used it for fifteen years, but that he does not claim to have originated it as, we make it, does Mr. Hewitt. Writing in "The American Business and Accounting Encyclopædia," F. H. MacPherson, C.A., says "Below a form of cash-book to be used when all receipts are paid directly into the bank and where payments are made only by cheque. . . . if it is considered desirable to introduce the columnar system into this form of cash account, and I favour its use at all times and in every conceivable place, to save labour, the necessary columns can be inserted."—Eds. "B.J."]

To the Editors.

Gentlemen,—It was with great interest that I read in this week's journal the article on "Business Methods in the Studio," by S. E. Kaye. I am confident it will be a great help to many who up to this time have paid little attention to book-keeping as long as things sail along clear.

Do you know of any business house that can supply the books you speak of, if such could be obtained it would be a further help and save a lot of time.—Thanking you in anticipation of a reply through the columns of your valued journal, I am, yours faithfully,  
W. H. DEE.

310, King's Road, Reading.

[Walter Pearce, and Co., of St. George's Press, Brentford, will naturally have a set of books on sale.—Eds. "B.J."]

#### ENCLOSED ARC FOR PORTRAITURE.

To the Editors.

Gentlemen,—Re enclosed type of arc lamp, you had a note re above in reference to enlargers, that enlargements, although focussed sharply on the screen, were not sharp when developed; this I can bear out in my own practice, but I have not seen it mentioned that the same peculiarity exists when taking sitters in the studio with this type of lamp—at least, I have found it so with the lamp I am using (a 15 amp. Jandus enclosed arc lamp). I have had this lamp installed about three months, and at first I could not understand that none of the negatives taken were sharp on the figure, but always critically sharp on the background, like it used to be with the old type of lenses where the chemical and visual focus were not coincident, so I made several experiments to see if it was really so, that the focus was altered when using this type of lamp, and I proved absolutely to my own satisfaction that it was so. I have taken several negatives demonstrating this, which I can send you if you consider the subject worth discussing. I have taken figures singly and in groups, focussing the figure absolutely sharp with a Dallmeyer compound magnifier, exposed the plate and then another one on the same subject, same position, etc., but focussed slightly inward, showing under the magnifier a soft out-of-focus effect. When developed the first one would be out of focus on the figure, and the background sharp; in the second the figure was sharp and the background as it should be, in fact, just as the first one was focussed. This, you must know, makes it very awkward in a studio where one uses daylight during the day and electric light at night for late appointments, etc., as the focussing has to be different in each case. I think the subject is worth discussing in your excellent journal. I have been a reader of it for over 25 years, but never before have I written you on any subject; only the thought that this matter ought to be probed to the bottom tempted me to write now.—Yours very sincerely,  
A. COURE.

[We shall be glad to see the examples offered, and will deal with the subject more fully ere long.—Eds. "B.J."]

## Answers to Correspondents.

- \* All matters intended for the text portion of this Journal, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, &c. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- F. Nainby, Challoner Street, Cokermouth. Photograph of the meet of the Coker-mouth Beagles at Butterworth.
- R. Thirlwell, 21, Bridge Road, Stockton-on-Tees. Two Photographs of railway smash, Thornaby-on-Tees.
- E. Kelley, 26, Queen Street, Newton Abbot, Devon. Photograph of the Newton Abbot Rugby Football 1st and 2nd teams, with members of Committee. 1906-7.
- F. Marshall, 10, Bridge Street, Blaydon-on-Tyne. Photograph of Messrs. J. Hewitt, J. Hoger, and J. Anderson, all of Blaydon. Photograph of Mr. and Mrs. J. Carr, Thomas Terrace, Blaydon-on-Tyne.
- J. W. Tattersall, 55, Avenue Parade, Accrington. Photograph of the Rev. C. Williams.
- H. Allison, 42, Scotch Street, Armagh, Ireland. Photograph of the Dundalk Urban Councilors.
- R. G. Arnold, Stafford Street, Market Drayton, Salop. Photograph of South Cheshire Hounds at Audlem, 12th March, 1907.

BOOKS.—Will you kindly advise me in the choice of text-books upon the following subjects:—1. The chemistry of photography. 2. The collotype process. I want to know the best book (or books) upon each subject. The books may be printed in English or German. 3. Also could you tell me the name of a publisher of German books who would supply me with a list of German photographic publications?—BOOKS.

1. Valenta's "Photographische Chemie," or Meldola's "Chemistry of Photography." The two books are very different in character.
2. "Der Lichtdruck," by August Albert, or "Practical Collotype," by A. W. Fithian.
3. W. Knapp, Halle a/S, or Gustav Schmidt, Berlin, W., 10.

"JANDUS" LAMPS.—Will you kindly inform me the address of the "Jandus" Company, makers of "Jandus" electric arc, for portraiture?—E. F. SANDERS.

Messrs. Drake and Gorham, Victoria Street, London, S.W.

W. WASHAM.—The anti-halation sheets are obtainable from Messrs. Butcher and Sons, Camera House, St. Bride Street, E.C. We have seen formulæ for making such sheets, consisting of gum, caramel and sienna, but we have never attempted to make them. We suggest you obtain a large size and cut down to one size of your plate. Except for very difficult subjects, the pads are almost equal to a good packing.

TITLES ON POSTCARDS.—Could you please tell me how the titling of enclosed postcard is done, and what kind it is?—JOHN STEELE.

The words of the title are set up in type and photographed on a slow or photo-mechanical plate. The strip containing the line of lettering is then cut through to the glass and stripped off with hydrofluoric acid, or other means, on to the postcard negative, which in some cases requires no preparation to receive it, but in others needs to have a strip of similar size cut from it.

J. E. (Edinburgh).—We have no recollection of a roller-blind apparatus; but, assuming that it exists, your device, we should say, would be no infringement of it. The two methods are surely quite distinct, although it would, of course, be possible to frame a specification which would clash with that of the roller-blind apparatus. But we gather that is not your intention, and, so far as we can judge, your method is distinct from the one to which you allude.

BUSINESS IN THE STUDIO.—May I ask if there are such books, as are mentioned in your article on the above topic, to be obtained from firms who supply professional photographers, such as Fallowfields, Marions, or Houghtons, etc.? If not, would it not be advisable for such firms to prepare these, for the especial use

of professional photographers. I shall be glad to hear where they are to be obtained now.—RUTTS.

So far as we know, there are only the usual manuals of book-keeping issued by the Pitman Metropolitan School and similar institutions. The only photographic work which deals at all with the business aspect of the studio is "Professional Photography," by C. H. Hewitt. (Hiffe, two volumes, 1s. each.)

**COLOURING PHOTOGRAPHS.**—Would you kindly inform me of a book dealing with the colouring and working-up of photographs, and where it may be obtained?—J. S.

The only book is "Retouching Photographic Negatives and Prints," by Johnson, published by Marion and Co., at 2s. 6d. The recent articles in our columns on working up with the air-brush have been republished by the Aerograph Company, 43, Holborn Viaduct, London, E.C., at 6d., and constitute the best guide to the use of that instrument.

**CHEAP ENLARGEMENT.**—I have a customer who is inquiring for a cheaper class of enlargement than can be turned out on bromide paper. He speaks of a paper which he calls "salted" paper. Of course, I quite understand what ordinary salted paper is, but that would be no use for enlargements. Do you know of any other kind of paper besides bromide which can be used for enlargements?—H. AND CO.

We gave the formula for the class of paper your customer refers to in our issue of March 30, 1906, p. 246.

**FINISHING ENLARGEMENTS.**—Can you tell me where I can obtain a book upon finishing and working up enlargements in black and white, with crayon and brush, instructions how to prepare the varnish, or other preparation, which has to be sprayed or brushed on, to fix the crayon work, so that same does not rub off, and yet show an even surface on the finished enlargement?—NEMO.

The only book is "Retouching Negatives and Prints," by R. Johnson (Marion and Co., 2s. 6d.).

**TRAVELLING STUDIO.**—I have thought of having a travelling studio bought for going round amongst the villages here in the summer time. What size would you recommend for same? Of course, I suppose it would be better to be on wheels, and one that would be large enough for groups. Give any particulars you think proper for lighting of same, etc. What would be the cost of building complete—I mean for a good thing? There would be some difficulty in getting water. What would you recommend to overcome the difficulty?—G. T.

We should advise you to purchase a caravan and take in it a portable studio, which you can erect at stopping places. Messrs. Marion, 22, Soho Square, supply a studio of this kind, and you can usually obtain a caravan through a small advertisement in our columns.

**COLLODION EMULSION.**—I would be very pleased if you could supply me with the formula for the making of a collodion bromide emulsion and working of same. It is used for photographing on boxwood for engraving purposes.—A READER.

You can employ almost any of the emulsion formulæ given in the "Almanac" for 1907, page 978.

**FOCUSsing SCREEN.**—I have reason to believe that the focussing glass in my studio camera is not in proper register with the plate. Could you please let me know the way to remedy this?—OLIVER T. R. THOMPSON.

The only way is to have the rebate of the focussing screen altered. You can find out by placing a ground glass in the place of the plate in one of the dark slides, whether the focussing frame requires packing or thinning. We should think that in any case it will be best to send the camera back to the makers, or to a repairing firm, such as A. B. Allen, 20, Endell Street, London, E.C.

**SULPHIDE TONING.**—(1) Can you inform me, through your valuable paper, if you know of a formula for sepia toning of bromides by sulphur with three solutions—i.e., 1, which makes the positive look negative; 2, bleaches; 3, tones? (2) Also, is there any preservative for pyro which can be added to any standard formula?—SEPIA BROMIDE.

(1) There is a number of well-known formulæ and a number of preparations on the market sold as sepia or sulphide toners. As good a formula as any is given in the "Almanac," 1907, page 988. Two solutions are used—a bleacher of ferricyanide

and bromide, and a darkening or toning solution of sodium sulphide. You appear to require an elementary book on toning processes, such as "Toning Bromides," by C. W. Somerville (Dawbarn and Ward, 1s.). (2) None better than potassium metabisulphate.

**ARCHER CLARKE.**—Each must be separately registered to secure copyright in each. Proofs from the zincos may be deposited Stationers' Hall.

**"SPRING CLEANING."**—A blue-grey. The ingredients for a distemper colour are the same as given in the article on background painting, p. 81, of our issue of February 1, to which we refer you.

**SILHOUETTES.**—Will you kindly tell me how the photographs popularly termed silhouettes are done, and oblige.—COUNTRY.

The figure is placed against a thin white background lighted from behind, and a good deal less than a proper exposure given on a fairly slow plate, which is afterwards developed with a strong restrained developer—say pyro soda with three grains of pyro. If a full-length figure is required in silhouette, a table on platform must be provided for the person to sit or stand on, the lens being placed on a level with the feet. Except by this dodge the feet of the model are merged with the floor in the silhouette.

**COLOUR FILTERS.**—In the "British Journal Almanac" for 1905 Mr. George T. Harris, F.R.P.S., refers to a formula given in your "Almanac" for 1893 for making colour filters, to use for landscapes with orthochromatic plates. As I was not then a photographer, I do not possess the "Almanac" for that year, but should like to know the formula. I have to give a demonstration on home-made filters, and if you have one or two different methods I should be very much obliged if you would give them to me.—J. SHEPHERD.

Mr. Harris's method was as follows:—A piece of glass was prepared with beeswax, as if for enamelling, was coated with a solution of gelatine, and put aside in a place free from dust for the gelatine to set. The gelatine solution was a 20-grain-per-oz. solution of Heinrich's hard. The plate was then immersed in a 5-grain-per-oz. solution of ammonium picrate, dried, and the film then stripped off. It is more usual now to stain the gelatine solution first, and apply a measured quantity to a given area of glass. Recent issues of the "Almanac" have contained a good deal of information on the subject, and perhaps it would also be to your advantage to study "Practical Orthochromatic Photography," by Arthur Payne (Hiffe, 1s.).

**EXAMINATIONS.**—I am an assistant operator, but would like to improve my position, if possible. I am well up in photography, both practical and theoretical. Are there any exams. in photography for which I could sit?—S. T.

The secretary of the City and Guilds of London Institute, London, will send you particulars of the Institute's examinations, which are held in April annually, and for which you will be too late this year. The students' Fellowship application arrangements of the Royal Photographic Society (the Secretary, 66 Russell Square, W.C.) may be of use to you; and you might write to the Professional Photographers' Association (89, Albany Street, London, W.) for particulars of their "Certificates for Assistants" scheme.

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## SUMMARY.

The remarkable tanning action of quinone on gelatine has been examined by MM. Lumière, who are unable to prove the existence of a compound of gelatine and quinone. (P. 232.)

Mr. C. Welborne Piper draws attention to the importance of the theory of the objective plane in modern optics. (P. 235.)

We quote the results of a number of experiments, which should discount the statement sometimes made as to the danger of storing celluloid. (P. 231.)

The directions of an American writer for the wash-colouring of photographs are given on page 234.

The Northern Exhibition opened at Liverpool last Friday has proved a notable success. The catalogue is as fine a production as we can recollect. (P. 241.)

Business Management. The concluding hints on the elements of business system for photographers appear on page 233.

A German writer has supplied a comprehensive review of the facts in raw paper, many of which may affect the manufacturer plain or emulsion papers. (P. 236.)

Proposed reforms in the Patent Law of Great Britain will undoubtedly benefit the photographic inventor. (P. 220 and 240.)

The compulsory adoption of the metric system was defeated in Parliament last week. (P. 230.)

Royal Photographic Society. The committees responsible for the management of the different departments of the society are given on page 240.

## EX CATHEDRA.

### The German 1909 Exhibition at Dresden.

We have received a circular from what we take to be the municipality of Dresden giving the full scheme of the international photographic exhibition, which, as we have already announced, it is proposed to hold in Dresden in the year 1909. The full text of the programme may be epitomised by saying that the exhibition will consist of four great sections, the first devoted to the history of photography, and to the present facilities which exist through the press and in schools for instruction in photography. The theoretical aspect of photography and colour photography will be included in this section, although to our ideas of classification they appear somewhat out of place. In the second class professional and scientific photography and reproduction processes will form the chief features; and classes 3 and 4 will be devoted respectively to amateur photography and the photographic trade. We hope to give some further particulars of the scheme as soon as we have information of the committee who have been appointed to make the preliminary arrangements.

### Patent Law Reformers.

A Bill to amend the law relating to patents and designs was introduced in the House of Commons one day last week by Mr. Lloyd-George. This Bill, if carried into law, is of interest to the large number of photographic inventors who, as our columns testify each week, apply to Southampton Buildings for Royal Letters Patent. There is no question that our patent law, as it now stands, presses heavily on British inventors. If they patent their inventions in almost any foreign country they are bound to work their invention in that country. But if a foreign inventor patents an invention here he is under no such restriction; he gets his monopoly, sends the manufactured articles to us from abroad, and English industry suffers accordingly. Hence the law allows a foreign inventor to bind British enterprise hand and foot on its own soil. The foreign patentee does not set up works here, but he prevents any British subject from taking out a similar patent. And the injustice of the position is greater still when, as is not infrequently the case, the foreign patent is drawn up in such a comprehensive way as to include processes which obviously are impracticable, yet from their inclusion in the specification may not be adopted by another inventor.

### Unworkable Patents.

In illustration of the patent which is merely a patent, and not a process, it would not be difficult to cite many instances, particularly among recent chemical specifications. For example, to select one from photography, it was not many years ago that a patent was granted for a process of pigment printing

involving the use of ferric salts and formaldehyde. The action of the process was to have been as follows:—Gelatine films containing both the two above substances and a pigment were exposed to light, with the result that where the reduction of ferric to ferrous salt took place the formaldehyde would become oxidised, and the gelatine, which was previously insoluble, would become soluble. That process, in our experience, has never been practically worked; certainly it has never been on the British market, yet any inventor who succeeds in making it workable will find this patent against him in his efforts to 'exploit the invention. The reform which it is to be hoped will speedily become law will be welcomed by almost every class in the community whom it concerns.

#### Deposition of Samples.

This evil of super-comprehensiveness the proposed Bill is also to remedy. At present many of the foreigners' patents relating to chemical substances, taken out here, are so worded that they not only cover the discovery really made, but also every other which human imagination is able to conceive. In the new Bill this is remedied, as the applicant for a patent will have to deposit samples of the chemical substance for which the patent is granted. Another point in the Bill is of importance. At present it is very usual when a licence is granted for working a patent, particularly under patents taken by foreigners, to make it a condition that the licensee works no other process or makes no articles by a process acquired from any other person. A condition such as this in the licence will, according to the Bill, become null and void. So far as we can see, the Bill, as framed, if it passes into law, will be of great benefit to English inventors. It is proposed that the amended Act comes into force on January 1 next.

#### The Metric System in Parliament.

The hopes of the advocates of the compulsory adoption of the metric system of weights and measures had a decided set-back last week. On Friday last Mr. Strauss moved, in the House of Commons, the second reading of the Weights and Measures (Metric System) Bill. Previously, this Member had presented a petition, signed by over 16,000 persons in various trades and callings, in favour of the Bill. During the discussion it was mentioned that, with the exception of England and Russia, the metric system was in vogue in all European countries. It was admitted by the opponents of the Bill that our present system was complicated and unsatisfactory, but that any compulsory change at present was undesirable, in view of the fact that at present the use of metric weights and measures is legalised. The President of the Board of Trade, who had received deputations from both sides on the question, in his speech, said in effect that when the various trading interests in the country were agreed amongst themselves as to the necessity of making a compulsory change in the weights and measures, it would be time enough to consider the matter in Parliament. In the end, the motion for the second reading was rejected by a substantial majority; so the matter remains shelved for the present, in spite of the great activity of the Decimal Association. It may be mentioned that the United States is not in favour of the metric system, for last year Congress threw out, for the fourth time, a Bill to render the metric system compulsory.

#### Unsuspected Causes of Defects.

Whenever our advice is asked in regard to photographic materials which are alleged to give rise to defects beyond the control of the user, our first recommendation is that a supply of the defective material be sent to some friend

or colleague of the complainant who has an establishment totally distinct from that in which the unfavourable results have been obtained. The quite separate use of the plates or papers by one who understands their treatment has frequently led to the production of perfectly faultless results, and proof positive has been afterwards afforded that the cause of all the trouble was a minor matter unsuspected under the worker's very nose. A case in point which was settled in this way may be mentioned. A photographer had recently obtained a stock of plates every negative from which was more or less marked with black spots: sometimes with one or two only, but on other occasions the spots appeared in numbers. After endless speculations a brother worker in another town, whom some of the plates were sent, returned a batch of negatives without a single defect of the kind. The cause which was thus located at home, eventually turned out to be a dusting brush which at some previous time had been used for sensitising with an iron solution, and had retained minute particles of iron salt, which, in conjunction with the pyro developer, had led to the plague of spots.

#### Spring Actinism.

The calendar tells us that this is spring, but the country, so far as vegetation concerned, does not confirm the assertion; yet the more reasonable weather we have had during the past week, so, if it continues, will, no doubt, soon alter the appearance of things out of doors. Be that as it may, however, the light of late has greatly improved in quality from what was a month ago, and novices should realise the fact or they will be greatly over-exposing their plates. Frequent showers between April showers, if the sun is shining, the light is far more actinic than it is at midsummer, and as the shadows are longer the light is more diffused. Hence shorter exposures are required than when the sun is near the zenith. This fact is often overlooked, or not recognised by the inexperienced in outdoor photography.

#### Chrome Alum.

Some years ago chrome alum was much more discussed as a substitute for the better-known alum in which the metal aluminium is present as the metallic base, but nevertheless the properties of the chromium compound are such as should not be overlooked. In particular the use of chrome alum as the final hardening bath in the treatment of gelatino-chloride prints is not as well known as it deserves to be, inasmuch as a much weaker solution may be used, and the bath free—or perhaps we should say may be free—from the acidity which, in the case of ordinary alum, acts prejudicially upon the permanence of the prints. It is only necessary that we should mention the means which can be taken to secure the proper condition of the chrome alum. Any excess of acid in it may be removed by powdering the crystals and treating the powder with methylated spirit in which the alum itself is quite insoluble, but by which any acid impurity is removed.

"THE MOVING PICTURE WORLD."—We have received the first number of a new weekly publication issued under the above title from the World Photographic Publishing Company, 361, Broadway, New York. It is a journal of the cinematograph and lantern-slide trade, and is edited, we see, by Mr. Alfred H. Saunders, who will be remembered, perhaps, by readers in Birmingham as having for a short period been responsible for the appearance of that fully-titled publication "The Optical Magic-Lantern Journal and Photographic Enlarger." The issue before us contains an article by the producer of song slides detailing the heroics which must precede the completion of a set of slides illustrating such sublime themes as "Linda, Can't You Love Your Joe?" or the child scene "Hello Central, Give Me Heaven." These songs, we read, are in great demand amongst the places of entertainment.



## EXPERIMENTS ON CELLULOID.

One important has become of late years the use of celluloid in the manufacture of sensitive materials that any facts or accredited information with regard to its keeping properties deserve the careful attention, not only of those who actually undertake the manufacture of the articles, but also of others who have to store the manufactured product in greater or less quantities. Technical information on celluloid being as a rule jealously guarded by the comparatively few firms who undertake its manufacture, more than usual interest may attach to some accounts of experiments by Dr. Will, which, through the kindness of a friend associated with the industry, have been placed at our disposal. Although the points to which we refer below have been considered chiefly in regard to the frequent fatalities which have occurred from the combustion of celluloid manufactured for articles of ornament or adornment, yet the ascertained facts may reasonably be held to apply approximately to any mixture of nitro-cellulose and camphor. The former compound is, of course, the constituent of the celluloid which is sensitive to shock or friction, although its dangerous proclivities are greatly minimised by its admixture with the camphor. Yet it has been proved that the effect of heat on nitro-cellulose increases in a high ratio as the temperature rises, and becomes, so it has been estimated, about four times its original quantity for every rise of 10 degrees Cent.; and the camphor, although it has a restraining effect on the decomposition, yet has no absolute control of this liability to decomposition.

In regard to the factors which may lead to the ignition, often alleged to be spontaneous, of celluloid, an important one is its behaviour towards shock after keeping. It has been found, however, that the "falling-weight" test, in which the steel surface of a 2,000-gm. weight falling 2 yds. on a fragment of celluloid was attended by no explosion, supports the view that the liability of celluloid to inflame from such a cause may be considered negligible. Equally, celluloid has been found, in the recent experiments to which we are now referring, to be indifferent to the electric current and to sparks. It was found impossible to ignite celluloid a few tenths of a millimetre in thickness by means of Leyden jars and induction machines. Cases are upon record of the inflammation of celluloid having taken place through these means, but explosion from this cause is apparently unknown. In regard to the behaviour of celluloid towards heat, it has been found that the material, skilfully prepared, comes to no harm when stored in the neighbourhood of ovens, heating pipes, electric lamps, etc., such as are likely to be met with under ordinary conditions; yet either badly made or deteriorated samples possess much less immunity to an elevated temperature than is indicated by the above general statement, and it is from this cause, probably, that the numerous fires from celluloid have arisen. The two causes of such easily-ignitable celluloid are an inferior stability of the nitro-cellulose used in the manufacture, or the deterioration of the product by the use of too high a temperature in its after-treatment. As photographic celluloid is exposed to a temperature very

little higher than that of the air, the latter factor need not be considered.

In regard to accidents from celluloid in a state of combustion, Dr. Will has found it well to distinguish between a true explosion of the celluloid and the ignition of mixtures of air with the gaseous decomposition products of the celluloid. It was found that in the direct combustion of celluloid no explosion was obtained unless the products of decomposition were mixed with air and ignited. These decomposition products differ greatly in composition according to the circumstances under which they are produced, and pressure particularly is a factor in the case. In one series of experiments it was found that the gas contained 45 per cent. of carbonic oxide, 19 per cent. of methane, and 10 per cent. of hydrogen, the other constituents being nitrogen and carbon dioxide, 9.6 and 14.7 respectively. From experiments made under different conditions of pressure, it appears to be highly important in the case of a celluloid conflagration to limit the air supply, and the most suitable means, therefore, of treating a conflagration consists in the use of water and moist sand, applied to the mass of the celluloid itself. Grenades containing salts or salt solutions are of little use.

Other experiments on the resistance of celluloid to heat confirm the general conclusions which have been summarised above, and stress is laid upon the importance of the quality of the celluloid as affecting any accidents which may occur as the result of its storage. A properly prepared sample may be safely housed in conditions which would be dangerous to an inferior product. A very safe criterion of the quality of a sample of celluloid is the "fuming off" test, which consists in placing about one-tenth of a gram of small pieces of celluloid in a stout, lightly corked test tube, which latter is immersed in an oil bath heated to 100 degrees Cent. The bath is kept uniformly heated by means of a stirrer, and heat is slowly and regularly applied, so that the temperature of the oil bath rises regularly about five degrees per minute. The temperature at which the sample commences to emit fumes is noted, and its lowness is characteristic of badly manufactured celluloid: 160 degrees Cent. may be taken as a limit below which celluloid may be considered unsuitable for storage. The danger associated with the storage of celluloid, so we may conclude from the information before us—information which, we may say, is the result of the widest technical experience in the handling of celluloid products—is quite trifling provided that the ordinary conditions of safety are observed, and so long as a product giving a satisfactory fuming-off test is obtained. Celluloid, of course, like any other combustible substance, becomes ignited in contact with a flame; and, as already mentioned, the gases which it then evolves may lead to the formation of an explosive mixture. Moreover, in the case of celluloid which burns with an insufficient supply of air, the gaseous products may be of such a poisonous nature as to entail loss of life to persons near at hand, inasmuch as hydrocyanic or prussic acid may then be a constituent of the gases. Those having occasion to cut, turn, or otherwise treat celluloid with cutting tools should also be cautioned that the celluloid dust may itself form an explosive mixture with air.

ROYAL PHOTOGRAPHIC SOCIETY.—The council have elected the following to be honorary Fellows of the society: Mr. Vero C. Driffeld, for his work in connection with the measurement of photographic rates, and Mr. R. H. Bow, for his researches in optics.

MESSRS. J. LANCASTER AND SONS, LIMITED.—Those who have been familiar for many years with Messrs. Lancaster's establishment in Colmore Row, Birmingham, should make a careful note of the

fact that the growing demands of the business for space have now compelled the firm to take larger and more convenient premises, which they have at length found at 275 Broad Street, Birmingham. All inquiries should in future be sent to this address. On a recent visit we were able to see the very effective means which Messrs. Lancaster have taken in their new home to deal with their worldwide trade in cameras and other photographic apparatus.

## THE TANNING OF GELATINE BY SOLUTION OF QUINONE.

We have already shown that ordinary quinone is capable of rendering gelatine insoluble in warm water. This insolubility may be obtained by causing the quinone solution to act not only upon solid gelatine, but also upon solutions of it. This property of quinone is the more remarkable because up to the present, among definite organic compounds, only one substance endowed with similar qualities has been known, viz., formaldehyde. We propose in the present treatise to determine the best conditions for the insolubilisation of gelatine, both solid and in solution. We have endeavoured, on the other hand, to determine the composition of gelatine insolubilised by quinone under various conditions, in order to find if this composition is constant, and if "quinonised" gelatine may be considered of definite composition.

### I.

We mixed a fixed amount of gelatine solution of strength of from 5 to 20 per cent. with an increasing quantity of quinone solution of  $\frac{1}{2}$  per cent., and when all solutions had set we examined those which did not liquefy again in the heat. The smallest quantities of quinone which appear necessary to render gelatine insoluble in hot water after it has set are the following:—

Solution of gelatine, 5 per cent. 4 gms., 10 per cent. 1 gm., 20 per cent. 1 gm. of quinone to 100 gms. of dry gelatine.

The solutions thus obtained are not precipitated, they are clear, reddish yellow in colour, and solidify in almost the same time as required for the solidifying of the original solutions of gelatine without the addition of quinone.

Once solidification is complete the jelly cannot be liquefied again, even at 100 degrees, and the product thus insolubilised retains that property even after a prolonged immersion in water.

With 1-1,000 solutions of quinone sheet-gelatine may be rendered insoluble by employing about 1 litre of quinone solution to 20 grammes of gelatine; but in this case a long time is required to obtain insolubilisation.

This time may be greatly shortened if a more concentrated solution is used. Thus, when using 1 litre of 4 gms. strength the insolubilisation of 20 gms. of gelatine at a temperature of 15 degrees would take  $1\frac{3}{4}$  hour, but only  $1\frac{1}{4}$  hour would be necessary if the strength of the solution were 6 gms. a litre.

The more diluted the solution of quinone used, the less coloured is the gelatine treated with it.\*

### II.

To determine the quantity of quinone which a given weight of gelatine requires to cause it to become insoluble in water we have considered the possibility of recovering, on the one hand, gelatine, on the other, quinone, from the quinone-treated gelatine, a work suggested by our former labours with formalised gelatine.

To this end we have treated the insoluble gelatine with acids, with alkaline carbonates, with ammonia, and with caustic alkalis, of varying degrees of concentration and temperature. With not one of these re-agents have we succeeded in recovering gelatine and quinone. As soon as the gelatine became once more soluble in warm water it was disintegrated. In no case could the presence of free quinone in the solutions be distinguished.

Quinone-treated gelatine, therefore, appears to possess greater stability than formalised gelatine. Moreover, it is not affected by repeated immersions in boiling water, as is formalised gelatine—it seems rather to be a combination of a simple

\*The watery solutions of quinone alter by degrees on exposure to the air, and solubility in cold water being very slight (0.5 per cent.), it is better to use quinone in the form of alcoholic solution, say 5 per cent. It does not precipitate when water is added. If this solution has been prepared with decomposed quinone it will be a brown colour; it can be considerably cleared by shaking it up with animal black.

additive compound, but we have not yet succeeded in establishing the method of its formation. In order to determine the composition of this substance remains the same, when gelatine in various states of dilution is treated with an excess of quinone we have insolubilised sheets of gelatine under the two following conditions:—

(a) 100 grammes of sheet gelatine in 5 litres of solution containing 4 grammes of quinone to the litre.

(b) 100 grammes of sheet gelatine in 5 litres of solution, containing 1 gramme of quinone to the litre.

After twelve hours' contact the sheets of gelatine were washed in running water for twenty-four hours, and pressed every half-hour to eliminate all excess of quinone.

The drained sheets were dehydrated with alcohol, dried at 100 to 110 degrees, and then submitted to elementary analysis. The insolubilised gelatine in case (b) was more lightly coloured than that in case (a).

The analysis of these two varieties of quinone-treated gelatine led to approximately the same percentage composition.

The result of these analyses is as follows:—

Elements in 100 gms. of Gelatine.	a. Gelatine Insolubilised with excess of Quinone.			b. Gelatine Insolubilised with Insufficient Quinone.			Ordinary Gelatine not Insol.
	Analyses.			Analyses.			
	1	2	3	1	2	3	
Carbon .....	51.62	51.8	51.5	51.43	51.2	51.4	50.9
Hydrogen .....	6.32	6.5	6.6	6.35	6.50	6.55	6.4
Nitrogen .....	17.56	17.64	17.49	17.63	17.42	17.54	18.3
Oxygen .....	24.5	24.06	24.11	24.42	24.88	24.51	23.2

These results merely show that the percentage composition of the gelatine after its insolubilisation by the quinone has been greatly modified, and that it seems to be invariable however great may be the excess of the quinone employed. One can hardly decide anything as to the quantity of quinone necessary for a given weight of gelatine, but it is probable from what have been seen above that it is but small.

### The Properties of Quinone-Treated Gelatine.

Gelatine prepared with a solution of pure quinone is a more rose colour in a thin film and reddish brown in a thick film. This coloration soon appears in the quinone solutions of clear yellow colour in proportion as the gelatine becomes insoluble, and without the presence of oxygen being necessary. The colour of the quinone-affected gelatine is, therefore, dark in proportion as the quinone solution is coloured. It may be reddish-brown. The quinone-treated gelatine swells in cold water, but notably less so than formalised gelatine. It is soluble in hot, even boiling water, and does not swell appreciably more in warm water than in cold. It is highly stable and its insolubility persists even after protracted boiling—an order which formalised gelatine will not pass through unaltered. When it has swollen in cold water it is elastic, and offers great resistance to tensile strain, but on drying it becomes as brittle as formalised gelatine.

The quinone-treated gelatine cannot be broken up into gelatine and quinone by acids, caustic alkalis, carbonates, or ammonia. Acids and caustic alkalis produce in time a disintegration of the gelatine, more quickly the greater the strength of the solution. On the other hand, disintegration proceeds very slowly in the cold with alkaline carbonates or ammonia in strong solution.

A. and L. LUMIERE.  
A. SEEWETZ.



## BUSINESS METHODS IN THE STUDIO.

### III.

wholesale houses with whom the professional photographer to transact business are generally but few in number, nevertheless what there is to be done should be carried out in a systematic manner. In theory, it is an admirable thing to pay cash for everything, but in practice it will generally be found preferable to obtain credit, the monthly settlements being more convenient than sending remittances every time something is ordered. Now, this credit is not to be gained for the asking.

#### Obtaining Credit.

Sometimes an old-established photographer will send an order to a wholesale house, and will express surprise when a proforma invoice is sent him, together with a letter asking either to send a remittance, or else to furnish references, so that a ledger account may be opened. If he were only to expect that there are many other old-established photographers, any of whom are very bad payers, he would see that the wholesalers, who are quite as anxious to have his orders as he is to have their wares, are only acting in a reasonable manner, and he would always, when doing business for the first time with a firm, give the names of two houses from whom he is already receiving credit, and to whom reference may be made.

#### Starting in Business.

The beginner in business, of course, has no already existing banker's accounts; his plan, then, is to make a confidant of the manager of his bank, telling him his exact position, and then, when ordering, giving the bank as reference. If the professional have not sufficient resources to be able to get a fair report from his banker, he is better out of business. Better for his own sake, and better for that of the profession. There are far too many young men who imagine that the possession of the necessary apparatus is all that is required for starting on their own account. They expect that when a slack time comes, as come it must, they will have nothing on which to live. They cut prices, but go on; the prices that have been cut to meet theirs unfortunately have to remain. A great deal of the bad state of affairs in the profession to-day is attributable to this opening of studios on insufficient capital—a fact which is, seemingly, generally recognised.

#### Ordering Goods.

On return to the matter of buying. The order is made preferably in a manifold book, so as to have the duplicate for reference. It should be clear and concise, and if any other subject has to be dealt with, any complaint or inquiry, should be written on a separate sheet, so that when the order reaches its destination it will be in such a form that it will be sent direct to the despatching department to deal with at once.

#### Invoices and Credit Notes.

Upon receipt of the goods there will be found either an advice (sometimes called a delivery) note or an invoice. The two are compared with the advice note, and this again with the invoice. The latter is checked—the prices with the firm's list or estimate, and the extensions and casting of the totals. If correct, it is filed, a good form of file being that of compartments labelled alphabetically. Should there be an overcharge, the invoice should not be returned, but just corrected, and a letter at once sent to the senders, pointing out the error and asking for credit note. The system of book-

keeping in most wholesale houses is such that when a mistake has been made it has to stand in the books, the credit note, of course, adjusting matters. The credit note is either printed in red ink, or else written in that colour, to distinguish it from the invoice. The receipt of returns of any kind, whether goods or empties, is acknowledged in the same way; the credit note is thus explained in detail, because it is frequently the source of misunderstanding. Invoices and credit notes are filed together until time of payment comes round.

#### Returning Empties.

Most houses charge for cases and allow in full if they are returned in good condition and carriage paid. Some charge at half price, but will not take them back. With goods made abroad, for instance, the hundred-ounce case of pyro the wholesaler frequently sends in "original package," and they are then sent free of charge. Whatever the arrangement, it should be attended to when goods are received, and the case, if of large size, returned at once, or, if small, marked with name of sender, date, and price, and then set aside in a clean, dry place, to be returned when there is a sufficient number to make it worth while. Trade enlargers' packing boards are best returned in bundles. When returning, a list of their numbers and values should be made out, and a postcard stating same sent advising the firm to which they are to be despatched. They should be well tied, and addressed "Returned empties, carriage paid—through to ———." The reason for this is that empties travel at a special low rate, and the latter part is because most of the plate and paper makers and trade enlargers are on the outskirts of London, and unless empties are consigned *through*, cartage or other charges in London have to be paid on account of the railway company receiving them only bringing them to their own terminus. These charges are frequently much more for the few miles than for the couple of hundred miles they may have been sent; whereas, if addressed properly at first, the through rate would be very little, if any, higher than to the terminus. The railway company's receipt for the charges should be preserved, in case empties are lost in transit; it makes claiming more easily done. Should the credit note not be received within, say, a fortnight, and the wholesaler report, upon inquiry, that the empties have not come to hand, the company should be asked to give "proof of delivery." The inquiries they will then make will generally be sufficient to ensure the empties being delivered.

#### Settling Accounts.

The majority of the accounts in the photographic trade are based on monthly settlements being made, so that a statement may be expected during the first few days of the month. This statement will show the balance, if any, of the previous month's account, together with the amounts of all invoices, credit notes, and remittances. A few firms require payment by the middle of the month, others allow until the end, the discount allowed for payment within the time varying. Generally it is 2½ per cent.; the price lists will, of course, give this information. Two and a half per cent. does not sound much, but it is 2½ per cent. per month. Multiply this by twelve, and you have thirty per cent. per annum, which sounds a great deal, and is a great deal, but still (except for compound interest) not more than 2½ per cent. per month. Money is frequently scarce, of course; but many a photographer who could do so makes no effort to effect prompt settlements and secure his discounts—he just sends a cheque for twenty or thirty pounds on account occasionally, not realising that he is foregoing 30 per cent.

or more. Nor must it be thought that the wholesaler is acting otherwise than fairly in this matter of discounts; what he receives in tens of pounds he has to pay out again in hundreds, maybe in thousands—the dealer to the plate and paper maker, and he again to the gelatine manufacturer and the silver refiner.

Prompt payments, whenever possible, should therefore always be made. After verifying the statement with the invoices and credit notes, any discount to which it is subject should be deducted, and then a cheque drawn, payable to the order of the firm, the name being written in full, and crossed

“—— and Co., a/c Payees.” The cheque should be sent together with the statement, and the latter, when returned receipted, should be filed with the invoices, etc., belonging to it, affixed, in the Paid Accounts. These can be kept in similar file to the invoices. By these means the keeping of any Bought Ledger is dispensed with; an invoice, of course, being only to be found in one of two places, simplifying matters at once. The system, to be efficient, though, entails that invoices should be marked when goods are received, and that no statement paid unless such marked invoices can be found for each item.

S. E. KATE.

## WASH-COLOURING OF PHOTOGRAPHS.

[The following article in the “American Amateur Photographer and Camera and Dark Room” provides some hints on a branch of commercial colouring applicable chiefly to landscape work, by whom an enhanced price is often obtained for coloured cards, however bad the colouring may be.—Eds. “B.J.”]

THERE is perhaps nothing that appeals more to the majority of picture lovers than a well-coloured photographic print: on the other hand, there is nothing which so offends one's artistic sense like the many daubs exhibited on every side. And to be able to tint pictures oneself is a pleasure of the picture making process that few realise. There is a certain mysterious fascination that accompanies the wielding of the brush! What colours! what manifold effects are in your power to produce!—but why go on? you will find all this out for yourself, if you only try.

### Transparent Wash-Painting.

Now, it is my purpose in the following article to show how extremely simple the colouring process can be made if a person will only use his eyes, hands, and a sufficient quantity of good judgment and patience. The necessary materials are not many or expensive, the skill required not great, and you will be surprised at the little time and practice that will enable you to produce excellent results. The “transparent wash” is the simplest process known (any one can do it if they exercise the requirements I have heretofore mentioned), and the one most employed for this very reason.

It is for the absolute novice, the “green colourist,” if you will pardon the expression, that this article is intended. Now for a few words in regard to the

### Necessary Materials.

The first thing to procure is the colours. A great number are now upon the market prepared especially for amateur use, and which can be procured at almost any photographic supply house. These colours come in liquid or solid form, but personally I prefer using colours in small pans or tubes to those in liquid, the main advantage being that you cannot spill them. A fancy waistcoat and valuable table scarf, each with a clinging spot of “Sky Blue,” prompt me to offer words of warning against liquid colours. A very satisfactory box of eight colours together with rules concerning mixing to produce other shades and a slip telling about the harmony of colours, can be purchased for the small sum of twenty-five cents. From this price they range upwards to two dollars.

As to brushes, a No. 1 and No. 2 camels' hair will be all that is necessary.

A piece of plate glass (a ferrotype plate will answer the purpose), two or three clean blotters, four ordinary butter saucers for mixing colours in, will complete the equipment.

Having selected a spacious table in some well-lighted portion of the room, place the piece of glass or ferrotype directly in front of you. On one side have your squeegee roller, blotters, and a soft rag, reserving the other side for a glass of plain water, brushes, box of colours and small plates.

### Selection and Preparation of the Print.

While it is true that collodion or gelatine papers, such as Solio and others, may be coloured by first applying a “medium” (usually a liquid to provide a tooth for the colour), still the beginner will find it much more satisfactory to confine his first experiments to papers that will not require any previous “doctoring,” such as any of the brands of developing (gaslight) papers. A grade of these known as “Velvet” is particularly well adapted for colouring. Platinum prints are also easily coloured.

For example, we will say that the print you have selected is a well printed and developed Velox print, untrimmed for the reason that this operation is left until the last, the subject being a landscape with plenty of sky and nice detail in the foreground. Right here let me say that very artistic results can be obtained by colouring photographs that have been printed through silbolting cloth, the effect being a fine mesh-like appearance that resembles paintings on canvas.

The print is now immersed in a basin of cold water (if the water is tepid it is liable to cause the sensitised portion to separate from the paper) for a few moments until it is quite flexible, after which it is carefully picked up by the corners and placed face-up on the glass. Using the blotters and squeegee roller, you can easily remove all superfluous moisture. In this state not only will the print lie perfectly flat, enabling you to work to better advantage, but, furthermore, the wet surface takes the colour more uniformly than a dry one. After this operation, you must turn your attention to what is known as

### The Colour Scheme.

This sounds perplexing to the uninitiated, but in reality it is very simple, if one will exercise good judgment.

Before attempting to mix colours, you must, of course, determine what colours are demanded by the picture before you. A little memorandum as to the colours that you intend using for each object in the picture will prove helpful to the beginner in working.

Let me caution you not to take too much for granted when it comes to the point of deciding what colours you intend using. Many beginners make the mistake of colouring objects in the colour they think they should be without stopping to think whether or not such a condition actually exists. Because you see a lot of trees, hills, and grass, do not think that all of them must necessarily be coloured in brilliant green.

Study nature for your correct colour tones and see how nearly you can reproduce them in your picture. Compare the colour of a certain object, such as a tree, with that of a like object some distance away, and you will be surprised to note how the colour



has been changed by the introduction of that medium artists term "atmosphere."

The first and most important thing that demands your attention in colouring a landscape is the colours you intend using for the sky. The beginner's first impulse is to put down merely the word "blue" opposite to that of sky, upon his memorandum. We observe nature we find the sky to be a series of tints, with the most predominant. Compare the colour of that portion directly above the horizon with the centre of the heavens and note the difference for yourself.

Therefore, for the sky you will need three tints, which, for example, will be pale pink, light blue, and blue. With a few exceptions, this combination is always good. The accompanying diagram will serve to illustrate the comparative area for each colour. Now that you have the colour scheme well in mind (or on paper), the next thing is the

#### Mixing and Applying of Colours.

If the sky is the first portion to be coloured, then you must, of course, prepare its tints—namely, pale pink, light blue, and blue. Colouring the sky first enables you to get these colours more even than if you attempted to put the sky in afterward behind the coloured foliage, etc.



Pour about a teaspoonful of clear water into each of the three dishes, and with your largest brush mix a weak solution of the three colours. A few trials will convince you of the exact length. The light blue is obtained by merely diluting the blue.

Let me caution you again about not mixing the colours too long. Never under any circumstances use the colours in their full strength, as in the end you will have nothing to show for your time but a hopeless splotch.

You are now ready to begin work on the wet print before you. Starting with that portion marked in the illustration CD, and

with your brush well charged with the pink solution, carefully work in the desired space. Let the coloured solution stand for a few seconds, and then blot up the remaining solution. The operation of colouring the entire picture will consist of applying these different washes and successively blotting them.

In like manner as the first, apply the other two colours (their respective areas being BC and AB), blending each colour with the brush slightly dampened with plain water. In working over large areas, such as a sky, for example, your largest brush will prove the most satisfactory.

Once the colours are applied and "set," they will not wash off, and you may have no fear in plunging glass and print into a basin of water and squeegeeing as before in the event the print shows a tendency to dry and curl at the corners.

After colouring the sky, clean dishes must, of course, be prepared before attempting

#### The Foreground and Picture Proper.

Having selected the colours that you are to use for this, you will now proceed in the same manner to make thin washes of each. The broad effect, such as trees and roads, are first worked in with their respective colours. The first wash is for the highlights, and after this a trifle stronger solution of the same colour to be applied to the shadows. It is best to proceed from top to bottom, colouring those things nearest the horizon first.

I might say here that there is nothing that so spoils the artistic excellence of a picture as one colour overlapping another, such as an aureole of green appearing on the sky that surrounds trees, etc.; therefore, be extremely careful in this respect.

Thus having completed the main portion of the picture, the next question is the treatment of

#### Detail.

If your picture calls for "detail," be sure to give it your best time and patience. I cannot emphasise too strongly the necessity of giving attention to those little things in a picture that are at first sight lost if they are not clearly defined.

Even to the colouring of the smartest buttercup by the wayside, to that of a distant house-top, do not become careless, for in the end you will find that it is these little things that show you have been careful, and give your work distinction from the commonplace.

#### Mounting.

After having completed to your own satisfaction the print before you, it may be dried by merely setting the glass in a cool place free from dust.

The print can be trimmed and mounted in the usual way on a good quality of Melton board harmonising in shade to the predominant tones of your picture. If desired, it can then be framed in passe-partout and prove an adornment to any room.

I sincerely hope that the foregoing paragraphs will prove helpful in opening the way to this simple but fascinating branch of picture-making, the charm of which increases as one becomes more deeply absorbed.

JAMES C. SAVERY.

## MODERN OPTICS: THE THEORY OF THE OBJECTIVE PLANE.

Optics is a very progressive science, and the demands of photography have contributed in no small degree to the progress made in recent years. At the same time, there are branches of optics, perhaps it would be better to say, matters concerning optics, that receive very little attention in this country. Germany seems to have taken the lead in the science of optics, and though we need not admit that country to be absolutely first in every respect, we must own that the Germans are far ahead of us in the manner in which they expound optical theories. We need not be ashamed of some of our "all British" optical appliances, such as certain photographic lenses; but there is certainly

nothing to be proud of in our "all British" textbooks, with their antiquated explanations and methods of exposition.

Last year at the Optical Convention much was said about the Gauss theory of "principal planes," and Professor S. P. Thompson asked, "Why is it that we in England have made so little use of the theory of Gauss, which was given to the world something like seventy years ago?" But while it was thus admitted that we are almost hopelessly behindhand in the comprehension of this important theory of lenses, not a word was said at the Convention at any lecture that we attended with regard to the Abbe theory of pupils, which in certain respects

has long supplemented the Gauss theory in modern German textbooks. The Abbe theory is only very slowly creeping into our textbooks in an apologetic kind of fashion, and its importance is hardly likely to be realised until the Gauss theory has been so completely digested as to render its deficiencies apparent. A knowledge of the Abbe theory is essential if the action of a photographic lens is to be completely understood; but this is not the matter we wish to deal with in this article. There is another conception, also due to Abbe, of supreme importance to optical students, but utterly neglected in all English books save one, so far as our knowledge of modern English literature extends—that one exception being the late Mr. T. R. Dallmeyer's "Telephotography."

#### Use of Theory.

The study of the formation of the photographic image, and of the various conditions governing depth and perspective, is a complex matter if we consider the actual paths of the light "rays" through the lens. The Gauss and Abbe theories are both necessary for a full comprehension, but they are not simple theories in themselves, and their application is not simple. Both can, however, be dispensed with if we make use of Abbe's other conception, which we may describe as the "Theory of the Objective Plane." This theory may be briefly described as follows.

#### The Objective Plane.

Under the Abbe theory of pupils the perspective or drawing of the image is governed absolutely and solely by the position of the first Abbe point (or centre of the entrance pupil) with regard to the object. If the image is looked at from the correct viewing point, every part of it is seen under the same angle of view as the object itself when viewed from the first Abbe point. It is, therefore, identical as regards drawing (though not as regards scale) with a perspective delineation of the object made on a picture plane situated in front of the Abbe point and arranged parallel with the plane of the photographic image. This assumed perspective delineation may be considered to correspond to a perspective drawing made according to the rules followed by draughtsmen from the Abbe point as a "station point." If the German expressions used are translated literally we can say that the image on the ground glass, or the "image-side-copy," is an exact reproduction of an assumed "object-side-copy" situated on an imaginary plane in front of the lens. This imaginary plane is the "objective plane," and it is assumed to be the one plane that is in absolute focus. Thus the "objective plane" and the "image plane," or the plane of the focussing screen, are strictly conjugate to one another, and the image on the ground glass is an exact copy on a certain scale of reduction (according to the law of conjugate foci) of the imaginary image on the objective plane.

#### The Consideration of Aperture.

So far we have only considered the matter of perspective, and it has only been necessary to consider the position of the Abbe point or pupil centre. In the more complicated problems, which "aperture" is of importance we must consider the pupil as a whole, and look upon it as a small area from every point which the object is seen. Consider the case of an object point situated either in front of or behind the objective plane, and therefore, "out of focus." If we project an image of this point on to the objective plane, taking the Abbe point alone as centre of projection, a point image is produced; but if we take successively every possible point in the area of the pupil as centre of projection the point will be represented on the objective plane by a disc, or circle of confusion. As every photographer knows, a similar effect is produced in the actual image on the focussing screen of the camera, and, under the theory of the objective plane, each one of the actual confusion discs the image is an exact copy of the imaginary confusion disc on the objective plane, reduced in size on the same scale as that on which the image as a whole is reduced. We thus arrive at the important fact that for any size aperture\* the screen image is an exact copy on a scale of  $N$ -fold reduction of an imaginary image on the objective plane, and as every detail of the imaginary image (for which the term "imago" has been suggested) can be most readily determined by simple geometric perspective rules, nothing beyond a knowledge of the scale of reduction is required to enable us to determine the exact particulars of the actual image formed by the lens on the ground glass screen, the actual course of the light through the lens being disregarded completely. Reference to Dallmeyer's "Telephotography" will show that in this book, which is a worthy monument of its most distinguished author, the matter of depth is considered entirely from the point of view of the objective plane theory. The readiness with which the results are arrived at renders it surprising that other English writers have not appreciated the advantages of the theory, which in the latest German textbooks has practically superseded all the old-fashioned complex methods of discussing depth and other similar problems. In fact, every matter concerning the formation of images, whether photographic, telescopic, microscopic, or visual images are concerned, can be, and is, treated and considered from the light of this theory, which in every case greatly simplifies the expository methods. Unfortunately, English writers up to the present seem to have hardly appreciated the fact that the theory exists, and no one of them seems to have attempted to explain in English its general application, or even to translate any of the numerous German writings on the subject.

C. WELBORNE PIPER.

\* The angular aperture, not the effective aperture, must be considered, if the theory is applied generally to all theoretically possible cases.

## SPOTS IN RAW PAPER.

The following paper on the defects principally met with in raw papers was read before a Continental society of technology, and contains descriptions which should be of assistance to makers of sensitive papers by emulsion or other processes.

EVEN in papers prepared with the greatest care small spots will inevitably appear. Proof of the cause of these spots is of no practical importance as long as they are inconspicuous or occur so seldom that the faulty sheets can be discarded.

Occasionally, however, spots occur in such numbers that they are prejudicial to the use of the paper, and in such cases proof of their cause, which in the majority of cases is a common one, becomes important.

Many of the spots which frequently occur are well known to the paper-maker, so that he can remove them without further

help. The causes and possibilities of the formation of spots are so numerous, and the appearance of the spots is frequently so similar, that it is not possible, without chemical or microscopical tests, to determine their origin. If the constituents of the spots are identified, a conclusion as to the cause of the formation of the spots may be drawn. In many cases, however, accurate knowledge of their structural behaviour and method of formation is necessary, in order to be able to determine at which stage of the work or in which raw material the source of the trouble is to be sought.



Although attention has been directed now and again in the technical press to the appearance of certain spots, the data are so scattered through various journals that it is difficult for the paper-maker to find them.

As far as possible, spots which have been previously described in the press, or communicated by members, and have been met with in my own practice, are now dealt with.

The spots which most frequently occur may be divided into the following three groups:—

A.—Spots, which by reflected light appear darker, but by transmitted light appear lighter, than the surrounding paper.

B.—Spots, which, both by reflected and transmitted light, appear darker than, or of a different colour from, the surrounding paper.

C.—Spots, which are not visible in the raw paper, or at least are not strikingly so, but which appear in the further treatment, such as calendering, painting, parchmentising, or preparing for iron and silver photographic printing.

To Group A. belong resinous, greasy, scum, or sand spots, knots or little balls of conglomerated and strongly compressed fibres and fibrous particles, badly selected paper shavings, etc., masses of silicious or calcareous cells, starch paste.

To Group B. belong iron, bronze, lead, carbon, colour, sealing wax, and rubber spots, coloured fibres, splinters of wood fibre, wood or straw, refuse of hemp and flax, husks of cotton seeds, mouldy growths.

Finally, to Group C. belong fibrous knots, chloride of lime residues, sulphite of lime, starch, iron, resin, grease, sand, rumps of facing, and soft wood spots.

#### Resin Spots.

Group A.—The spots caused by resin can be recognised, as they disappear, or at any rate lose their transparency, by treatment with ether. Frequently, by touching them with a hot needle, one can detect the characteristic smell of heated resin.

After treatment with ether, the spot either completely disappears or there remains behind a depression, a dark place by transmitted and reflected light, or, finally, a white kernel. The dark place contains usually iron, as well as some substances of undetermined constitution, which are soluble in caustic lye with a brown colour. The white kernel consists of matted fibres, which, when treated with the soda lye, swell up, so that they can be separated and examined microscopically, or as gypsum, kaolin, or calcium monosulphite.

The resin spots arise either from the resin of the wood-cell wall, or of the gelatine. The resin spots arising from the wood-cells are frequently larger and more irregularly formed, and soluble with greater difficulty in alcohol and ether than those caused by the gelatine; but exceptions occur, and it is, therefore, seldom possible to differentiate, if no special observations have been made as to whether they arise from the gelatine or from the wood-stuff. Only if calcium sulphite and gypsum can be proved in the spots, ought one to assume that the spots are caused by the resin of the wood-cells.

#### Grease Spots.

The spots arising from grease are very similar to the resin spots, but are generally more sharply defined, and cannot be removed with cold alcohol. If the spot is treated with ether or benzol the grease will dissolve and the spot lose its transparency, but as a rule there remains an opaque spot containing iron or copper. The origin of these spots is, as a rule, to be sought in the bearings and screws of the cylinders. In some cases it has also been observed that they are due to oil slung from the shafts near the paper machine. In the "Wochenblatt für Papier-fabrikation," 1894, p. 1106, a case is mentioned in which, in order to avoid frothing, bearing grease was placed on the cylinders, and this caused green spots.

Froth or scum spots are mostly small depressions in the

paper, sometimes surrounded by a raised ring, which with faced papers is often somewhat more transparent than the middle of the spot, and in a few cases shows another colour than that of the paper. As these spots are a result of frothing, and the latter is caused by the gelatine, the ring, which is formed by the breaking of the bubble of froth, contains some resin. Among scum spots, moreover, a whole series of spots of totally different appearance exist, which also show no special characteristics. Whether the scum was actually the cause in all the observed cases can be seldom definitely determined. But the cause of the froth and the means to avoid it are so well described in the technical press, that it is not necessary to enter into further details here.

#### Sand Spots.

Sand spots are those spots in which grains of sand or micaceous particles, or similar substances are present, as well as those which are really due to sand, which has fallen on the paper during its manufacture or has settled down on the drying cylinders or pressing and calendering rollers. In the latter case the spots formed recur at definite distances in the run of the paper. The spots in which sand is actually found are scarcely noticeable in reflected light, or, when the sand is white or colourless, even by transmitted light. The holes formed by the substances which have fallen out of the same are, on the other hand, distinctly visible, both by reflected and transmitted light. The holes are almost always sharp cornered, and often go right through the paper, as will be seen against the light, just as though a needle had been passed through. For this reason also they are called "pinholes."

The sand which causes these spots comes either from the water, the wood pulp, the stones which grind the latter, or from the facing material. If it is possible to isolate some grains—which can best be done by drawing the paper over a sharp edge—the cause may frequently be determined by the aid of the microscope or chemical reagents. Felspar and mica are, as a rule, from the facing material, quartz from the water or the grinding stone. Absolute certainty can only be secured when one has an opportunity to test the facing material, etc., used. The pinholes are usually formed in the facing of the paper. The grains of sand then, in consequence of the pressure and bending over the rollers, are loosened and fall out of the paper.

Sand spots of a special kind are those appearing in pairs. A contributor to one of the paper journals gives a very satisfactory explanation of the formation of these frequently occurring spots.

If in the paper roll of the calender grains of sand or other similar hard substances are imbedded, if the paper kept its dimensions during the calendering these substances would be impressed twice in the same place in the course of the paper, once in passing the upper, and once in passing the lower steel roller. If, however, the paper expands when passing over the roller, which always is the case, the two imprints will not coincide, but will be shifted a small distance. As the paper alters not only in the direction of its length but also in its breadth, only those imprints which lie in the middle are behind one another, the others show also a sideways shift, which is greater the further they lie from the middle of the direction of the paper.

#### Knots and Balls.

Knots and balls are formed from conglomerated fibres or pieces of badly separated paper wastes. In the unglazed papers they form fine, almost unnoticeable lumps, which only become transparent and noticeable after strong pressure. They are very similar to resinous and grease spots, but differ from these by remaining unaltered when treated with ether, as well as by swelling up in water or lye. If the composition of the stuff of the knots varies from that of the paper it is often possible to draw conclusions as to their origin. Frequently it is essential to differentiate whether the fault is due to a mistake in the

paper factory or whether the raw material is to bear the blame. In deciding between the two, the results of microscopic examination are of great value. If it is determined, for instance, that in a paper prepared from wood pulp, wood fibre, and waste paper, the knots contain, for instance, wood fibre, it is natural to assume that the wood fibre is the culprit; in this special case the badly selected waste paper would be the cause.

The places of origin of the knots may be considered to be the cylinders, the stuff pumps, the knot catcher, and so on.

There is great similarity between the spots caused by knots and those caused by the siliceous cells of straw. In water they swell only slightly; in lye, on the other hand, considerably. They can be easily recognised under the microscope.

#### Starch Spots.

Starch spots are only found isolated, and then only in papers which make no special pretence to purity. They have mostly an angular, somewhat elongated form, which shows that they are due to dried starch. Many spots are incorrectly called starch spots; they contain, indeed, some starch, and generally give a darker blue coloration with iodine solution than the surrounding paper, but the starch is here only as a constituent of the waste paper, the insufficient sorting of which is the true cause of these spots.

#### Metallic Spots.

GROUP B.—The most important and frequent of the spots of this group are those containing iron. They appear in many shapes and from various causes. A conclusion can often be drawn from their shape and nature as to the place of origin of this fault, and therefore this subject is treated fully here. First of all are those which have a kernel of metallic iron. In the freshly made paper they form small black, scarcely noticeable points, which are only unpleasantly visible after dampening, rolling, and storing the paper. The cause is almost always too sharp raising of the cylinders. They may be differentiated from the other ferruginous spots by the fact that the kernel is magnetic, and that it can be withdrawn from the paper by a magnetic steel needle.

The second kind of iron spots contains hard brittle and non-magnetic pieces, which either wholly or in part consist of iron. In the first case they arise from any rusty pipe service, or a rusty water cistern; if they contain also a considerable amount of chalk, they are probably due to the working water containing iron and lime salts. In some cases it should be assumed that they may also be due to detached boiler fur carried over by the steam.

The third kind of iron spot consists of a spongy, ferruginous mass, which, when touched with a preparation needle, falls to pieces, or can be distributed into a paste. In the latter case they contain resin or oil, and sometimes so much that they become transparent, and can then be considered as belonging to the resin or grease spots of Group A. The iron of the powdery spots is most likely due to the water, the iron of the soft spots, on the other hand, to the screws and bearings.

The iron spots described above lie entirely in the fibrous film, and penetrate it more or less.

A fourth kind form the rust spots on the surface of the paper. They are due to porous places in the pressing rollers and drying cylinders. By shifting the scraper of the pressing rollers rust spots and streaks are easily formed. They can be recognised by similar spots, or groups of spots, recurring in the length of the paper at a distance corresponding to the circumference of the cylinder.

Bronze spots, since bronze has been used as the material for the knives of the cylinder and foundations, also belong to the possible faults in the paper. Their appearance when examined microscopically with about a fifty-times magnification, is characteristic: from a dark kernel proceed ramifying rays of a grey-brown colour, which are very similar to fungoid growths, and

have therefore been considered as such by many observers. It is very difficult to find an explanation of the method of formation of these. According to the unanimous opinions many they only appear after calendering. In the kernel of the large spots, which sometimes have a diameter of 4 millimetres (when their starlike form can be easily recognised with the microscope), there will always be found particles of bronze, which, by pressing and rubbing with the preparing needle, show a metallic lustre. In papers with many spots there will frequently be found, on careful search, shining bronze splinters without starlike rays. In most cases they arise from the bronze parts of the cylinders. In some cases they appear, however, on paper in the preparation of which cylinders without any bronze parts are used. As the paper was prepared from sulphite pulp, there is a possibility that the bronze arises from the bronze parts of the boiler attacked by the sulphurous acids.

In wood-pulp, prepared in lead-lined rotary sulphite boiler, small black spots containing lead have been observed in a few cases. Their formation must be ascribed to the unsuitable nature of the lead used.

Coal spots are caused by small splinters of stone or brown coal. They may be recognised by the sharp edges and corners of the splinters, by their inflammability, and by the fact that they are unattacked by acids. Lumps of earthy colours and fillings of material often cause spots. They can be easily rubbed down with powder with the preparing needle. Those caused by the fillings of material are noticeable in coloured papers.

Organic dyes can give rise to faults, either in consequence of incomplete solution, or that they have specially dyed individual fibres, such as wool, cellulose, etc.

By an oversight in the sorting of the lumps, sealing wax or rubber will frequently occur in the paper. The spots consisting of red sealing wax are easy to recognise, but those caused by black wax are difficult to determine, on account of their similarity to other spots. The rubber spots are similar to the resin spots, and are also sometimes somewhat brighter by transmitted light than the paper. Sealing-wax as well as rubber spots are most easily recognised by the characteristic smell which they evolve when touched with a red-hot needle.

Splinters of wood and wood-pulp, parts of the bark, husks of hemp and flax, as well as broken pieces of cotton-seeds cause spots which can be easily recognised under the microscope from the structure of the individual cells. The splinters of wood pulp mostly arise from the wood near the boughs or from the latter themselves; they consist of cells, which vary in form and size from those of other wood cells.

The husks are carried by woody parts of the hemp and flax stalks, and consist of short cells, the appearance of which, apart from their measurements, somewhat recall the cells of bran, wood or straw.

#### Fungoid Growths.

By long storing of pulp in a damp or half-damp condition, fungoid growths appear more or less quickly; they are called foxy stains, which prejudice the appearance and firmness of the paper. In working up the paper, however, they are distributed and decolorised by the bleach that they seldom cause spots. As the fungi, and, as a rule, also their spores, are killed in the drying, they cannot give rise to the formation of fungoid growths in the paper. These may be formed from germs contained in the water used for dampening, or the air, and encouraged by the conditions under which the paper is kept.

As one may conclude from the different coloration of the foxy spots, many different kinds of fungus may appear. Professor Herzberg has described and figured a black fungus which occurs in sulphite pulp. This description also applies to many other fungoid spots. When testing the composition of the spots it should be noted that frequently fungi are found on paper free from spots, which obviously arise from the foxy spots.



of the pulp, and therefore the discovery of a fungoid thread in the neighbourhood of a spot does not lead to the assumption that one has to deal with a fungoid spot.

**GROVE C.**—In the manufacture of paper, defects appear in the product which may be dependent on the raw paper. This kind of fault is undoubtedly the most unpleasant, because the paper maker under certain conditions must be responsible, not only for the paper supplied, but also for the work and materials used in making the paper. As, further, it is not always easy to determine whether the fault is to be laid on the raw paper or on the method of working and materials of the paper user, such cases frequently give rise to widespread legal actions.

#### Defects in Raw Paper.

One of the most frequently occurring questions in the working up of the paper is in the preparation of drawing paper. In his, fibrous knots and splinters of wood, which either project from the paper or swell up through the dampness of the painting material, form small holes in the painted-on film, which, after glazing, give dark shining spots. In testing the cause of such spots special care should be directed as to whether the splinters and knots lie in the paper mass or in the paint from which they are loosely pressed into the paper. In the first case the paper is undoubtedly the culprit; in the latter case, the source of the trouble is doubtful. The splinters and knots can be brushed loose from the raw paper, but they can also arise from the painting material being contaminated with dust. Exact microscopic examination of the knots and splinters, as well as of the paper, can sometimes decide which assumption is correct.

Crater-like depressions in the paint are formed by resin and grease in the raw paper, and give, after glazing, a ring-shaped spot.

Iron is usually only first to be seen when the painted paper is mounted on a card and the starch paste dries slowly, so that the water has time to act on the iron. If the starch paste be dried, the action is naturally hastened. Whether the iron which produced the spot was in the paper or the card must be determined by separate tests, i.e., by treatment with acidulated ferricyanide solution.

If the paper is pasted on to tin plate, and if for any reason the drying of the adhesive material is slow, rusty spots will be caused on the paper. In all cases met with up to the present, the iron in the tin plate is the cause. The damp reaches the sheet iron through very fine holes, not visible to the unaided eye, in the tin coating, and causes the formation of rust and diffusion of the iron into the paper. If a piece of paper free from acid is dampened with distilled water and laid on the metal plate, rust spots, in about two hours, appear, if care is taken

to ensure slow drying. That this disadvantage can be avoided if the evaporation of the water in the adhesive material is hastened, or at least not hindered, was proved by pasting the same paper on a number of flat iron boxes. The paper on the sides was free from spots, that on the flat cover, on the other hand, very rusty, because the boxes, after the pasting, were placed one over the other, so that the damp could only escape very slowly.

Sand and similar substances cause holes or small dark spots in the painted paper. Whether in this case the raw material or the paint is at fault is often very difficult or impossible to determine, especially when some of the unpainted paper cannot be obtained.

In parchmentising, many faults may arise from many causes which can be ascribed to the raw paper. The proof succeeds in this case only if the raw paper can be tested, on account of the strong action of parchmentising mediums.

Resin and grease prevent the action of the acids, chalk and chloride of lime neutralise the acid and give rise to air bubbles, which prevent the penetration of the acids.

In the preparation of papers for tracing or for photographic processes of all kinds, although the paper may be prepared with every care, failures will show themselves, the causes of which probably lie in the paper. These defects are frequently of such a nature that it is not possible to investigate them with the microscope or the usual reagents. In such cases a trial should at least be made as to whether the paper or the method of treatment gives rise to the faults. As the trouble often appears only with a certain treatment and under certain conditions, such as warm air, damp, etc., which are not known or which cannot be maintained exactly, the experimenter is forced to a more or less roundabout method of test.

Tracing paper, which is prepared by saturation with drying oils, etc., acquires, when the raw paper contains iron (sometimes after long storing) brown spots, which do not make the paper useless, but which give it a bad appearance. Here the spot is caused not only by the colour of the iron, but also by the oxidation of the oil produced by the iron. Besides iron, knotty fibres and imperfectly sorted waste paper give rise to spots. The fibrous knots become thicker in glazing than the rest of the paper, and therefore take up less of the preparing medium; the lumps arising from waste-paper retain some of the first sizing, and therefore differ as regards their absorptive capacity for the oil and other liquids from the rest of the paper. In iron printing papers fibres containing lignine cause defects, because they attract and reduce iron, and especially the cyanogen compounds of iron.

G. DALEN.

(To be continued.)

## ENLARGED NEGATIVES ON STRIPPING BROMIDE PAPER.

An article appears in the current issue of our Dresden contemporary, "Die Photographische Industrie," in which are given a number of recommendations as to the making of enlarged negatives on the stripping bromide paper, which seems to be an article of common supply in Germany. Our contemporary dwells upon the advantage to photographers of being able to prepare a number of enlargements quickly and inexpensively, while at the same time being able to produce results which are not of the uniformity inseparable from bromide paper. Its recommendation is to employ a stripping paper which may be exposed in any daylight enlarging apparatus, and has the advantage that it permits of considerable retouching being done before the prints are taken from it. The paper, as our contemporary proceeds to point out in a series of practical hints, must be exposed for somewhat longer than the ordinary bromide paper, and also must be developed to a considerably greater apparent density than is the case with bromide prints. The developed, fixed, and well-washed negative

is then placed film side in contact with a glass plate and squeegeed down. The contact with the glass plate must, of course, be perfect, and the glass must be well-cleaned just as when squeegeeing gelatine prints. When the paper is completely dry the transparent film is easily detached from the paper support.

A very necessary precaution to take is to employ all the baths at a temperature not above 8 to 10 C., using, therefore, for this purpose a developer which works well at these comparatively low temperatures. In this way it is easy to avoid the partial frilling which takes place unless such precautions are taken. In squeegeeing the paper to the glass a roller squeegee should be used and care taken that the film is uniformly brought in contact with the glass, otherwise water and air bubbles will be left. The stripping of the paper should not be attempted until complete dryness has been obtained, otherwise there will be every probability that the gelatine film will tear or rack up. It is best to employ moderate artificial heat until the paper

eventually separates spontaneously from the gelatine film. The paper may be allowed to dry, retouched, and then squeegeed, but it is difficult to judge of the proper strength of the retouching in the case of a rather opaque paper, and therefore it is best to postpone any retouching until the film has been transferred to its glass plate. In all cases plenty of time should be given, at least half an hour, to softening the paper before squeegeeing, otherwise it cannot be expected to adhere.

The finished glass negative shows scarcely any difference from a negative made in the ordinary way direct in the camera, except that there is a peculiar fine grain over the film which facilitates any retouching with a lead pencil. As it is possible to watch the progress of the development only on the surface of the paper, it is scarcely likely that the negative will be too dense. Most likely it will be on the thin side, and so much so as to need intensifying. The mercury intensifier acts very promptly, but on account of the liability of the gelatine to frill at the edges it is far better to obtain a negative of the right strength to start with instead of trusting to after-treatment, and with a little practice the attainment of good density presents no difficulty. The negative image, as transferred to the glass, is laterally reversed as regards right and left compared with an ordinary negative, and therefore gives laterally reversed prints except by single transfer carbon on a similar process. If prints are to be made on ordinary direct papers, it is necessary to place the transparency from which the enlarged negative is made with its film side outwards in the enlarging apparatus. In this way a laterally reversed negative is obtained, from which correct prints can be taken.

In order to give facilities for convenient retouching, the paper may be squeegeed on to an ordinary plate of ground glass, being placed in contact with the smooth surface. On the matt side of the glass a good deal of local control can now be carried out. Any portions required may be lightened or darkened, points of light inserted, etc., all with a pencil or stump.

Altogether, the use of a stripping bromide paper would appear to have many recommendations for amateur use and in enlarging establishments. While permitting of the facilities which plates possess, they are comparatively inexpensive since the glasses which serve to support them can be repeatedly used.

#### ROYAL PHOTOGRAPHIC SOCIETY.

THE following committees have been appointed:—

Fellowship Admissions Committee.—Pictorial Section: Messrs. H. W. Bennett, John A. Hodges, E. T. Holding, Fred. Hollyer, Rev. F. C. Lambert, M.A., Furley Lewis, J. C. S. Mummery, A.R.I.B.A., F. J. Mortimer, and B. Gay Wilkinson. Scientific Section: Messrs. Conrad Beck, Geo. E. Brown, Douglas English, B.A., T. E. Freshwater, F.R.M.S., A. Haddon, Chapman Jones, F.I.C., C. H. Oakden, E. Sanger Shepherd, and Major-General J. Waterhouse.

General Purposes Committee.—Messrs. A. W. W. Bartlett, Leslie E. Clift, T. E. Freshwater, F.R.M.S., E. T. Holding, J. C. S. Mummery, C. Welborne Piper, A.R.I.B.A., H. Snowden Ward, and B. Gay Wilkinson.

Exhibition Organising Committee.—Messrs. A. W. W. Bartlett, Leslie E. Clift, E. T. Holding, C. Welborne Piper, and B. Gay Wilkinson.

Exhibition Selecting and Hanging Committee.—Pictorial Section: Messrs. W. R. Bland, W. T. Greatbatch, Furley Lewis, J. C. S. Mummery, G. A. Storey, and B. Gay Wilkinson.

Journal Committee.—Messrs. Leslie E. Clift, C. E. K. Mees, D.Sc., and Major-General J. Waterhouse.

Journal Advertisements Committee.—Messrs. A. W. W. Bartlett, Leslie E. Clift, and J. Sterry.

Portrait Gallery Committee.—Messrs. E. T. Holding, F. Hollyer, Furley Lewis, and F. J. Mortimer.

Delegates to the Affiliation.—Messrs. H. W. Bennett, Leslie E. Clift, and F. J. Mortimer.

Abstractors and Reviewers.—Abstractors: Messrs. T. Thorne Baker, F.C.S., Geo. E. Brown, F.I.C., A. J. Bell, J. Denny, F.I.C., A. Haddon, H. Holcroft, M.A., F.C.S., C. E. K. Mees, D.Sc., A. J. Newton, H. H. O'Farrell, C. Welborne Piper, E. W. Prevost, Ph.D., F. F. Renwick, S. E. Sheppard, D.Sc., F.C.S., E. J. Wall, and Major-General J. Waterhouse. Reviews: Messrs. S. D. Chalmers, M.A., C. E. K. Mees, D.Sc., A. J. Newton, and S. E. Sheppard, D.Sc.

#### PATENT LAW REFORMS.

UNDER "Ex Cathedra," on another page, we comment on the reforms in patent law which are to be introduced by the present Government. The following abstract of the recent address delivered in the House by Mr. Lloyd-George on introducing his Bill, which quote from the "Chemist and Druggist," will give an idea of the way in which chemical patents in particular will be advantaged.

"Mr. Lloyd-George, President of the Board of Trade, introduced on March 19 a Bill to amend the law relating to patents and designs, and also stated that a Consolidation Bill will shortly be introduced. The Bill, he explained, is to prevent the patent law being used for the hindrance and suppression of British industrial development. At present the patent laws are largely utilised by foreigners to prevent the patent being worked in this country. The new Bill is to put a stop to the vague terms which are used in patent specifications, and held to cover inventions afterwards made. The compulsory-licence clauses introduced in the last Patent Act have been found to be unworkable. It is now proposed to make compulsory licensing effective without cumbrous and expensive litigation. It cost Mr. Levenstein £4,000 to expose the futility of the present machinery. The Patent Office is to have the power of calling for samples in cases of vague and comprehensive claims. Mr. Lloyd-George instanced the case of chemical patents. At present a foreign inventor inserts in his specification every possible combination without ever having tried them. This worked against the British inventor, who afterwards made a discovery which could be some means be covered by one of the suggested combinations. A powerful foreign syndicate has been in operation for some time, and this syndicate would bring an action against the British inventor for infringement of patent. They included possibly as many as fifteen or sixteen counts in their indictment; they employed the ablest and consequently the most expensive counsel at the British Bar, and the best scientific experts. The result was that the poor British inventor, before there was time for his invention to take root or to become a success, was simply overwhelmed by this tremendous combination. In that way many British industries have been wiped out. Another important feature of the Bill is to be the prohibition of restraining clauses on the sale of patented articles. The practice has been held to be legal, and not in restraint of trade. A man selling a bootmaking machine, for instance, will make it a condition that no other machine be used at the factory for 20 years. These conditions will in future be nugatory. The Bill, which was introduced under the ten-minutes' rule, was well received, and loudly cheered as the first reading was announced."

## Photo-Mechanical Notes.

#### Relief Designs by Photography.

In answer to a reader of his photo-engraving columns in the "Ink Printer," Mr. S. H. Horgan gives the following method of producing the effect of relief modelled type from ordinary black and white impressions or drawings.

First have your drawing made, or your type set, in a proper spaced bold-face type. Make a negative of this and then a positive on glass by the wet-plate process. Intensify this positive with copper and silver. Bleach it again with copper and wash well, so that you have white letter on clear glass. Now lay this glass positive, back down, on a light-gray piece of cardboard, and you will find that the letters will throw shadows on the gray background, and by making a half-tone negative from this glass positive the effect will be that of a relief mould design. You will understand that the thickness of the glass on which the positive is made at the angle at which the light falls on it regulate the amount of shadow.

#### Mechanical Inking and Printing of Engraved Plates.

According to the patent (No. 9,311, 1906), of Thomas Macdonald, 6, Barnsbury Terrace, London, N., it has been found possible



printing to perform the inking, scraping, wiping, and cleaning the plates in the following way:—

The main frame carries the various inking jiggers, scrapers, wipers, polishers backwards and forwards across the surface of the engraved plate, while the co-operating organs bring them into action in sequence.

At one end of the machine frame there is an ink duct and inking rollers, with scrapers and the like thereon, while at the other end there is a chalk duct and chalking table, having scrapers, brushes, and the like thereon.

The action of the main frame in passing to one end of the machine carries the inking jiggers and ink scrapers over the inking rollers, to re-ink the jiggers, and the scrapers carry the surplus ink to the plate back to the inking table and deposit it thereon, while wipers and polishers clean the engraved plate.

At the return passage of the main frame to the other end of the machine frame the wipers and polishers are carried over the chalking table, and are scraped and rubbed by brushes, while the inking rollers pass over the engraved plate, inking it, and the surplus ink is taken from the plate by the ink scrapers, which are made of a soft material, so as to reduce the wear or injury to the engraved plate during the scraping.

The inking jiggers and ink scrapers with wipers and polishers are carried with a swinging motion during their passage over the engraved plate, and over the chalking and inking tables. The middle of the machine frame between the chalk duct and the ink duct, there is a hot plate apparatus on which the engraved plates while being inked and cleaned.

During the operation of printing the engraved plate is carried to the inking and cleaning position to the roller and printing rollers on the press, where it receives the paper, packing, and is ready for printing in ordinary sequence.

#### Messrs. Griffin's Catalogues.

Following on the recent official opening of their premises in Kings-Messrs. John J. Griffin and Sons, Limited, send us their catalogues of apparatus and materials for photo-engravers, at the same time reminding us that they have a special demonstration department for this branch of their business, where they will be able to show purchasers every facility for learning the properties of their new introductions. In addition to issuing a list of chemicals and materials for photo-engravers, Messrs. Griffin publish a handsome list of the Kohinor screens with some excellent examples of the work done by them. They also stock "Planoid" copper, a new grade of American copper possessing a minimum liability to scratches and a high perfection as regards flatness. We hope to refer shortly to one or two special lines of interest to photo-engravers which Messrs. Griffin have now ready.

#### PHOTO-MECHANICAL PATENTS.

The following patents have recently been applied for:—

**REPRODUCTION PROCESSES.**—No. 5,375. Improvements in lithographic and letterpress photo-process reproduction. Richard Templeman, William Neil Turner, Robert Turner, and Alexander Wilmour, 15, Water Street, Liverpool.

**PRINTING BLOCKS.**—No. 5,515. Improvements in the production of printing blocks. Sherard Osborn Cowper-Coles, 82, Victoria Street, Westminster, London.

**CELLULOSE MANUFACTURE IN JAPAN.**—The Nippon Cellulose and Artificial Silk Company, Limited, which was registered in London on December 4, 1906, has acquired ground in Japan for its factory. The nominal capital of the company is 4,000,000 yen (£400,000), and it consists of 80,000 ordinary shares of £5 each (one-third paid up), and 2,000 deferred shares of £1 each. The company has adopted an agreement with the Dai Nippon Manufacturers, Limited, and is now busy on the business of manufacturers and dealers in celluloid, paper, natural and artificial fibres of all kinds, silk weavers and dyers, manufacturing chemists, etc. The registered office is at the Chamber House, South Place, Finsbury Pavement, London, E.C. Japanese correspondence informs us that the company intend to produce three tons of celluloid and a ton of artificial silk daily.

## Exhibitions.

### NORTHERN PHOTOGRAPHIC EXHIBITION.

We have once more to place upon record our high appreciation of the methods of attack, the enthusiastic labours, and the completely satisfactory results of Northerners. On March 22 the combination exhibition of workers in Liverpool, Manchester, and Leeds was opened by the Lord Mayor in the stately halls of the Walker Art Gallery, Liverpool, which the municipal authorities have placed at the disposal of the photographic societies of the three centres.

The impression made upon the visitor, especially if he be a Londoner, unused to the frank and breezy cheerfulness of Northern towns, is one of intense life and action, everybody going ahead with a will and doing things with a red-hot enthusiasm. The rooms are hung with perfect taste, and display 670 pictures. Most of these are, of course, not new works; but though they are old, they are old friends. Besides this, there is a special room for lantern slides, the display of which is admirably managed by screened lights, which illumine them in a steady, equal way that we have never seen surpassed.

Amongst such a mass of good work it is almost impossible, and would certainly be misleading, to select any for detailed criticism. Generally speaking, we may state that the work in no case falls below a good average, and it is not too much to say that the show profits by the advantageous fact that it does not deal with entirely new work, as do the two leading London shows. Experiments and impertinences in picture-making by London workers do not come so far as Liverpool. They are sufficiently trounced in London. The Northern shows, therefore, get those works which have survived criticism and discouragement. As a result, there are no "wicked" things, and the average is really higher, artistically and technically, than a London show with its sensations and novelties.

There are, nevertheless, a great number of works exhibited for the first time, and amongst them we should particularly mention Mr. C. F. Inston's views on the Mersey, showing the new dock offices, with fine pictorial effect. "Across the Dock" and "Early Morning in Dock" we hope to see again in London in the autumn. A particularly rich print of eel boats on the Thames shows the mirrored images in the broken surface of the water with splendid effect. This Mr. Inston calls "Reflections." We must not dwell upon his work further, though we have not exhausted his new things.

The work of Mr. C. F. Stuart, which came as a pleasant surprise at the last Royal show, is carried still further at Liverpool. Perhaps the most impressive is "The Grey Mist's Shroud," a large bromide print occupying a commanding position. All his works have great pictorial qualities, and he seems to work the gum process with as much facility as success. If anything, he may be thought by some to have an eye too sedulously on the look-out for the conventional in picture-making. Mr. J. Dudley Johnston competes strongly with him. Mr. Johnston is, perhaps, more original, more prompted from within, than is Mr. Stuart. His "Impressions" of Liverpool and the River Mersey are very distinguished works, showing fine feeling for the beauties of atmospheric effect.

Romantic feeling is highly developed in the work of Mr. Walter Bennington, whose view of Stonehenge, called "The Temple of the Sun," is particularly impressive, and whose "Pines" is at once dignified and eloquent.

There is an excellent series of portraits of members of the Liverpool Society by Mr. John Smith, and amongst them that of Dr. C. Thurstan Holland is most appropriately supported by Miss Brenda Johnson's "Springtime." The point of this arrangement will not escape those who remember the subject of Miss Johnson's picture. Dr. Thurstan Holland himself exhibits a set of prints and slides of Swiss mountain scenery, the former mostly in the oil process. They are forcible and clever.

Herr R. Dührkoop is, we are pleased to note, well represented, especially as the show does not include foreign work to any great extent. His "Mother and Child" is beautiful in its happy catching of a sweet expression in the face of the mother. The child is lively in the extreme. Very decorative and of charming texture is the "Study of a Head," wherein the treatment of the hair, with berries and leaves entwined, adds a classic grace. The portrait of Professor

Arthur Nikisch, also by Dührkoop, is marred by the unsatisfactory and obtrusive posing of the hands; but the head is extremely strong in character—a handsome subject, with fine introspective expression.

Amongst other work which has not been shown in London are Mr. James Shaw's costume pieces, taken under privileged circumstances in Germany during an historic fête. "A Warrior Bold" is a capital study of a man-at-arms, the worse for conviviality, his collar rumpled and twisted awry.

Mr. Furley Lewis shows to advantage a set of portraits in his inimitable style. Amongst them are Prince Peter Kropotkin, Dr. Howard Barrett, and the late H. G. Moon (painter). From personal knowledge we can testify to the excellence of these as likenesses wherein the characteristics of the sitters are not belied. Mr. Furley Lewis is above sacrificing this important consideration to meretricious aims at a startling effect.

We may mention a few works before closing this review which space forbids us to treat of at greater length. "A Northern Waterway," Thos. Carter; "Drear December," A. Dawson Berry; "Evening," E. Warner; "Profile Study" H. J. Mallabar; "Harrington Mann, Esq., and Children," J. Craig Annan; "Nocturne—Gloucester," W. A. Clark; "The Rescue," Ellis Kelsey; "A Green Sea," Joseph Appleby; "Dwellings of the Humble," Rev. H. W. Dick; "Venice in Liverpool," Edwin Kite; "A Vegetable Cart," J. West Lang; "Windswept," Fred Whittaker; and "Patterdale," B. Ward Thompson. These are all remarkable works, and, we believe, have not yet been shown elsewhere.

The slides are, of course, largely repetitions of the subjects of the prints, and many are old friends. But they make an excellent and very extensive show.

The awards, it is pleasant to know, seem to have received hearty endorsement from everybody, and this unusual fact must be very gratifying to the judges, Messrs. J. Craig Annan, Furley Lewis, and W. R. Bland. The award winners are as follows:—

W. A. Clark (No. 188), "Nocturne—Gloucester."  
James Shaw (No. 237), "A Bit of Renaissance."  
E. O. Hoppe (No. 370), "Cecil Heywood, Esq."  
J. Dudley Johnston (No. 423), "An Impression, Liverpool."  
C. J. Whitehead (No. 428), "A Mersey Dock."  
C. F. Stuart (No. 459), "Breezy Upland."  
T. Lee Syms (No. 462), "The bud is fair. Oh, who shall tell if such the rose will be?"  
Miss Hilda Stevenson (No. 469), "Contemplation."  
J. M. Whitehead (No. 478), "The Silent Moor."  
Adelaide Hanscom (No. 554), "Would but some winged angel, ere too late, Arrest the yet unfolded scroll of fate."  
Rudolph Dührkoop (No. 557), "Mother and Child."  
W. A. Clark, No. 9 in lantern slides. Pictorial set of six: 1, "A Norman Vista"; 2, "The Abbot's Chapel"; 3, "Early Morning Sun, Gloucester"; 4, "A Mediaeval Market Place"; 5, "A Corner of the Market Place"; 6, "A Winter's Night."  
John T. Roberts, No. 59 in lantern slides. Technical set of six: "Spiders at Work."  
J. H. Taylor, M.A., No. 69 in lantern slides. Technical set of six scientific subjects.

H. Wormleighton. Two awards for stereoscopic slides.

We must add a word as to the efficiency and beauty of the catalogue. Its illustrations are in the best style, and it appears to be free of misprints—a most unusual thing in catalogues. Its price is 1s., but it is an excellent shillingsworth.

The success and smooth working of this exhibition, which is open for three weeks, and provides lectures upon every evening, is due to the hard and willing work of a band of enthusiasts, among whom should be specially mentioned Messrs. Inston (the indefatigable secretary), and Dr. Thurstan Holland (the efficient and helpful chairman), besides Messrs. John Smith, C. F. Stuart, J. Dudley Johnston, and Dr. Ellis.

#### WEST SURREY PHOTOGRAPHIC SOCIETY.

The nineteenth annual exhibition of the West Surrey Photographic Society was held from March 20 to 23 inclusive at the Railway Hotel, Battersea Rise. The judge, Mr. F. J. Mortimer, made the following awards: Silver plaque for best picture in exhibition, "Morning Calm," V. Nichols.

Class I. (members who have taken awards during the past three years), bronze plaque, "Sunbeams in the Crypt," A. Lockett; bronze plaque, "Daisies," Mrs. W. H. Goy; commended, G. W. Rowse (twice), V. Serin, A. Lockett, W. H. Goy (twice). Class II. (other members), bronze plaque, "The Path Thro' the Woods," G. N. Collins; bronze plaque, "A Moorland Track," G. E. W. Herbert; commended, G. Herbert (twice), R. H. Baskett, F. White, and G. H. C. Matthews. Lantern slides, bronze plaque, "Woodland Path," W. H. Wilshire; commended, F. G. Tryhorn.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between March 11 and March 16:—

**RADIOGRAPHIC PLATES.**—No. 5,784. Improved method of manufacturing radiographic and other photographic plates and papers. Thomas Thorne Baker, and the Gem Dry Plate Company, Ltd., 92A, Villiers Road, Cricklewood, London.

**PHOTOGRAPHY.**—No. 5,786. Photographic improvements. William Francis Robertson, Flower Bank, Gourrock, Scotland.

**COLOR PHOTOGRAPHY.**—No. 6,098. Improvements in the production of photographs in natural colours. Jan Szczepanik, 70, Chancery Lane, London.

**TELECROPHOTOGRAPHY.**—No. 6,334. Improvements relating to the electric transmission of photographs. Ferdinand von Madaler, 7, Southampton Buildings, London.

**APPARATUS.**—No. 6,339. Improvements in photographic apparatus. Ferdinand von Madaler, 7, Southampton Buildings, London.

**DAYLIGHT LOADING.**—No. 6,419. Improvements in daylight loading devices for cameras. James Henry White, 18, Southampton Buildings, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

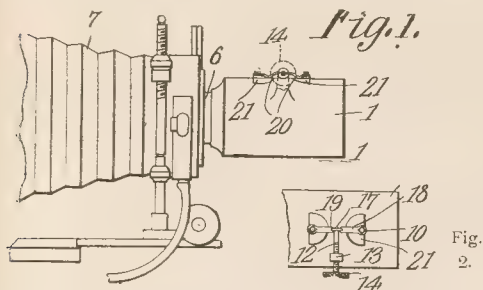
**CAMERA ATTACHMENTS.**—No. 16,923. 1906. The inventor states that noticeably tall objects appear taller to the eye than the really are, and the same thing is true of noticeably broad objects. For instance, the letter "T," when its two parts have the same length, the stem or upright portion has the appearance of being longer than the head or cross portion to the majority of eyes. In photographs the ordinary optical impression, as hereinbefore explained, is not produced, as the photograph is mathematical or proportionately true of the object photographed, and by reason of its reduced size, it does not give to the eye the same impression as the original.

It has been proposed to overcome this drawback by the employment of prisms arranged to suitably refract the light which passes through the lens, and it is the object of my present invention to provide a device embodying prisms suitably mounted for easy adaptation to any of the usual forms of camera lens tube and having means for adjustment. The device consists of front and rear prisms, mounted within a lens tube, and having adjusting means consisting of crank arms connected to the pivots of the prisms, there being an adjusting stem engaging the crank arms, so as to rock the prisms simultaneously in opposite directions, in order to bring an image to the relative proportions, as seen by the eye in viewing the original, or to distort an image to the extent of caricature, or to permit of the production of true image, such as obtained with an ordinary camera lens.

The device of the invention includes a tubular case 1, which is open at opposite ends, and is preferably provided at its forward end with an internal annular flange 2, to somewhat reduce the exposure opening 3 at the front of the case. The rear end of the case is provided with a reduced portion 4, which is cylindrical in shape and provided with a lining 5 of felt or other similar material, capable of affording a light-excluding joint when



reduced terminal 4 is placed upon the lens tube 6 of any conventional form of camera, such as is shown at 7 in Figure 1 of the



drawing. Within the case 1 is a pair of transparent prisms, 8 and 9, disposed in opposite relation, that is to say, with the base of one prism extending in the direction of the apex of the other prism, each of which is provided with diametrically opposite trunnions 10, having bearings in opposite sides of the case, whereby the angular disposition of the prism may be adjusted. These prisms are spaced one in front of the other, and when disposed in parallelism, as shown by full lines in Figure 3 of the drawing, the refraction produced by the first prism 8 is corrected by the second prism 9, wherefore the light rays strike the lens in the same relation as when the prisms are not in place. By tilting the prisms to the same extent from their normal relation to the position shown by the dot and dash lines, the refraction of the light rays caused by the prisms will reduce the width of the image and thereby give the same an apparent increase in length. By adjusting the prisms in the opposite direction, to the positions shown by the dotted lines, the refraction will be the reverse, that is to say, the image will be widened, and therefore have the impression of being shortened. By careful adjustment of the prisms, the image upon the ground glass may be brought to a precise reproduction of the impression received by the eye when viewing the original. Furthermore, by materially increasing and decreasing the refraction and only by adjusting the prisms to individually different angles from their normal positions, the image may be distorted to the point of caricature.

In practice the camera is focussed in the usual manner, and then the finger piece 14 is manipulated to adjust the prisms until the image upon the ground glass gives the same impression as that obtained by the eye when viewing the original.

The arrangement shown in figures 3 and 4 permits correspond-

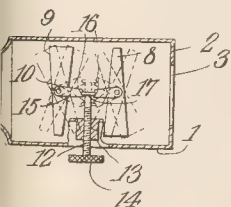


Fig. 3.

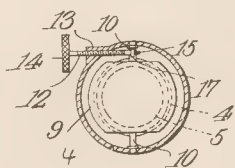


Fig. 4.

ing adjustments only of the prisms, and in order that the prisms may be individually adjusted, I employ the means shown in Figures 1 and 2, wherein the trunnions 10 project externally of the case and carry spring arms 18, each of which has its free end bifurcated as at 19, to receive the disc 17 upon the inner end of the threaded adjusting member 12, as hereinbefore described. By reason of the elasticity of the arms 18, they may be independently lifted or spring out of engagement with the adjusting stem and then moved to adjust the corresponding prism individually of the other prism. By preference, each spring arm has a depression 20 to frictionally bear against a flat boss 21 provided upon the exterior of the case, whereby the crank arm and the corresponding prism may be held against accidental movements when adjusted independently of the adjust-

ing stem 12. Willis Eugene Phillips, Collbran, Mesa, Cal., U.S.A.

ENLARGING APPARATUS.—No. 5,179. 1906. The invention consists of an apparatus obviating great extension of bellows. The sliding holder A is a parallel strip of brass, iron, or any other suitable metal or material, and is adapted for sliding, either by a slot, Fig. 2, or by sliding in a groove, or by any other means by which

Fig. 5.

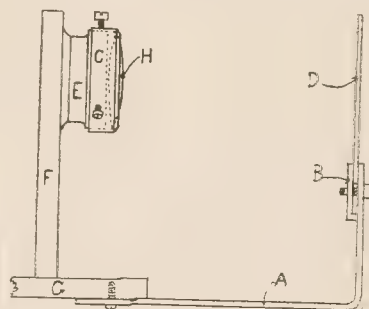


Fig. 1.

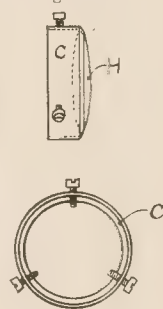


Fig. 4.

the distance between H and D can be altered, for the purpose of focussing or for different degrees of enlargement. H being the lens and D the negative, or object being operated on.

The holder A is bent at right angles, at a certain distance from the end, the slot being continued some distance up the vertical portion, to enable the object copied to be raised or lowered, so that different portions of the same can be placed central with the lens, the object to be fastened to the holder A by a small clip B, with a screw or any other suitable fastening, and the clip being able to slide up and down the vertical arm of A.

The holder A to be fastened either to the baseboard of camera

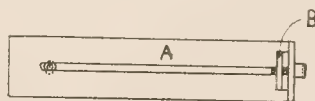


Fig. 2.

G, or to a board or table to which the camera is fastened, by a screw or other suitable fastening. F is the camera front. The claims are:

(1) "A supplementary fitting for a camera for the purposes described, consisting of a slotted extension piece fitting on to the baseboard of the camera, and carrying an adjustable holder or the like."

(2) "In combination with apparatus claimed in Claim 1, the auxiliary lens fitting for altering the focus of the lens according to requirements." George Smorthwaite, 2, North Croft Villas, Englefield Green, Surrey.

## New Trade Names.

TWINK.—Photographic Dry Plates and all other photographic goods included in Class I. Ilford, Ltd., Britannia Works, Roden Street, Ilford, London, E. Manufacturers of photographic plates, papers and films. February 6, 1907.—Design of a five-pointed stars composed of triangles. Photographic apparatus in Class 8. Fabrik Photographischer Apparate auf Aktien vormals R. Huettig and Sohn, 76, Schandauerstrasse, Dresden, Germany. September 12, 1906.

THE KING AND PHOTOGRAPHERS.—King Edward has been much annoyed for the past two days at Biarritz by the unpleasant pertinacity of the photographers who spring out from behind doors or rocks as his Majesty is passing. The other morning, as the King walked along the sea-front, no fewer than five cameras were levelled at him.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Hand-Camera and Rising Front.

There is often some difficulty (says the "Photographic News," in its highly attractive "Spring" number) in deciding what difference there will be between the view on the plate and that seen on the finder when the front is raised, but the matter is quite simple if the finder is actually or mentally divided into four: the maximum rise of front usually being a quarter of the plate in either direction. If the front is raised to its fullest extent and the camera is held level, one quarter may be reckoned as coming off the bottom of the finder picture and the like space will be added on to the top. With the universal type of instrument, however, there never need be any uncertainty, for the changing box may be removed, the door of the focussing chamber opened at the back, and the image actually focussed on the ground glass, holding the camera opposite the eye. This is obviously unnecessary for ordinary snapshot exposures, but where the utmost certainty is desired it may be secured in this way.

### Patterned Bromide Prints.

An ingenious method (writes Mr. Arthur Payne in "Photography") of hiding all traces of handwork upon the surface of the print, and at the same time conferring a novel texture to the paper, came under my notice some time ago, but I have not yet seen a description as to how it was produced. . . . All that is necessary to produce this effect is to place a sheet of rough glass paper, or a piece of wire gauze, in contact with the face of the finished and mounted print, and then to pass them through a rolling press, or between the rollers of a domestic mangle. This produces a pattern upon the face of the print, and a variety of patterns may be obtained according to the requirements of the moment by selecting suitable embossing material. Personally, I prefer the irregular grain produced by the action of glass paper. The kind of glass paper which I use is that known as Oakey's No. 3, and in order to prevent the grains of glass with which the paper is coated from sticking to the print, it is necessary to see that this is quite dry before it is passed through the press. It will be found necessary to pass the glass paper and print through the press many times before an evenly embossed effect is produced upon the print, and any pieces of glass which may adhere to the surface of the print are removed by brushing them off with a duster. It may be advisable to mention that the glass paper and print must not be repeatedly passed through the press without altering the relative positions of the two between each application of pressure, otherwise a few deep markings will be produced, and not an even roughened surface such as is required.

## New Books.

**AEROGRAPH WORK.**—Those who studied the recent article on working-up and colouring with the aerograph which appeared in our columns during January and February of the present year, will be glad to know that they are now obtainable in booklet form from the Aerograph Company, Limited, 43, Holborn Viaduct, price sixpence. We are gratified to observe the Company adopting the communications to our columns as the official instruction in the use of their well-known apparatus.

**EMPLOYERS' LIABILITY.**—Messrs. W. Speaight and Sons, 98, Fetter Lane, London, E.C., have issued a popular account of the new Act, under the title: "A Simple Explanation of the Workmen's Compensation Act, 1906." The volume costs only one penny, and is drawn up in the interests of both employers and employed.

### CATALOGUES AND TRADE NOTICES.

The current issue of the "Camera House Journal," Messrs. W. Butcher's trade publication, reaches our table containing full notices of the firm's forthcoming novelties, among which is a new 3s. camera, to be called the "Twink."

## New Materials.

"Satin Photo" Mountant. Made by Mendine, Ltd., Tooley Street, London, S.E.

Many as have been the preparations offered to photographers for the mounting of prints, there is, nevertheless, good reason for drawing attention to a new preparation introduced to us as Cole's "Satin Photo" mountant, and placed on the market by Messrs. Mendine, Ltd. This adhesive is evidently different in composition from the majority of such mixtures, and we have never examined a mountant which spread so easily under the brush or gave so perfectly uniform a coating. Added to this, the new mountant possesses a very small penetrative power for paper, and hence it causes little or no cockling even of a thin mount, a quality which confirms the makers in their recommendation of it for the now increasingly popular multiple mounting on an art paper. The mixture is also strongly adhesive, and, so far as we can discover, without any tendency to harm the prints mounted with it.

**P.O.P. POSTCARDS.**—We have received some specimens of postcards made by their Kentmere P.O.P. from the Commercial Photo. Co., Ltd., Kentmere Mills, Staveley, Westmorland. The cards show a fine scale of contrasts, and with very fine whites, and the tone, a rich reddish brown, is of a kind very suitable for wholesale postcard work. The Commercial Photo. Co.'s list prices the cards at 20s. per 1,000, carriage paid.

**POSTCARD MOUNTS.**—Messrs. W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C., send us a number of specimens of the "Nature" postcard mounts of various designs. The attachment of a thin photograph being now permitted by the postal authorities, the postcard mount should gain a vogue which has hitherto been denied to it, and as the photograph may now be sent in this form through the post for one half-penny, a large demand is assured. Messrs. Butcher are preparing twelve varieties, each having an embossed design, for circular, oval, or oblong prints, whilst others will take the full-size quarter-plate print. The prices are sixpence per packet of fifteen, or one shilling per packet of thirty-six; or they may also be purchased in bulk at 2s. 6d. per hundred, or 22s. 6d. per thousand.

**MATTOS PRINTS AT THE MODERN GALLERY.**—An exhibition of the results obtainable on the series of sensitive surfaces, such as silk, satin, linen, wood, and Japanese vellum, prepared by the Mattos Company, was held at the Modern Gallery, 61, New Bond Street, W., on March 25, when a number of prints from negatives of these materials were shown, together with many examples of the Mattos printing-out paper. A demonstration was given of the facility with which the Mattos materials are toned, and considerable interest was shown in the variety of the results obtainable without varying the manipulation. The exhibition, which is worth seeing, closes Thursday, March 28, at 5 o'clock.

Mr. J. M. DICKINSON, of Marion and Co., writes: "Will you allow me, through the 'Journal,' let my friends on my ground know change of my address, which is from this date 95, Fox Lane, Palmer's Green, London, N.?"

**ACKNOWLEDGMENT.**—A correspondent who recently addressed query to us writes as follows: "I have to thank you very much for kind answer to my query re yacht photography, also for giving me address to Captain Owen, of Stourbridge. He has written me several times, and has sent a large number of excellent prints. Indeed, his kindness has been so great that I feel quite uncomfortably indebted to him, with no prospect of being able to do anything in return. I must also thank 'Bhan-O' for his hints, and think, with ordinary good luck, I ought now to get something pretty decent when the next chance comes. It seems strange that the only question I have addressed to the 'B.J.' (though I have taken it for years) should have called forth such kindly feelings."

**WIMBLEDON CAMERA CLUB.**—Mr. J. Munro having resigned the hon. secretaryship of the Wimbledon and District Camera Club, Mr. H. Bridgen, 12, Montague Road, Wimbledon, who has hitherto acted as joint hon. secretary, is henceforth undertaking the whole of the duties connected with that office.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, MARCH 29.

Lydney Art Club. "Lancashire and Cheshire Portfolio."  
Lydney Photographic Club. "The Choice of a Printing Process." By Hector  
Maclean.  
Lydney Camera Club. Excursion—The Medway from Yalding to Maidstone.

#### MONDAY, APRIL 1.

Lydney Camera Club. Lecture, to be arranged.  
Lydney Camera Club. "Further Hints in Platinotype Printing." J. Barr.

#### TUESDAY, APRIL 2.

Lydney Camera Club. "The Autotype Carbon Process." Demonstrated. By  
Mr. R. Long and Members.  
Lydney Photographic Society. Lantern Slide Competition.  
Lydney and District Camera Club. Annual Meeting.

#### WEDNESDAY, APRIL 3.

Lydney Photographic Society. "Ozobrome." W. L. F. Wastell, F.R.P.S.  
Lydney London Photographic Society. Annual General Meeting.  
Lydney Camera Club. Smoking Concert.  
Lydney Polytechnic Photographic Society. "Ozobrome." By Thos. Manly.  
Lydney Leicester and Leicestershire Photographic Society. "Carbon Printing." Demon-  
strated. W. T. Mason.  
Lydney Camera Club. "Platinochrome." Demonstrated. By W. A. Mackie.  
Lydney Photographic Society. "Ozobrome." Demonstrated. By Mr. Manly.  
Lydney Edinburgh Photographic Society. "The Intensification and Reduction of Gelatine  
Negatives." Illustrated. By A. J. Garwood.

#### THURSDAY, APRIL 4.

Lydney Liverpool Amateur Photographic Association. Meeting and Lecture at Walker  
Art Gallery.  
Lydney North London Photographic Society. Lectures by Members.  
Lydney Cambridge Wells Amateur Photographic Association. "Some Pictures from the  
Valais." By Dr. Starling.  
Lydney Richmond Camera Club. Members' Slides.  
Lydney Photographic Society. Annual General Meeting.  
Lydney Newbury Photographic Society. "The 'Watalu' Self-Developing Plate." By  
C. P. Proctor.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, March 26, 1907. Mr. T. Thorne Baker read  
paper on the "Colour Sensitising of Gelatine and Collodion Emul-  
sions and the Relation of the Colour of the Dye to its Sensitising  
Action." The author referred to the observation that the red  
sensitiveness of a gelatine emulsion becomes greater with its speed  
relatively to the blue-violet and attains sensitiveness to the infra-red  
with slight fogging and bathing with ammonia. On these and other  
points he based a theory of "sensitiveness enhancement," regarding the  
action of dyes as augmenting the latent colour sensitiveness already  
existing in emulsions. After discussing the function of fluorescence  
affecting the sensitising action of a dye, Mr. Baker suggested  
the use of silver nitrate and ammonia in conjunction with many  
dyes which give slight sensitiveness in the ordinary way. Thus  
azo Black B. H. N., in conjunction with silver nitrate and  
ammonia, gave very marked red sensitiveness, almost as great as  
that given by pinacyanol, and better than that given by the latter  
as regards green-sensitiveness. A similar action was observed in  
the case of direct deep black R.W. (Bayer). Diazo Black used in  
this way was suggested by the author as likely to be of service for  
spectrography and three-colour work, as it was infinitely cheaper  
than pinacyanol. Two other dyes which in like manner were found  
to work well in conjunction with ammonia and silver nitrate were  
azo Blue and Benzo Green. Benzo Green acted most notably  
in collodion emulsion. A washed collodion emulsion plate, after  
bathing with solution containing Benzo Green ammonia, silver  
nitrate, and a large proportion of alcohol for thirty seconds, was  
found to have red- and infra-red-sensitiveness up to 9,000 Å. U.  
Accordingly, the author stated his experience that the use of a dye in  
increasing concentration, saying that the infra-red-sensitiveness fell  
as the amount of dye was increased.

In summer Benzo Green was found to give rise to fog, which was  
not where the glass plate came in contact with the pneumatic  
roller. Perfect freedom from fog resulted from keeping the laboratory  
temperature below 40°F. As regards the action of the silver nitrate, the  
author offered the explanation that the insensitive silver salt of the  
dye when dissolved in dilute ammonia become dissociated, resulting  
in the formation of a small quantity of highly sensitive silver bro-  
mide in the film. Mr. Baker gave a number of general conclusions,  
among which was the statement that any aniline or other dye what-

ever is capable of enhancing the sensitiveness of silver bromide to  
some part of the spectrum. Blue iodide of starch was mentioned as  
giving an effect which could be measured.

The method followed by the author in measuring the general  
sensitiveness of a dyed plate and in finding the extreme limit of  
action useful in spectrography, was as follows: A prism camera was  
used, in which extremely weak sensitiveness could be determined.  
A camera was also attached to a spectrometer giving portions of  
the spectrum equivalent to 2,500 units. The dark slide containing  
the plate was first placed centrally and an exposure made. It was  
then displaced slightly, and a line-spectrum photographed, over-  
lapping the first one by about one-third, any position being thus  
determined by means of these lines, in reference to a scale in which  
wave-lengths were plotted against position in the negative. The  
remaining portion of the plate was employed to show any reduction  
caused by scattered light, and also any fog, these quantities being  
subtracted from the spectrometer readings of the spectrum densities.  
The author used a twelve-inch coil with the carbon terminals,  
moistened with a solution containing thallium, sodium, potassium,  
lithium chlorides, and at times used a hydrogen tube to get the C. F.  
γ δ lines. For illumination he employed the limelight for the  
diffraction, spectrum, and arc for the prismatic.

In examining the effects of a dye apart from the behaviour of a  
given plate, the author coated two pieces of plate with an equal  
quantity of emulsion, bathed one after drying with a dye solution,  
and again dried. An H. and D. strip was then cut from each, and  
exposures made for speed, and also in the spectrograph, the illuminant  
for the latter instrument being the same as for the speed tests.  
The exposures in the spectrograph were made in an inverse propor-  
tion to the ascertained speeds, and the plates were developed for  
times inversely proportional to their development factors. On read-  
ing off the densities, those of the unbathed plate were subtracted  
from those of the bathed and the differences plotted against wave-  
lengths. The resultant curve, which the author called the "curve  
of enhancement of colour-sensitiveness," gives the effect of the  
spectrum exposure of the bathed plate minus that of the spectrum  
exposure of the unbathed—in other words, the difference in sensitive-  
ness produced by the dye.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—A critical point has  
been reached in the evolution of this new comer. At a meeting  
of the organising committee, at the society's headquarters, 75, High  
Street, Lewisham, on March 20, with Mr. A. Haddon in the chair,  
the hon. secretary's estimate of capital and current expenditure for  
the first year was considered. Mr. T. K. Grant demurred to the  
idea of furnishing or providing apparatus on the basis suggested,  
ridiculed the estimated cost of particular items as extravagant, and  
offered himself to provide a half-plate enlarging lantern and bench  
complete for £5. Ultimately the committee cut down the estimated  
capital outlay to less than half, and current expenditure to about  
four-fifths of the secretary's estimate. The hon. secretary's scheme  
for providing the necessary capital to start the society fully equipped  
at the outset was then discussed and rejected, an amendment being  
adopted, on the motion of Mr. T. K. Grant, postponing consideration  
of ways and means until the general meeting. The hon. secretary  
(Mr. Noon) at once resigned his office, stating that he declined to be  
responsible for carrying out a policy which failed to provide  
for the liabilities which must be incurred, or for the proper equip-  
ment of the society at the outset. Pending the appointment of his  
successor, communications for the society should be addressed to the  
joint hon. sec., Mr. E. W. Andrews, 12, Old Dover Road, Blackheath.

**CROYDON CAMERA CLUB.**—Mr. H. P. C. Harpur last week gave  
a lecture on "Transparencies for Enlarged Negatives," with particu-  
lar reference to a highly ingenious appliance of his own design.  
for making trial and other exposures for dry-plate positives. This  
apparatus, which hardly lends itself to detailed description without  
drawings, can be set to give from six to any lesser number of ex-  
posures: step by step, either across the plate, or what is better, along  
the diagonal. When the correct exposure is ascertained a simple  
shift of a lever allows this to be given. The lecturer strongly pre-  
ferred a good slow dry-plate to a carbon transparency, employed  
Rodinal, 1 in 10, for a fixed time of development, and used a pendulum  
rockers, which he said was undoubtedly better than rocking oneself,

an obviously unanswerable proposition, as stated. It was, however, pointed out by others that the use of a mechanical rocker might cause uneven development if its period of oscillation should happen to synchronise with the flow of the developer, a stationary wave being then set up. This would result in the ends of the plate being more developed than the middle portion. A hearty vote of thanks was deservedly accorded Mr. Harpur.

During the evening several large albums containing a collection of works by members of the Southampton Camera Club, and kindly lent by it, were inspected with much interest. It was unanimously agreed that a very high level of merit was maintained throughout.

## Commercial & Legal Intelligence.

**IMPROPER POSTCARDS.**—At the Bow Street Police-court, Albert Stoop, a Belgian, was charged before Sir Albert De Rutzen with selling improper prints. Mr. Wilson, for prisoner, stated that he (prisoner) would plead guilty. A remand was ordered.

**A LONDON BANKRUPTCY.**—At the London Bankruptcy Court, on Friday last, before Mr. Registrar Brougham, an application was made for the discharge of John Edward Reeves, photographer, of Barking, Essex. The Official Receiver reported that the receiving order was made on November 28, 1906, on the petition of a creditor, and at the first meeting of creditors the Official Receiver was appointed trustee of the estate. The statement of affairs filed by the debtor disclosed unsecured liabilities amounting to £197, but the proofs actually lodged amounted to £208. The assets, so far as they were not assigned to creditors either wholly or partly secured, were estimated to produce £54 3s. 10d., but they had actually realised only £19 3s. 4d., and the probable value of the assets not yet realised was £20, making £39 3s. 4d. in all. The difference between the actual value of the assets and the bankrupt's estimate was accounted for mainly by the over-valuation of his assets. The dividend payable to the creditors was not expected to exceed 1s. in the £. The bankrupt stated that in 1892 he commenced business as a photographer at 50, Hermit Road, Canning Town, with a capital of £5. In 1902 he was suffering from nervous breakdown, and, acting under medical advice, he went to Lowestoft for a year and seven months. The business, which was then solvent, was handed over to his son-in-law, Mr. Hills, who sent bankrupt £2 per week. When debtor returned from Lowestoft he found that Hills had incurred liabilities to the extent of £200, and that the business had been conducted at a loss. The debtor then resumed the management of the business, and he also opened a new business at a cost of £150 at East Street, Barking, which he entrusted to Hill's management. In March, 1905, he conveyed that business entirely to Hills, but the effects were only worth about £5. Debtor continued the business in Hermit Road alone at a loss. In May, 1906, he obtained a mortgage of £225 on the business, out of which he paid certain creditors chiefly connected with the Barking business. Afterwards creditors took proceedings against him. He alleged his failure to have been caused through liabilities incurred by Hill during his absence at Lowestoft. The Official Receiver reported that the bankrupt's assets were not of a value equal to 10s. in the £ on the amount of his unsecured liabilities; that the bankrupt had had little or no education, and had consequently never kept any books of account, therefore the Official Receiver reported that the debtor had omitted to keep such books of account as were usual and proper in the business carried on by him, and as would sufficiently disclose his business transactions and financial position within the three years immediately preceding the date of his bankruptcy. The debtor admitted that he became aware of his insolvency in July, 1904, when he returned from Lowestoft. Since that date he appeared to have contracted new debts amounting to about £35, in addition to the accounts that had been running since 1902; therefore the Official Receiver further alleged that the bankrupt had continued to trade after knowing himself to be insolvent. Eventually the Court suspended the debtor's discharge for two years.

## Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION To the Editors.

Gentlemen,—In reference to your comment in "Ex Cathedra" to the lack of *esprit de corps* amongst photographers towards the P.P.A., may I, through the medium of your journal, give my remarks (together with that of several others of the profession with whom I have spoken on the subject) why we have so far given the Association a wide berth.

We have seen scores of photographs—or, I should say, things that were supposed to be photographs, evidently issued by "backyard photographers," or their equals—on mounts adorned with the title M.P.P.A.

After due consideration we have decided not to associate ourselves with this class of photographer, and have therefore held back from purchasing the title for a 5s. fee.

We suggest that if the Association would welcome all classes of the profession to their ranks a few more members could be obtained by the prohibition of the use of the letters M.P.P.A., or at least allow their use to such members only who have proved themselves worthy by passing a professional examination.—One who would see the profession raised, and not lowered, by the use of the title

M.P.P.A.

[We are glad to hear our correspondents' protest, because we are equally against the use of the letters "M.P.P.A." by a photographer. Yet we cannot see how our correspondent can hold the Association responsible for the action of individual members, or how he can imagine the Association to include a majority of what he calls "backyard photographers." As we see it, our correspondents' aims are those of the leaders in the Association, and they would be more likely to be realised when the Association has our correspondents on its membership roll.—Eds. "B.J."]

### SULPHIDE TONING.

To the Editors.

Gentlemen,—In this week's issue of your journal I see an inquiry for a formula for sulphide toning in three solutions, and from your correspondent says he must refer to the iodide bleacher. The best formula I know is as follows:—

Potassium iodide .....	54 grs.
Water .....	4 ozs.
When dissolved, add:	
Iodine .....	22 grs.

This bleaching solution turns the paper deep blue, due to the formation of iodide of starch, and makes the "positive into a negative," as your inquirer puts it, and necessitates the use of a clearing bath, sodium sulphite, 60 grs.; water, 10 ozs.; to which add sulphuric acid, 15 minims.

The prints should be left in the iodine solution for ten minutes, transferred without washing, to the clearing bath, and kept moving until every trace of colour has gone from both sides of the paper. It is then washed and toned in a solution of sodium sulphite, 15 grs. water, 5 ozs.; hydrochloric acid, 5 drops.

The acid improves the colour of the prints immensely. This is the formula I employ for "Special Portrait Velox," mentioned in my letter a week or two ago. It is quite suitable for fine paper.—Yours faithfully,

S. HALL DOWNING

292, South Road, Sheffield.

March 22, 1907.

### STEREOSCOPIC PROJECTION.

To the Editors.

Gentlemen,—The problem of stereoscopic projection has given rise to several processes, which require more or less complicated instruments.

I found lately, in the "Merveilles de la Photographie," Tissandier, the mention of the Claudet's Monostéréoscope, which was sold at Paris in 1858.

The description of the apparatus being not complete, I made



quiry, and found in the "Monographie du Stéréoscope," by De la anchère, the full description and theory of the Monostéréoscope. ere is also a book by Claudet himself, "Le Stéréoscope," but I have found it.

The apparatus is a box with two lenses (placed side by side at ordinary stereoscopic distance), which are fitted so as to allow the superposition of the two images on the same focussing glass. A stereoscopic transparent slide being placed before them at the required distance, and the instrument being turned towards the light, a double image on the ground glass is not, as one could suppose, confused one, but each eye takes naturally the image which responds to it, and the result is a bright and sharp view in bold relief on the glass.

The theory of this phenomenon is fully explained in the book. If such an instrument gives really this result it would be easy to try the same process for projecting stereoscopic slides on a screen in a similar arrangement, by means of a lantern provided with two lights and two lenses, fitted as described above.

Would not a lanternist-reader of "The British Journal of Photography" try this interesting and easy experiment? I should be pleased to see the question examined by your readers.—I am, gentlemen, yours truly,

G. DE BRANDNER.

3, Rue du Chatelain, Bruxelles.

March 22, 1907.

## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 7s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Waddington, 420, Bolton Villas, Bradford, Yorkshire. Photograph of reputed Oil Painting by Murillo, entitled, "The Andalusian Flower Girl."  
Hunford, 22, Victoria Road, New Brighton. Three Photographs of the West of the New Brighton Landing Stage.  
Sayers, 25, King Street, Great Yarmouth, Norfolk. Photograph of the Caistor-on-Sea Lifeboatmen.  
Law, 32, Briardale Road, Seacombe, Cheshire. Two Photographs entitled: Landing Stage Smash, New Brighton.  
Winter, 26, Castle Street, Shrewsbury. Two Photographs of Henry John Hoarne.  
Oline, 19, The Avenue, Clifton, Bristol. Eight Photographs: Interiors at Langton Mansion, Bristol.

In consequence of our going to press earlier in order to Publish on Thursday a number of Queries and Answers and other paragraphs are held over.

URING PLATINOTYPES.—I have been tinting on albumen paper and find a great difficulty in obtaining the same effect in platinotype. Is any preparation necessary, and if so, what? And does the same apply to matt. coll. or bromide?—SILVER.

Most colourists, when they wish to produce the highest class work, prefer platinotypes to prints on albumen paper, as they find that upon them they can produce better and more artistic effects. If, however, you prefer a highly glazed surface to work upon we would suggest that you size the platinotypes with gelatine—say one ounce of Nelson's No. 1. gelatine dissolved in from twenty to twenty-five ounces of water, according to the gloss desired, with sufficient chrome alum, or formaline, to render the coating insoluble when dry. If the former be used, thirty grains of chrome alum dissolved in two ounces of hot water will be

sufficient. The solution should be applied warm with a broad camel-hair brush. The same solution will do for the other papers named.

SATURATED SOLUTIONS.—I enclose you a formula, cut from your "Annual," page 967. I cannot understand what is meant by "Saturate with iodide of silver and filter as above." Is there any book published on making lantern slides by the wet process?—IODIDE.

A saturated solution is one which has dissolved as much of the salt as it can at normal temperature. Read "Wet Collodion Photography," by Charles W. Gamble. Price 1s. net, from any dealer.

GLAZING PRINTS.—I am sending you two cards, one glossy, one plain. As I understand, the gloss is obtained by varnishing and drying on plate glass as photos. Can you give me the instructions and advice as to where to get the special varnish? I should esteem it a favour if you would advise me in any way. Trusting you will be able to help me in the matter, and thanking you in anticipation,—H. SINGLETON.

The print sent is apparently glazed with gelatine, and been squeezed on to a glass or ferrotype plate as is usual with P.O.P. prints. You may produce similar results as follows:—Float the prints on a warm solution of colourless gelatine—1 oz. to a pint of water. Let the print rest till the gelatine has very thoroughly set, then squeegee on to a glass plate which has previously been rubbed over with French chalk, or waxed, to facilitate the stripping when dry.

TINTING PHOTOGRAPHS.—I shall esteem it a favour if you will kindly answer the following inquiry in the "B. J." :—1. I purchased some best aniline dyes to tint P.O.P. prints. I made a saturated solution of each colour, and, of course, diluted them before use. The prints are beautiful whilst in a damp condition, but as they dry, the colours, especially the green and yellow, fade. They appear to sink into the gelatine and paper, sometimes showing through the back. Have I omitted to mix something with the dyes? 2. Also please state the proper method of mounting on to celluloid.—IOAN.

1. It seems to us that you have employed unsuitable dyes for the work. Colours specially prepared for the purpose are now sold by all the large dealers, and you would have no such trouble with them. They are very cheap. 2. The prints are first soaked in methylated spirit, and are then laid on a metal plate, the celluloid placed on, and a hot, heavy iron roller passed over the whole, which causes the print and celluloid to adhere. Suitable rollers, etc., for the purpose are specialties of Messrs. Fallowfield, Charing Cross Road.

WATKINS FACTOR.—Could you give me the Watkins factor for the universal developer recommended in "B.J.," January 5, 1906, by Mr. Shenton?—H. MARTIN.

We are unable to say. Perhaps Mr. Shenton, or someone who has used the developer, can give our inquirer the information. But we imagine the factor will not differ from that of a developer with the same proportions of metol and hydroquinone, particulars of which are given by Mr. Watkins in his "Watkins Manual."

SENSITISED VELLUM.—1. Can you inform me what German firm supply Japanese paper coated with P.O.P. or albumen emulsion, and if it is obtainable in this country? 2. What wholesale firm supplies Passe-partout binding strips in rolls for use?—S. E.

1. From Mattos, Ltd., Arundel Square, Highbury, London, N. 2. Cooper, Dennison, and Walkden, Ltd., 7-9, St. Bride Street, E.C.

W. D.—The address is: G. H. Eustace, 306, Cleethorpe Road, Grimsby.

C. H. LITTLE (San José, California).—There are two fairly good books: "A Treatise on Photogravure," by Herbert Denison, and "Photo-Aquatint and Photogravure," by T. Huson. The prices here are 4s. 6d. and 2s. respectively. Probably Messrs. Tennant and Ward, 387, Fourth Avenue, New York, can supply both.

ARCHITECTURE AND MORALITY.—A gentleman calls on me and orders four 12 x 10 photographs of certain villas, but I must not let the tenants know anything of it, as the pictures are only for his personal use, which might not be appreciated by the tenants. I believe it is the designs of architecture he requires. Am I

running any risks by supplying him? First, from a legal standpoint; second, morally. I might mention the said gentleman (tradesman) lives twenty miles away.—VILLAS.

You run no legal risks, as anyone is at liberty to photograph from a public highway any "work of nature," into which category buildings are, in this country at any rate, held to fall. As to the moral question, we cannot say, but we should not consider the taking of photographs for an architect's guidance immoral.

**POSTCARDS.**—Will you please advise me through the medium of your journal on the following point?—I cannot keep my glossy P.O.P. postcards flat, although I notice the commercial varieties are. Mine curl inwards. I put them through the ordinary process—hardening in formalin and squeegeeing on ferrotype plates. Directly they get in the window they curl badly. Can you advise me how to prevent this?—R. N. CLIFFORD.

If you set the cards to dry between two strips of wood placed about  $4\frac{1}{2}$  in. apart, so that the cards are sprung into a low arch, you will find that they will dry almost flat, and will remain so. It is possible you are giving them too severe hardening. Try a 5 per cent. solution of alum for ten minutes. It should be sufficient preparation for the cards before stripping.

**STUDIO QUERIES.**—My studio is 30 ft. long from east to west, and 18 ft. north and south. On the south side is a light starting 6 ft. from the floor, slanting 6 ft. from the vertical up to the ridge, which is 18 ft. above floor level. This light starts 6 ft. from the east end, then glass for 14 ft., leaving 10 ft. blank wall on west end. Marginal sketches show two sections, viz., south side and east end. 1. I note in H. P. Robinson's book, "The Studio," he recommends vertical side lighting, thus avoiding leaks, etc., and states in foot-note some studios have been so constructed. Can you inform me if this method of vertical lighting is a success? If so, by whom, and where? What area of glass would be required to light studio 30 ft. by 24 ft.? Is this vertical system good for large groups? What distance should glass start from east wall? Also from floor? 2. Can you recommend a standard work on this subject other and later than Robinson's? Supposing 24 ft. is too wide to light vertically, would a light like marginal section answer? Or, to put it in other words: How would you light such a studio to get best results? 3. The present system is perfect as far as lighting goes, but as the studio is too small for large groups, it is my intention to increase width 6 ft., and I want to avoid the leaks caused by moss growing in the accumulated dust between laps. I should be much obliged if you would answer above queries. Note: Do not forget this is south of the equator.—JAS. STEWART (Invercargile, New Zealand).

1. Some few studios have been constructed with the vertical light, but this form is now seldom adopted. We should certainly not recommend it for large groups. Neither should we advise the modified form of studio, with vertical light, shown in one of the sketches. The forms of studio most in favour in this country are the ridge roof and the lean-to, both of which are admirably suited for groups. 2. Bolas's book, "The Photographic Studio," is a more recent work, and describes several forms of studios, with cuts illustrating them. It is published by Marion and Co., Soho Square, London, price 2s. 3. As you get on so well with the system you have, why not keep to it, simply making the studio larger? If you are building a new one specially for groups, we should suggest either of the two forms above named.

**FOCAL-PLANE SHUTTER.**—Could you kindly give me a formula in the "British Journal" for making the blinds of focal-plane shutter light-tight? The blind is full of small pin-holes.—W. COOK.

As described by you, the blind requires altogether renewing. We know of no means of usefully repairing it. An odd pin-hole or two can be closed with a tiny patch of thin rubber cemented with a little rubber solution, but in your case you want a new blind. It looks as though an inferior cloth had been used in the first instance.

**W. E. M.**—Of the three, No. 2 is decidedly the best. Of those at ordinary prices, we should advise you to select among Ilford, Barnet, and Wellington, all of which are satisfactory in both the ordinary and the colour respect.

**A. J. REEVES.**—Messrs. Fallowfield. See replies to other queries. **FERROTYPE DRY PLATES.**—Could you inform me through the columns of the "Journal" how to make dry ferrotype plates? Should feel greatly obliged if you could do so.—F. H.

Ferrotype dry plates are prepared with washed colloidal bromide emulsion. But those who produce them commercially do not publish the formula they employ. However, on pages of the "Almanac," you will find formulae which will probably answer your purpose. To fully describe the methods of making the emulsions would take up far more space than can be space in this column. Therefore, we should recommend you to Abney's book, "Photography with Emulsions," through a dealer, or from Dawbarn and Ward, Farringdon Avenue, E.C.4. (3s.)

**FADED PRINTS.**—I am so sorry to trouble you again about the fading of the prints on the mounts. You refer to it as not having been washed before placing in the hypo. bath, but I give the three or four changes, and I also sent the one on the wet mount to compare. The paper used was "—." C.C.M. I also printed on paper, and the toning bath was platinum phosphoric acid. I might also add that only prints put in those certain mounts have faded.—W. S. K.

We are glad to have further particulars from you, though our guess at the conditions under which the prints were made was not far out, we do not think that your manipulation is responsible for the fading. Evidently either the mount or the mount is the cause. You can make sure of the former by using a standard brand, such as Higgins's; and as for the mounts, if the trouble occurs again, we recommend you to the mounts in the following way:—Lay a piece of paper or thin celluloid over half the mount and on this lay an albumen print, finished but unmounted. Pack up with a piece of pure filter paper and several thicknesses of moist blotting paper, put the whole in a printing-frame between glasses to keep in the moisture, and place in a warm place for two or three weeks. If the half of the print in contact with the mount deteriorates before the other the mount is defective.

**A MEMBER OF THE LEGISLATURE.**—We read in the "Manitoba Free Press" that Mr. J. F. Mitchell, who for many years has been a photographer in Winnipeg, is the Conservative representative elected for the division of North Winnipeg. Mr. Mitchell has been for a long time a member of the Winnipeg City Council.

**CHEMICALS IN JAPAN.**—The demand for soda ash, caustic soda, potassium chlorate, etc., in Japan is annually increasing, says "Toyo Yakuho." So far foreign countries have supplied all the chemicals requisite in paper, soap, glass-making, etc., but, as announced in the "Chemist and Druggist" of March 9, p. 36, a company, with a nominal capital of two million yen (£200,000), has been formed to manufacture caustic soda, bleaching powder, calcium chloride, etc., by electrolysis. In view of this fact, the amount of imports in 1905, representing cartons of 1½ lb., may be of interest. Caustic soda—England, 16,987,729; America, 78,131; other countries, 2,630. Soda ash—England, 42,335; America, 16,410,996. Potassium chlorate—Belgium, 42,333; France, 1,042,303; Germany, 1,448,000; and England, 1,960,789. Sodium bicarbonate—all countries, 3,528,000.

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## The British Journal of Photography

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## SUMMARY.

Liverpool Society at the Northern Exhibition hit upon an perfect method of displaying lantern slides, using Japanese as a means of diffusing the illumination. (P. 250.)

action of the graphoscope is the subject for an editorial, describes a number of experiments, easily made by any (P. 251.)

leader of the "B.J." in China repudiates the recent allegation the British cinematograph shows in the East are behind those of the production. (P. 262.)

T. Drummond Shiels, in a paper before the Edinburgh Society, recounted some interesting experiences from his professional career, and imparted advice which other portrait photographers may study with profit. (P. 252.)

continuation of the notes on "Spots in Raw Paper," a series of experiments are given serving to identify the more common defects. (P. 254.)

cinematograph water trough and improvements in Dr. Korn's method of electrically transmitting photographs are among the news of the week. (P. 256.)

## "COLOUR PHOTOGRAPHY" SUPPLEMENT.

Ernest A. Burchardt, of the Society of Colour Photographers, has announced to publish the results of experiments in printing with a new method. (P. 25.)

other details of the Traube iodide process are available. (P. 25.)

V. Czapek has completed a series of tests of the Smith "Uto" process. (P. 28.)

the notes are given on the development of three-colour negatives. (P. 29.)

portfolios of the Society of Colour Photographers are now on sale. Some brief criticisms of the contents by Mr. E. J. M. appear on page 31.

## EX CATHEDRA.

### The Iodine Bleaching Solution.

Mr. S. Hall Downing, in a letter on sulphide toning published in our issue of March 29 (where, also, a misprint of sulphite for sulphide should be corrected), gave a formula for an iodine bleaching bath, which formula prescribed the solution of 54 grains of potassium iodide in 4 oz. of water and the subsequent addition of 22 grains of iodine. This is the manner in which the making of the solution is generally described, but it is as well to point out that it is by no means the proper or most convenient manner. It is a slow method, and also a wasteful one as regards potassium iodide, which is rather an expensive salt. From 35 to 40 grains of iodine are quite sufficient for the purpose of dissolving 22 grains of iodine, and the 54 grains mentioned above is a large excess. The proper method of preparing an iodine solution is to weigh out the ingredients separately and then mix them in the dry state. It is best to throw the iodine into a beaker or measure and then spread the iodine over it. If the mass is moistened with a few drops of water and allowed to stand for a minute or so, the iodine is completely dissolved. Water is then added in the required quantity, and the solution is complete. If, on the other hand, the method of our correspondent is adopted, the flakes of iodine take a considerable time to dissolve, and they will not dissolve at all unless a large excess of iodine is present. If the solution is required in a great hurry two parts of iodine can be taken for every part of iodine. One and a half parts of iodine are sufficient, but the solids must then be more carefully mixed if rapid dissolution is desired. In a bleaching bath an excess of potassium iodide is undesirable, as it is a fairly ready solvent for silver iodide.

\* \* \*

### Public Photographic Libraries.

The announcement that the British Museum reading-room is closed until October next will be very unwelcome news to the many students who have occasion to make use of its unique facilities. We believe that provision is to be made for those engaged on important work, but the visitor whose reasons for consulting a volume do not satisfy the officials must seek elsewhere for information. It may therefore be of service to draw attention to the excellent and excellently arranged library of the Patent Office in Southampton Buildings, Holborn, which is open to the public, and contains as complete a collection of photographic books as any institution in London, the Royal Photographic Society, perhaps, alone excepted. The library of this latter body, though for the use of members only, would no doubt be opened to anyone requiring facilities unobtainable elsewhere on application being made to the Secretary at 66, Russell Square, W.C.

### Concerning Lantern Slides.

In our review of the Northern Exhibition at Liverpool we referred last week to the display of the lantern slides, and in the hope that other societies may find our remarks serviceable we return to the subject now. Various as are the methods of showing transparencies, every one is open more or less to the objection that the light may fall towards the corners or the lower line of a group. Reflectors of paper or of mirrors do not afford a perfectly even transmission of light. Mr. John Smith, of the Liverpool Society, tried opal glass in large sheets placed vertically at about 2 in. behind the slides. Through this, however, it was found that the electric lamps were too plainly discernible. He therefore hit upon Japanese vellum paper, such as is used for the printing of engraved plates. This was at once texturous enough to give perfect diffusion, and translucent enough to give a bright and mellow light over its whole surface. Placed in the same position as the opal first tried, it answered admirably. Not one slide was better lit than another throughout a very long series. The densest looked its best, and the thinnest was not garish. Whilst we are on the subject of lantern slides, we may also revert to some remarks by Mr. Tilney in his lecture at the Liverpool exhibition, entitled "Reflections upon the Old Masters." The slides he was using were in many cases badly covered with the stock patterns of masks, regardless of the requirements of the subject. Many fine compositions were ruined by this adoption of the method of Procrustes, who, it will be remembered, cut off at the legs all such of his guests who were too tall for the bed he offered them. Whilst a man may have a right to treat his own creations in any drastic way he pleases, he should certainly respect classic works. A reproduction of a picture fails to deserve the name if its boundaries do not coincide with those of the original. The design is in that case a different one. This principle applies just as much, of course, to the making of blocks as to transparencies.

\* \* \*

### Photographs, Good and Bad.

It is, perhaps, not the most graceful performance to praise your own photographs in public print, even at the editorial bidding, but Mr. Dudley Kidd, who thus, in the "World's Work," instances photographs by himself of South African aborigines, is never undue in the praise he accords to good points in the photographs, and his exposition of a few of the causes which make photographs useless for book illustration deserves to be conned by publishers. Until there exists in every publishing house someone who knows good photography when he sees it, we shall still have to submit to the degradation of the camera which is conveyed in the many books of travel accompanied by "the author's photographs." As we write, a record of an American's Scandinavian tour is before us, with quite fifty plate photographic illustrations, every one of which would disgrace an amateur of a month's experience. It amazes us that any house can waste blocks and paper on such work, particularly when good photographs of all the scenes are obtainable.

\* \* \*

### The Making of a good Illustration.

It is not much that Mr. Dudley Kidd asks for. He only impresses on the tourist that consideration should be given to the lighting and to the surroundings of his subjects—he is writing more particularly of types of people—and that a preliminary photographic "note" should be taken to point out the chief characteristics which are wanted in a given representation. In short, his recommendations amount to the advice which is given to beginners in photography in the better shilling handbooks,

publications which, we fear, are not perused even by those who are embarking on a tour which may extend to thousands of miles and lead them into unexplored parts of the world. In his own especial work of photographing Kaffirs, Mr. Kidd recommends most liberal exposure in order to obtain good negatives of such difficult subjects—a chocolate-coloured native clad in a white nightgown sitting in brilliant sunshine. "Either the face becomes black blot, or the shirt a white glaring mass devoid of trace of limbs beneath it. To further complicate the difficulty, the boy in question was acting as cook, and smeared his face with grease so as to make it shine. The photographer works with an actinometer—and he certainly should do so if he aims at quality—he will find if he gives a 'normal' exposure, the high-lights on the face will become glaring white patches, and all sensible modelling will be lost. In order to avoid these pitfalls it is first of all necessary to give at least ten times 'normal' or 'correct' exposure for the average subject, and secondly, to dilute the developer—in which the exposure must be reduced to a minimum—with four times the usual quantity of water."

\* \* \*

### Silver Nitrate as a Remedy for Burns.

Our own experience of the caustic properties of silver nitrate would have led us to have confirmed the statement recently made in one of the leading papers that a strong solution of the nitrate was an excellent remedy for burns. However, we see a German writer, Herr Coblentz, recording his great satisfaction in a solution of this kind as regards its healing properties on skin which has suffered from burns. The writer in question employs a 50 per cent. solution of silver nitrate containing also 20 to 25 per cent of zinc nitrate, the mixture of which is heated to boiling, and while hot brought to the injured place. The first effect of contact with the solution is a smart pain, but after ten or fifteen minutes the pain of the burn commences to disappear, and is completely gone in half an hour, so that only on pressing the skin can a sensation of pain be felt. The scorched skin appears to have been mortified, and in eight days a new skin has formed. It would be interesting to know if the experience of any of our medical readers on the subject of this drastic remedy are similar. The recommendation is one which we cannot remember to have seen in any English publications.

\* \* \*

### Photographing Coins and Medals.

A case was mentioned at one of the meetings of the photographic societies recently where the reproductions in a catalogue of a number of medals and coins represented the latter as intaglio instead of as in relief. The effect is not infrequently seen, and is due in most cases probably to the fact that the photographer, when copying the cast of the relief and employing the useful top lighting from the left-hand side, is accustomed to place the cast in an inverted position for the sake of ease in focussing. As a result, a reversed lighting is obtained: the shadows fall, for example, from the upper side of the outstretched arm of a figure instead of from the lower, and the eye, when the reduced coin is observed, attempts to account for the shadow formation by imagining the actual raised portions of the relief as depressions.

\* \* \*

### The Action of Thick Lenses.

In an "Ex Cathedra" note in our issue of March 22 we drew attention to the fact that the "nodes," or "principal points," that play such an important part in the Ge-



theory of thick lenses, were referred to and described by Dr. Wood in his "Optics," published in 1818, and we commented on the strange fact that Coddington, in his "Elementary Optics," omitted all reference to these points, though he acknowledged much indebtedness to Wood's "Optics." A further search shows that Coddington remedied this omission in his 1829 "System of Optics," though he appears to have entirely ignored the matter in his 1823 and 1825 editions. It is, however, still more remarkable to find the subject dealt with, very much in Wood's manner, in Harris's "Optics," published in 1775. Possibly Gauss found the germ of his theory in Harris, but the extraordinary fashion in which the theory of thick lenses has been neglected both before and since Gauss's time is anything but creditable. It should be observed that Harris, in describing the properties of the nodes of a lens, does not claim any originality. He rather treats the subject as if it were already a familiar one to optical students. Probably, therefore, it is to be found in earlier books, but so far as we are aware there is no reference to it in Smith, whose "Opticks" preceded the earliest editions of Harris's works.

\* \* \*

**Old and New Authorities.** We have never professed any great respect for the average modern type of English optical text-book, and the little respect we have felt of late has diminished in a most startling fashion. Some recent experimental work led to results that were either quite contrary to the orthodox modern authorities or else quite ignored by them, hence we fell back upon the old authorities, such as Smith, Harris, Wood, Wells, and Young, upon the chance of picking up some evidence corroborative of our own experiments. The result was somewhat surprising, for in several instances we found full details of the very experiments that we had been making, conducted with apparatus constructed in the same way, and resulting in very similar inferences. Moreover, we found a fine collection of simple experiments that are disregarded in more modern books, possibly because they tend to disprove fondly hugged orthodox misconceptions that are necessary to the passing of examinations. It is noteworthy that two of the best of the old writers were more or less amateur opticians. Harris was Assay-Master of the Mint, while Dr. Wells was physician to the Finsbury Dispensary. Naturally, the latter author confined himself mainly to the study of the phenomena of vision, and his essays on the subject should by no means be neglected by the modern student. Harris took up optics generally, but also gave much attention to the subject of vision, and his books are masterly treatises of equal importance with those of the renowned Dr. Smith. The knowledge possessed by both these old masters is astonishing if we compare their works with the poor little compilations that during the last century passed as important and authoritative text-books. Fortunately, there is an improvement of late years, and Mr. Dallmeyer, Mr. Dennis Taylor, and Dr. Sylvanus P. Thompson, with a very few others, have made some very notable additions to our optical literature.

In Chicago there are about thirty process engraving firms, including ten of national note, amongst the largest in America. Some 500 hands are employed—an average of fifty to a firm. So says the Chicago Tribune."

**DANGER OF CELLULOID COMBS.**—An elderly woman, named Ryall, of Camberwell New Road, was lighting a candle, when the flame was blown against her chiffon scarf, and a celluloid comb which she was wearing caught fire. She died in hospital from shock.

## THE GRAPHOSCOPE.

At the end of Dr. Porter's lecture on "Stereoscopy," which he gave at the R.P.S. on January 29, the question of the action of the graphoscope was raised, but owing to the lateness of the hour the matter was not discussed. This subject is one that seems to be very little understood. Everyone who has used the appliance is familiar with its effect, but very few seem to be prepared with an explanation of the relief observed in a single photograph when it is observed through a single large lens. The true explanation is a little complex, as three separate conditions govern the effect, but we hope this article may help to clear up a matter which seems to be one of interest to many.

A graphoscope is a large single lens of sufficient diameter to enable both eyes to observe the photograph, and the three conditions we have referred to are: first, a condition governing the appreciation of perspective; second, a condition peculiar to the formation of a virtual image of a plane object by a single positive lens; third, a condition peculiar to the binocular observation of any diagram or picture through a large lens.

We have several times pointed out the extreme importance of true perspective in connection with the subject of stereoscopy, and also when referring to the matter of monocular relief. The apparent relief due to perspective can only be seen to perfection when the print is examined by one eye from the one proper viewing point, and the trouble with photographs is that the proper view point is very often so near the print that distinct vision from that point is impossible. One remedy for this is to stop down the eye pupil by observing the object through a pinhole. This so increases the range of distinct vision that the proper position can often be found. Another remedy is the use of a magnifying lens to increase the size of the picture, and also the viewing distance, up to a convenient dimension. This, then, is one of the functions of the graphoscope. If the photograph has been produced with a short focus lens of, say, five inches focal length, we can arrange the graphoscope so as to magnify the image twice, and this increases the viewing distance from five to ten inches, which is about the best distance for distinct vision, and enables one to take up the proper view point.

It should be noted that the proper point can generally be found by trial without any calculation, for, provided the photograph is in true perspective, the realistic effect obtained from the one proper point is very striking. One adjustment is so obviously better than any other within certain limits that an approximately correct adjustment is easily arrived at. We advise experiment, first with a pinhole, and secondly with a large reading lens of about  $4\frac{1}{2}$  in. to 5 in. diameter. Such a lens is practically a graphoscope when used with both eyes, and it is a cheap substitute for the elaborately fitted arrangement sold under that name. If the experiments we are about to describe are to be carried out a lens of this description will be necessary. For subject, if no suitable photographs are handy, we would recommend a picture called "Sunlight and Shade" in "The Photographic Monthly" for December, 1906. This shows some excellent perspective and most remarkable relief when viewed in the graphoscope. With this picture and a pinhole the relief due to true perspective is very apparent, and if we examine it with one eye through the centre of the big lens a similar amount of relief is observable.

Now for the first experiment. Mount the picture on a perfectly flat surface, and, examining it with one eye through the lens, find the position in which the perspective looks most realistic. Note that the flat picture has a concave appearance. Next shift the head so that both

eyes can study the picture through the lens. The relief is at once greatly increased. It is much more realistic than before, and, if anything, shows an effect of exaggeration. Moreover, the flat picture no longer appears concave, but most obviously *convex*. If the lens is close to the eyes the convexity is most apparent; in fact, the paper appears to rise up in a great hump in the centre. The concavity seen with one eye is also most obvious when the eye is close to the lens. A further effect to notice is an appearance of cushion distortion. This is evident with either one eye or two, and the effect is precisely similar to that sometimes noticed with photographic lenses, though the cause is a different one.

All the effects noted above are attributable to, and easily explained by, the existence of spherical aberration. Owing to the presence of this aberration the virtual image observed through the lens is a surface convex to the lens. This convexity is apparent to binocular vision, but not to monocular. With one eye there is nothing to denote that the image is really convex. Owing to the presence of spherical aberration the margins of the object are magnified more than the centre, and cushion distortion is apparent; which two effects give the impression of nearness of the margins, and of consequent concavity. This wrong impression is corrected when both eyes are brought into use, and the convexity then becomes apparent, in spite of the fact that the two effects that deceived the single eye are still in evidence.

If the nearest object is in the centre of the picture, as it is in the particular illustration we are using as an example, the evident convexity of the image considerably aids the illusion of relief when we employ binocular vision through the graphoscope. This optical effect, due to the use of an uncorrected magnifier, is therefore a second contributory cause of the effect of relief observed; and we now come to the third cause, which nearly approximates to a stereoscopic condition.

When the relief effect is most obvious through the graphoscope, the simple experiment of opening and closing the eyes alternately will show that the right eye is seeing the subject through the right half of the lens and the left eye through the left half. Each eye is therefore observing through one of a pair of prisms placed base to base, and as a necessary consequence of the spherical aberration that exists each eye sees a differently proportioned picture. This fact will not be apparent in a complex photograph, but it is easily noticeable in a simple diagram consisting of a circle with a series of radii drawn from the centre. This may be looked upon as a plan of a cone. If examined with both eyes through the graphoscope lens the centre will appear to rise up above the plane of the circle, and a cone will be suggested. The suggestion is imperfect, owing to the absence of any perspective in the form of shading, but a conical effect is given. Examine this figure with one eye through the

right half of the lens, and then move the lens laterally so as to obtain a view through the left half. Two obviously different effects are obtained. In both cases the circle becomes approximately oval, but through the right half of the lens the point in which all the radii meet is well to the left of the centre of the oval, while through the left half the same point is well to the right of the centre. Leaving the matter of distortion out of consideration, it is evident that these displacements of the centre point are, very similar to the effects that would exist in a pair of stereoscopic views of an actual cone. The centre point is, in fact, displaced in each view in the same direction as the apex of a cone would be decentred in each of a pair of stereoscopic views; hence the combination of the two views seen through the two halves of the graphoscope gives very much the same effect of relief as that obtained in a stereoscope from two correct views. The result is not accurate, and though the relief obtained is due to the same causes that produce relief in the stereoscope, it is not stereoscopically true. It is, nevertheless, remarkably effective when the subject is a good photograph and the relief of a stereoscopic character is aided by good perspective.

The three causes of the relief observed in the graphoscope are, therefore: perspective, convexity of the image, and differences of a stereoscopic nature between the views obtained by the two eyes. All three causes help in the effect, but perhaps the second one—convexity—might be dispensed with, as it tends to produce exaggeration, and is also sometimes too obvious. It is, however, somewhat advantageous with portrait studies. The effect is generally too obvious when the lens is close to the eye, hence it is best to keep it some little distance away.

An ordinary prismatic stereoscope can be converted into an effective graphoscope by simply reversing the prisms so that their bases are towards each other. Some stereoscopes are so arranged as to permit the reversal of the prisms, and they form very effective instruments for observing single pictures. In the normal stereoscope the prisms are, of course, arranged with their edges towards each other. Each of them slightly distorts the image that is observed through it, but this distortion is just the opposite to that produced with the graphoscope and tends to diminish relief rather than to increase it. If an absolutely correct effect is desired, a lenticular or prismatic stereoscope should be used. It is worth noting that the relief observed in either the stereoscope or the graphoscope is at a maximum when the subject is drawn back from the lens to a distance at which focus is just beginning to be lost. If this distance is too great, the separate images seen by the right and left eyes will jump out of register and cease to combine, just as they do in the stereoscope when the distance between lenses and prints is too small.

## SOME EXPERIENCES OF A PROFESSIONAL PHOTOGRAPHER.

(A paper read before the Edinburgh Photographic Society.)

EVERY business man who deals directly with the public has experiences which are interesting and amusing. The professional photographer has, perhaps, more than his share of these, and, doubtless, many "knights of the camera" could speak interestingly of what they see and hear from day to day. We are told that "the proper study of mankind is man," so it may not be undesirable to look at him as he appears when in process of being

immortalised. Man here does not, of course, refer entirely, even mainly, to the male persuasion, as the photographer's most numerous and most charming patrons are those of the gentler sex. Which is, of course, what should be!

### Men and Women as Sitters.

It might be well to speak first of the difference between men and women from an operator's point of view. A distinguished



operator, from whom I learned much, was often asked by his lady clients if he did not prefer men because they were less troublesome. "Madam," he would diplomatically reply, "while men are certainly easier to photograph, we find the ladies much more interesting." And this is a true statement of the case. It is a well-known fact that expression is the great difficulty in portraiture. Men do not show their feelings in their expression readily as do women, and a moustache often hides the most expressive feature of the face. So that a characteristic portrait of a man is usually not difficult to get.

A woman is more affected by the preparations incidental to the photographing, and, by the time the exposure is made, she is often looking most unlike herself. A tactful operator contrives to minimise the prominence of the necessary preliminaries as much as possible, and seeks to make his sitters feel at ease. But with some people there is always difficulty, and every photographer is familiar with the person who has never had a successful photograph. But, from the fact that they are often difficult subjects, and because of their natural charm and grace, women are always interesting to photograph. But there are more than men and women in the world. There are children—and there are babies! Some people may go through this world unconscious of the fact that there are babies in it, but they are not professional photographers! Something must be said, then, about the photographing of that important personage—Baby.

#### Photographing "Baby."

The scene is an every-day one. The happy mother, after spending perhaps the best part of the forenoon arranging the draperies, vases, etc., so dear to the feminine heart, and so indispensable to every well-regulated baby, bears her precious burden off to the studio. She is full of hope and anticipation that baby will be "so good" and will sit "so nicely." Alas! how frequently those anticipations, coloured by a mother's love, are not realised. How often, after wrestling for an hour or more with one of these little rubs, the poor photographer is left a physical and mental wreck!

In babies, as in most things, we find differences. Some there are with bright, happy faces and flashing eyes, who are full of life and mischief. Others are doleful and melancholy, and seem, from early, to take a pessimistic view of life. All their actions are suggestive of a mind fully alive to the sorrow and vice of this wicked world.

There is also another important difference in babies—the difference of sex. The photographer, after long experience, when taking of the little angel, uses the word "baby," or the safe word "it." The necessity for this is obvious. A sweet little baby lies in, whom, by its mild appearance and artless ways, you are to be one of the gentler sex, and, in speaking to the mother, you say suggestively—"A little girl?" The mother straightens herself up, and, with scarcely concealed scorn in her voice, replies—"No; he is a boy!" Muttering apologies, you retire discomfited, vowing that you will never risk a guess again. I have been informed that the different sexes may easily be told by the difference in the pinafores worn, but this is too dangerous a method for a mere man to venture upon, and he will probably be well advised to avoid it.

Two important considerations in the photographing of babies are mothers. If they and the sundry female relatives who come to take part in the great event could be quietly removed from the room for a few minutes, there would, in most cases, be no trouble. But when the critical moment arrives, and you are engaged to get an exposure, you find that the aforementioned relatives, in various stages of excitement, are vying with you in the effort to attract the attention of that one and only baby. And here, from all parts of the studio, come strange and wondrous suggestions, the object of interest is perhaps deep in the study of the problem of the mysterious world of infancy, and quite oblivious of the commotion of which he is the innocent cause.

Or, again, with wondering eyes, his gaze wanders from one to the other of the gesticulating circle, and, after vainly trying to understand it all, he retires again to the solitude of his own thoughts.

A natural and justifiable weakness of mothers is their undue anxiety as to the likelihood of baby falling. When, perhaps, you are about to open the shutter, the mother, with a whoop worthy of a Red Indian brave, rushes in and saves the child from an imaginary fall. And while you gently remonstrate with her, she is perhaps persuaded to stand far enough away to prevent her also coming into the picture. But the stifled groans and murmurs which come from her direction show how great is the maternal love, and how large a place her little baby holds in the mother's affections and anxieties.

Very often, of course, there is little difficulty in photographing babies. And child pictures are generally very satisfactory and pleasing, because of the absence of the self-conscious expression which is often so noticeable in the portraits of older people.

#### Some Types of People.

A professional photographer comes across many interesting people. There is the man who informs you, with a warning tone in his voice, that he knows something about photography. You are supposed to infer from this that it is no use attempting to deceive him, or to practice upon him any little tricks of trade.

An occasional visitor, too, is the bright little lady, whose deportment does not suggest the stage, who has out out the portrait photographs, and tells you that she knows she is stout, but asks to be taken in a similar position—generally one which is not quite suitable for her.

There are also the people whose features are not exactly Grecian, who insist upon being taken side-face because they have seen a profile of someone else which they admired.

A difficult subject is the elderly lady who comes back with her photographs, and tells you that she knows she is stout, but asks if you think she is really as stout as you have made her.

The man who wants his proofs specially hurried as he is going abroad on the Tuesday, and who comes in on the Wednesday to re-sit, is also sometimes met with.

There is also the person who does not wish to be "touched up," and the person who does not object "to being improved a little." And there is also the person, who is, however, very seldom met with, who does not compare photographing with a dental operation.

Speaking broadly, there are three classes of patrons, which every photographer has, more or less. There are those who like a "clear" photograph, and who wonder why the Colonies produce clearer portraits than we do. These are usually charitable enough in their judgments to put this down to the better light which our Colonial brethren enjoy.

Another class, of advanced artistic taste, prefer low-toned pictures, and do not object to broad effects and a minimum of detail.

And the third class, which includes the great majority of the general public, comes between these two classes. While softness and an absence of glaring outlines are admired, a certain brightness and clearness of detail are also demanded. And it is often a difficult matter for the photographer to reconcile commercial considerations, which demand the catering to different tastes, with the observance of a certain artistic standard. If the commercial side is pushed too far, the artistic side must suffer. And if the desire for artistic effect is carried to extremes, it inevitably means a great narrowing of the circle of possible clients.

#### Outdoor Experiences.

Outdoor work provides photographers with some of their most interesting experiences. Every operator knows that he may expect a funny man in almost every group he takes—the man who raises a laugh at the wrong time. A few quiet words are generally sufficient, however, to cause this individual to subside.

In work done outside the studio, the photographer is frequently hampered for want of time, and he is often not treated with the consideration to which he is entitled. At a marriage party or similar ceremony, he is sometimes kept waiting for a considerable time, and is then told that he can only be spared five minutes for what is usually a difficult piece of work. This is often the result of want of thought and bad arrangements, but it is none the less annoying, and does not give the photographer a fair chance. At other times, of course, it is quite different, and he is given every assistance and ample time, so that the work is really a pleasure.

It is a notable fact in this connection that King Edward treats photographers with the utmost consideration. He is present exactly at the appointed time, and his genial manner and kindly thoughtfulness make him much easier to photograph than many of his subjects.

#### Different Operators.

Photographic operators are themselves an interesting study, and present many different types. Some are meek and patient! At least, I have been told that this is so, and I hope some day to come across one. I have even been told, on good authority, that there are those who will go down on their hands and knees and play with a child for half an hour, just to gain his or her confidence. Such a man is a true artist, and deserves our admiration, but life is too short to allow most of us to indulge ourselves in this pleasant recreation.

Some operators I have known have not been meek and patient—very far from it! They made what seemed to them a reasonable effort to conciliate the affections of children they were photographing. If this had not the desired effect, they retired to the back of the camera, and relieved their feelings in the way men do who feel strongly!

Some operators, again, are very cool and collected (and once more I am speaking almost from hearsay), while others can hardly be so described. An assistant who is working the camera for an excitable operator has no security of a job. His views of the sitter or sitters will probably be only momentary, and when the posing is completed, the operator will express his surprise that his assistant is not ready at precisely the same moment.

One talented operator whom I had the pleasure of assisting had a very restless disposition. When things were quiet, he developed a weakness for painting backgrounds, the troublesome preparations for which I had to perform. After much sketching and colour mixing, the background became a reality. So high was his standard of excellence, however, that the result of his efforts seldom pleased him, and the background had to be taken off the stretcher, put in a tub, scrubbed, and stuck up again ready for a new attempt.

The man who came after him had, strangely enough, quite a

different disposition. The intervals between sitters he spent on a sofa, slumbering peacefully. And, while his energy could not be so much admired, we, as his assistants, found that his habits relieved us of a great deal of mental strain.

Many others could be described, but space forbids.

#### Nature of the Work.

The reasons for liking or disliking photographs are often very curious. Sometimes the photographer is disheartened by the fact that his best efforts do not please. Work which he is proud of turning out is brought back for some trifling fault of dress, or for reasons which are never apparent. One man I remember came to re-sit for his photograph, which was really an excellent portrait. On being asked the reason, he said that, while he and his friends were highly pleased with the photograph, his wife thought she would like to see how he looked with a white tie instead of a black one! In this case, of course, the man was only obeying orders, and could not be blamed. The feminine weakness for detail was alone responsible. Such little incidents develop, or, rather, should develop, in the photographer that supreme virtue—Patience.

However, on the whole, the professional photographer is fortunate in the appreciation which his successful efforts receive. People are very grateful for a good photograph, and the knowledge of this makes a man put forth his best energies to do full justice to his subjects. "Man does not live by bread alone," and this appreciation of success, which is independent of pecuniary considerations, makes the work interesting and attractive. The constant succession of new faces is also extremely interesting, and a student of human nature has abundant material for study.

#### Conclusion.

It is doubtful if the average professional photographer appreciates to the full the dignity of his calling. Photography to-day is an economic and social necessity in every community. It maintains the memory and affections of family life through the picture it makes, and which we could not now do without. How often is regret expressed that no photograph exists of some friend or relative who is no longer with us? Sometimes, indeed, the camera has to intrude upon the sacredness of the death chamber itself, when relatives feel that a photograph in such circumstances is better than none at all.

Portrait photography, altogether, has much of pathos as well as humour in it. Human life is fleeting and uncertain. And it is touching to see an old man or woman, on whose "day of life the night is falling," being brought by the family to be photographed for what must be the last time. Photography is truly

"The Art that secures the shadow,  
Ere the substance vanishes."

T. DRUMMOND SMITH.

## SPOTS IN RAW PAPER.

### II.

#### Methods of Testing Papers of the Kinds of Spots.

No generally applicable method for the certain proof as to the constituents of a spot can be given, even when attention is confined to the above-mentioned cases. It is possible, however, by the systematic adoption of a few simple tests, to obtain important conclusions as to the nature of the spots, which conclusions can then serve to indicate further tests.

The method of investigation to be selected must frequently be decided by the quantity of materials, that is to say, in this case, according to the number of spots and faulty places. The procedure is much simpler when one has so much material that for every experiment new test pieces can be taken than when the same test piece must be used for several experiments.

Below is given the series of tests which can be undertaken with as little material as possible.

Before the tests of the individual spots are commenced, a sufficient number of the spots, which, from their similarity of appearance or frequency of occurrence have to be tested, should be marked with a small pencil cross. If this is omitted it may happen that one may be led astray in the course of the testing, because innocent spots appear more striking than the actual culprits, which sometimes quite disappear.

If one has the whole breadth of the run or large sheets, attention should be directed as to whether the spots occur at definite distances—in the middle or towards the sides of the paper—if also they recur at definite intervals, in the direction of the run.



From such observations the seat of the trouble can be determined frequently more certainly and quickly than by exact cutting of the individual spots. When the spots are marked, they should be cut out so that it is in the middle of about a centimetre of paper. When the appearance of the spots does not make another procedure seem advisable, the following tests should be carried out on these small pieces:—

### A System of Tests.

The spots should be examined in the microscope with about 50-times magnification, without any mounting medium, and their appearance, shape, size, colour, and so on noted. Bronze spots, wood splinters, and colour grains will be at once recognised; fungi can seldom be determined in this way.

1. Treat first with alcohol, then with ether. Spots containing grease and resin will either completely disappear or lose their transparency. Grease spots scarcely change when treated with cold alcohol, but easily lose their transparency after treatment with ether. The resin spots due to the wood-cells dissolve in ether as well as in hot alcohol with some difficulty, and often leave behind a coloured crumbly grain, which consists of gypsum, and which in some cases may also contain sulphurous acid. The spots caused by the gelatine are, as a rule, easily soluble, and seldom leave behind distinct quantities of inorganic constituents. Aniline dyes are notable for the discharge of the colour after treatment with alcohol.

2. The spots which persist after treatment with alcohol-ether should be boiled in water and left in it for some time. Some spots should then be laid on the object-slide and examined in the microscope with a weak power. It should be noted whether the spot forms a depression or an elevation in the paper, or whether it lies in the middle of the paper, or on the upper (lower) (the sieve) side. With the preparing needle one should try to lift the spot out of the paper with as little damage as possible, and place it on a second glass slip. Here it should be spread out by means of the preparing needle, and mixed with a drop of imbedding solution—glycerine, water, potassium-iodide-iodine, zinc chloride solution, etc. Then, after dropping on it a cover glass, it should be microscopically examined. If it consists of fibres, care should be taken to observe whether on or between them there are fungus threads.

3a. If the spots, after treatment with alcohol and water, cannot be dissolved, or are so hard and solid that they cannot be rubbed on the slip, they should be laid for some hours in a 10 per cent. soda lye, washed with hot water, and then the spot can be isolated and distributed and imbedded.

3b. If after treatment with the soda lye the spot cannot be rubbed, the dissolved splinters should be treated for a short time with chromic acid solution on the object slip, and it can then be, if principally of organic substances, easily resolved into separate cells. The chromic acid should be sucked up with a porous porcelain tile, and the fibres microscopically examined in any desired imbedding fluid.

4c. In order to prove the presence of gypsum in a spot, the separated kernel should be heated on the slip with a drop of hydrochloric acid, and an attempt made after drying to detect the gypsum crystals with the microscope.

5. Some of the original spots (or better still, as grease and iron prevent or delay action, some that have been treated with alcohol-ether) should be placed in a dilute solution of ferrous ferri-cyanide of potassium, acidulated with hydrochloric acid, and after about five to fifteen minutes, should be taken up and washed. Iron spots of all kinds will show a blue coloration with this. By using a magnetic steel needle it is easy to determine whether they are metallic iron, hard pieces of iron, or easily broken powder.

6. In testing for iron with the cyanides, it should be noted that unrefined fibres can show a blue coloration if left for long in

the solution, even if they do not contain appreciable quantities of iron.

5. Treatment with dilute iodine solution (strongly diluted solution of iodine in potassium iodide). To prove the presence of starch in spots it is convenient to use the paper treated with alcohol.

### A Test for Sulphites.

To test for sulphites the original paper should be dipped into solution of iodine containing some starch solution—if the paper contains starch the addition of the latter is unnecessary—and then into dilute acid and withdrawn. If sulphurous acid is present the paper itself and the spots will be decolorised. As the decoloration is often only temporary, the behaviour of the paper during the test must be continuously observed. In order to prove the presence of sulphurous acid in the resin spots caused by the wood pulp these should be removed after treatment with alcohol and placed in a test tube with a very small quantity of acidulated blue iodide of starch solution. Decoloration of the iodine solution shows the presence of sulphurous acid. A blank test should prove that the decoloration is not due to the action of the paper fibres on the iodine solution.

6. A thin solution of starch mixed with potassium iodide can be used for the test for free chlorine. As the places containing chloride of lime are not visible, large pieces of the paper should be painted with iodide starch solution, and the appearance of the blue spots noted. The sensitiveness of the reaction is considerably increased by the addition of some drops of dilute sulphuric acid to the starch solution. But with this it should be noted that ferric compounds may also set free iodine and produce the blue coloration. If free chlorine, chloride of lime, is present, the blue coloration will appear immediately, or after a few minutes; if left for some time the paper becomes frequently blue in consequence of the action of air and light without the presence of chlorine.

7. Wurster's Di solution is an extremely sensitive reagent for free chlorine, but also for ozone and hydrogen peroxide. To test for free chlorine the paper should be extracted with cold acidulated water, and to the extract a few drops of Di solution added. In the presence of free chlorine the solution turns red.

8. Solutions of litmus, methyl orange, congo red, phenolphthalein (this last dissolved in water and so much water added that the solution begins to get cloudy) are only used to prove whether the spots show a different reaction from the paper. The solutions should be applied with a tuft of cotton wool. In many cases it is better to lay filtering paper wetted with the solutions on the spots, and then examine them after some time. To test for alkali faintly acidulated congo red solution should be used, only with great care, as it consists of a blue precipitation in excess of a red solution, which stains the fibres of the paper with which it comes in contact so strongly that the blue coloration disappears, and alkali will apparently be proved.

9. Silver nitrate cannot be specially used to prove immediately noticeable faults. The paper treated with a 5 per cent. solution of silver nitrate should be dried in the dark, and then laid over a dish in which there is some iodine solution or bromine water. If after this treatment no spots are made visible, the paper is, after a preliminary exposure, developed and fixed.

10. Damping the paper with alcohol, ether, turpentine, aniline oil, hydrochloric and nitric acid, iodine, bromine, etc. When one has to prove defects which are not visible in the raw paper it is convenient to use gaseous reagents. The paper should be laid on a flat glass dish, on the bottom of which there is a small quantity of the liquid reagent, and then covered with a clock glass with the curved side uppermost. From time to time it should be examined to see whether spots show.

G. DALÉN.

## Exhibitions.

### TASMANIAN CAMERA CLUB.

The International Photographic Exhibition, under the auspices of the Northern Tasmanian Camera Club, was opened on February 14 in the Mechanics' Institute by the Hon. G. T. Collins, M.L.C. There are 700 exhibits from the Commonwealth, New Zealand, England, India, and the Cape of Good Hope. The quality of the work shown (writes a correspondent) is very high, and the expectation of the promoters have been exceeded in the number of exhibitors. The local camera club has competed with first-class men from various parts of the world without disgrace, sometimes, indeed, getting first places. The work sent for show is very fine. A loan collection sent by Mr. J. J. Rouse, of Sydney, attracted much attention. They are large pictures of the Prince and Princess of Wales's tour in India, and were purchased in London by Mr. Rouse. Fifty medals, gold, silver, or bronze, were amongst the prizes given by the club.

The principal prize-takers were as follows:—Open-to-all Section—best picture in exhibition: T. D. Leedham, New Zealand. Next to this came one by Mr. F. Styant Browne, who, however, got first prize for the same picture in the enlargement class. Landscape, open to all: T. D. Leedham and Gordon Montgomery, Ballarat, equal 1; F. Styant Browne, 3. Animals, open to all: Lancelot Usher, Moonah. Tasmanian children, special prize: Charles Davis, jun., Elizabeth Street, Hobart; 1. Seascapes, open to all: T. D. Leedham, 1. Portraits, open to all: Arthur A. Binnie, Dunedin, N.Z., 1; Norman Deck, 2 and 3. Architecture, open to all: F. Styant Browne, 2. Animals, open to all: L. Usher, 1; W. P. Permin, 2; E. G. Gibson, 3. Special silver medal awarded Fred. Marsh, of Clifton, Bristol, England (professional), for flashlight photography. Still life, open to all: Miss Agnes Thompson, Victoria, 1; T. D. Leedham, 2; Arthur W. Walburn, West Hartlepool, England, 3. Open to all colour photography: F. Styant Browne (only exhibitor), 1 and 2. Club exhibits: Working Men's College, Melbourne, 1 and 2; Northern Tasmanian Camera Club, 3. Post-cards, open to all: T. D. Leedham, 1. Section open to club members only—Landscapes: A. H. Hill, 1; F. Styant Browne, 2. Animals: A. H. Hill, 1; Styant Browne, 2. Still life: Arthur Green, 1 and 2; Styant Browne, 3. Portraits: F. Warland Browne, 1 and 3; E. W. Gibson, 2. Seascapes: J. H. Lithgow, 1; F. Styant Browne, 2.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between March 18 to March 23:—

**FIXING BATHS.**—No. 6,451. Improvements in photographic fixing or developing baths. Thomas Jackson, Lloyds Bank Chambers, Cheltenham.

**DEVELOPING TRAYS.**—No. 6,613. New and improved skeleton tray for use when developing photographic plates and the like. Michael Paris Foran, 18, Southampton Buildings, London, E.C.

**MULTIPLE APPARATUS.**—No. 6,739. Improvements in multiple photographic apparatus. Robert Bachstein and Baldwin Emil Enge, 31, Bedford Street, Strand, London, W.C.

**ROLLER-BLIND SHUTTERS.**—No. 6,785. Improvements in roller-blind shutters for photographic cameras. The Thornton-Pickard Manufacturing Co., Ltd., and George Arthur Pickard, 6, Bank Street, Manchester.

**LANTERN-SLID STORAGE BOX.**—No. 6,794. Improved changing and storage box for lantern slides. Herbert Holmes and Houghton's, Ltd., 88, High Holborn, London, W.C.

**PROJECTION LANTERNS.**—No. 6,846. Improvements in magic lanterns particularly applicable to advertising. Jacob Christian Grassmann, 7, Southampton Buildings, London.

**CAMERA STANDS.**—No. 7,017. Improvements in attachment devices for holding or supporting hand or other photographic cameras. Frederick Vivian Thompson, 33, Chancery Lane, London, E.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**CINEMATOGRAPH WATER TROUGH.**—No. 5,626. Water troughs for absorbing the heat rays have been used in cinematograph and other apparatus for the purpose of reducing the heat on the film or other object projected. Such troughs have had certain disadvantages such as the production of air bells on the glass, the liability to over heat and leak, great absorption of light and difficulty of transporting the same.

The object of the present invention is to overcome these disadvantages.

A much thicker water trough is used for absorbing the heat rays, and condensers of suitable curves arranged in conjunction with the same whereby the spherical aberration of the condenser is partly corrected and the loss of light by absorption is more than counterbalanced. The trough may be formed with parallel ends.

The surface of a condenser may be used to close one or both ends of the trough in place of the parallel glasses hitherto used, thereby saving reflecting surfaces and the consequent loss of light.

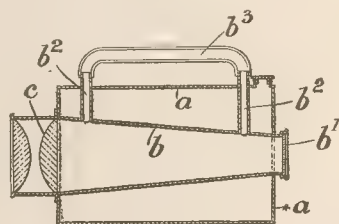


Fig. 1.

The trough is formed with a metal tube which may be parallel throughout its length or of conical form but of such size that all the rays of light pass there-through and at the ends of metal tube are fixed the lenses or plain glasses. Such tube is surrounded by a water jacket preferably of length equal to the metal tube.

In order to prevent the formation of air bells on the surface of the lenses or plain glasses, the water used in the interior of the metal tube has been previously boiled and filtered.

One can easily carry the small quantity of boiled water or other liquid in the metal tube, which tube may be hermetically sealed provided means are allowed for expansion of the liquid.

One method of carrying the invention into effect is illustrated in the accompanying drawings in which fig. 1 is a central longitudinal section of the complete apparatus and fig. 2 is a rough diagram showing how the spherical aberration of the condensers is partly corrected.

*a* is the water trough which is much thicker than heretofore so as to contain within its body those points at which most

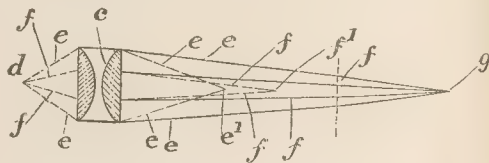


Fig. 2.

of the rays passing through the condenser would be focussed if the water trough were not present.

Within this water trough *a* is fixed a metal tube *b* which is shown of conical form but which may be parallel throughout its length. One end of this metal tube *b* is closed by the condenser lens *c* of any usual construction and the other end is closed by a plain glass *b^1*. The metal tube *b* has two filling



and expansion tubes  $b^2$  the upper ends of which may be connected and closed by an india rubber tube  $b^3$  which allows for expansion.

The metal tube  $b$  is filled with boiled and filtered water or some other suitable liquid which liquid can be carried about in said tube or in another receptacle. The trough  $a$  may however be filled with unboiled water which can generally be obtained at any place where the apparatus is used.

Referring to the diagram shown in fig. 2,  $d$  represents a point of light.  $e e$  represent in dotted lines two marginal rays which would be refracted to the point  $e^1$  if refracted through air.  $f f$  represent in dotted lines two other rays passing through the lens  $c$  nearer to its axis. These rays  $f f$  would be refracted in air to the point marked  $f^1$ . However, when the rays  $e$  and  $f$  are refracted as shown in full lines through the denser medium of water they are not refracted to the same extent and

cell with two working batteries 9 and 20, while the juncture 17 of both selenium cells is connected with the juncture 18 of both working batteries by means of a sensitive galvanometer, which actuates an automatic device for subjecting the second selenium cell 19 to the same degree of exposure, substantially as set forth.

2. The method according to Claim 1, in which the automatic device consists of a Wheatstone bridge comprising two like selenium cells 26 and 27 and two like batteries 28 and 29 connected in series, these two selenium cells being exposed by means of the sensitive galvanometer 11 in proportion to the variation of the exposure and the second galvanometer 33 being controlled for equalising any difference between the exposures of the two and adjustable resistances, substantially as set forth.

3. The method according to Claims 1 and 2, in which the selenium cells are each replaced by a system of selenium cells and adjustable resistances, substantially as set forth.

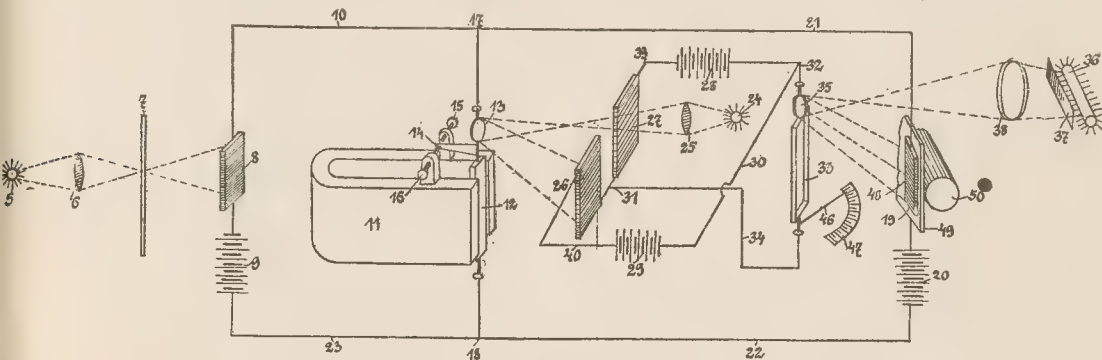


Fig. 2.

consequently the points corresponding to  $e^1$  and  $f^1$  more nearly coincide as shown in the diagram at or near a point  $g$ , or at some other one point as is well understood.

All the rays passing through the condenser are more perfectly focussed to the same point instead of being focussed to different points such as  $e^1$  and  $f^1$  by which means the greater loss of light due to the rays passing through a thicker water trough than heretofore is to some extent compensated by the more perfect focussing of the rays.

In the example shown in the drawings the lenses are made of crown glass, having a refractive index of about 1.5, and are of 4 inch diameter, of plano-convex form, the convex surface having a radius of 3 inches. The length of the water trough is about 14 inches. The apparatus is suitable for use with an arc lamp carrying 30 amperes of current.—Arthur Samuel Newman, Linden Mansions, Highgate, Middlesex.

PHOTOGRAPHY.—No. 16,343, 1906. The invention consists of means of measuring the degree of exposure of a selenium cell, whereby it is rendered possible to produce improvements not only in photometry, but also in phototelegraphy, and in their applications for which the invention may be put. The claims are:—

1. The method of measuring the degree of exposure of a selenium cell, which consists in rendering the time variations of the conductivity of the selenium cell that do not correspond

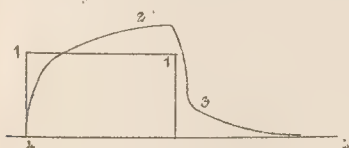


Fig. 1.

the variations in the intensity of the light, inoperative for the action of a galvanometer, 33 indicating the degree of exposure of the said selenium cell, in the manner, that a second like selenium cell 19 is connected in series with the said selenium

A useful application of my invention is phototelegraphy, which may be arranged as follows:

The camera obscura containing the lens 6 and the selenium cell 8 is provided with any known device for gradually and successively moving a transparent original 7 (such as a photographic negative or the like) through the focal point in fig. 1 in two directions at right angles to each other. The selenium cell 19 is provided with a hole 48 and behind this cell 19 a suitable camera obscura (of which only the front wall 49 is shown) is disposed. Within this camera obscura a cylinder 50 is mounted to turn and to longitudinally move, any known mechanism being employed for moving the sensitive film placed round the cylinder 50 synchronously with the original 7 at the distant station. Of course the front wall 49 of the camera obscura is provided with a fine hole in line with the hole 48 in the selenium cell 19.

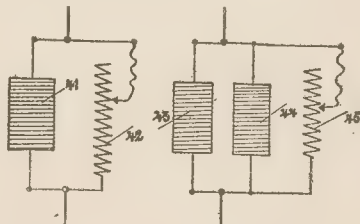


Fig. 3.

Fig. 4.

This system operates as follows:

5 denotes a suitable source of light, which emits a pencil of rays of light through the lens 6 and the focal point towards the selenium cell 8. Of course this pencil of rays of light will be more or less weakened by the opaque parts on the original 7, after which the rays of light act upon the selenium cell 8 for more or less reducing its resistance. In accordance therewith also the resistance of the other selenium cell 19 will be more or

less reduced and the cell 19 itself will be exposed to rays of light of a varying intensity as explained above. During the motion of the original 7 through the focal point the intensity of the ray of light passing through the hole 48 in the selenium cell 19 and that in the casing 49 and acting upon the sensitive film on the cylinder 50 will vary in correspondence to the several points of the image, picture or the like to be transmitted. The image produced in the sensitive film on the cylinder 50 acted upon in this manner can be developed in any known manner.

The sensitiveness of the galvanometer 11 is so great, that its arm 14 will already travel the path from the one stop 15 to the other one 16 or *vice versa*, if the frame 12 is passed through by a current of a strength less than one twentieth of the maximum, while the full exposure to the pencil of rays of light reflected from the mirror 13 will change from the selenium cell 25 to the other selenium cell 27 or *vice versa*.

It is assumed the system shown at fig. 2 comprises four simple selenium cells, but it is evident, that each of them may be replaced by a system of selenium cells and resistances, for example by a selenium cell 41 connected in multiple with an adjustable resistance 42 as shown in fig. 3, or by two selenium cells 43 and 44 connected in multiple with an adjustable resistance 45 as shown at fig. 4. Thereby it is rendered possible to adjust the resistance of each selenium cell to a nicety.—M. Arthur Korn, 1A, Hohenzollern Strasse, Munich, Germany.

### New Trade Dames:

**KLINITE.**—No. 290,661. Chemical Substances used in Manufactures, Photography, or Philosophical Research, and Anti-corrosives. Waldberg and Co., Gesellschaft Mit Beschränkter Haftung, 5B, Universitäts Strasse, Berlin, Merchants.—February 22, 1907.  
**GLAZIDE.**—No. 290,519. Photographic Paper. William Jones Williams, 42, Rutland Park Mansions, Willesden Green, London, N.W.; Accountant.—February 16, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Developing P.O.P. Prints.

Before commencing work (writes A. W. Winter in "The Amateur Photographer") prepare a small quantity of a saturated solution of potassium bichromate, and with this make up the following bath:—

Potassium bichromate (saturated solution) .....	20 minims.
Strong hydrochloric acid .....	10 drops.
Water .....	10 oz.

This mixture has powerful oxidising properties, and serves to destroy too readily reducible silver salts in the paper.

After taking the print from the printing frame, wash it in a good stream of running water for at least fifteen minutes. I have tried washing in changes of water, and in salt solution, but neither appears to be effective.

When this washing is complete, transfer the print to the dilute chromate solution given above, and allow it to remain therein, with occasional rocking, for one minute; then wash in six quick changes of water, and proceed to develop in the ordinary way.

The developer I used was dilute rodinal, and the colour of the image a greenish black; it is quite possible, however, that by employment of a developer suited to gaslight papers, e.g., amidol, a good black tone might be obtained directly.

### Bromides as the Starting-Point for the Oil Process.

The blending of two such antagonistic modes rather pleases me, writes Mr. Robert Demachy in the "Amateur Photographer" for April 2, and I confess that the idea of subjecting the cathodic bromide surface to the heretical contact of the oil stencilling brush first tickled my sacrilegious fancy. It is done thus: Take a bromide print, sensitise it with bichromate solution, dry in the dark, and print in diffused light after carefully registering print and negative.

I believe it will be necessary to add that the same negative from which the now sensitised bromide has been printed should be chosen in preference to any other. This for the unsophisticated reader who still believes in the eccentricity of the pictorialists. After

exposure wash in cold water, soak in lukewarm water for a few minutes, and proceed to ink in the habitual way.

There is less liberty of treatment with the visible bromide than with the colourless relief of pure bichromated gelatine. In the latter case we start from absolute white, and can go right up to absolute black; in the former we only have at our disposal the gamut of tones exceeding that of the bromide image, and its highest whites are our highest whites. We cannot add lights, but we can intensify the existing light tones by the added contrast of deeper blacks. Unhappily, there is no possibility of actual suppression by non-inking, though we may hide certain objectionable features by over-inking with thin cils. Really our work is somewhat like the classic mercuric intensification, but with this serious advantage, that it can be applied locally, and may be applied artistically. Moreover the oily nature of the added pigment imparts a new depth to the image, which becomes infinitely superior in quality to the primitive bromide surface.

### Preservation of Developers.

So far as the solution itself is concerned, says Mr. Chapman Jones, F.I.C., writing of the preservation of developing solution in the "Practical and Pictorial Photographer," and regarding its preservation, it should be concentrated and acid, because under these conditions it absorbs oxygen more slowly, and apparently in a smaller proportion. The best acid to use is sulphurous—not the solution of the gas that goes commercially under that name, for it is not dependable with regard to either strength or purity, though it may be excellent when bottled up by the maker. An acid sulphite should be used, and of these potassium or sodium metabisulphites are doubtless the best of those readily obtainable. If neutral (ordinary) sodium sulphite is used, this may be acidified with almost any acid, but then a fresh salt is introduced which may not be without action. Sodium sulphite with sulphuric acid gives an acid sulphite and sodium sulphate, and the sulphate is certainly not advantageous even if it does no particular harm during development. If citric acid is added sodium citrate is produced, and this is a notable and useful restrainer, good if needed, but not always required. For the acid sulphites lead to the production of nothing but sulphites

## New Books.

**FOCAL-PLANE PHOTOGRAPHY.**—Our fears for the demise of the excellent photographic periodical, "The Photo-Miniature," which for some months past has failed to reach our table, are dispelled by the arrival of No. 77 dealing with focal-plane photography. A number of writers deal with various aspects of this present-day question, in regard to which there is a unanimous chorus of prayer for the focal-plane shutter. The number, which is obtainable from Messrs. Dawbarn and Ward, 6, Farringdon Avenue, London, E.C., price sixpence, contains also many striking examples of high-speed and low-speed focal-plane work, together with two supplementary tables, one giving the equivalent exposures with different diaphragms and the other exposures for moving objects at various distances. The volume should be perused with interest, not to say profit, all having occasion to use a focal-plane shutter.

**"PICTORIAL LANDSCAPE PHOTOGRAPHY."**—Under this title are collected five chapters on outdoor photography by Mr. J. C. Warburg, constituting the fifth volume of the photographic manuals issued by our contemporary, "Focus," price sixpence. Mr. Warburg, always precise, communicates a good deal of information of a practical kind within the fifty pages at his disposal. He reserves the last page or two for an appeal to the esthetic sense of the reader, concluding: "Above all, be true to yourself. So may you add to the world's store of beautiful things and help photography along its difficult path of art." An altogether excellent little book.

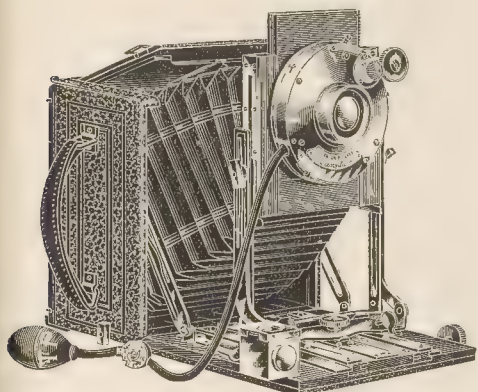
**"CAMERA WORK."**—The current issue of Mr. Stieglitz's quarterly, which has just reached us, has as its most notable contents a selection of the pictorial work of Mr. George Davison. The fine reproductions are photogravures of Messrs. T. and R. Annan, and we wish that his official duties left Mr. Davison more time for his own photographic work. His "Onion Field" and "Long Arm" are among the subjects reproduced, and many on that account we no doubt be glad to have the issue of "Camera Work."



## New Apparatus, &c.

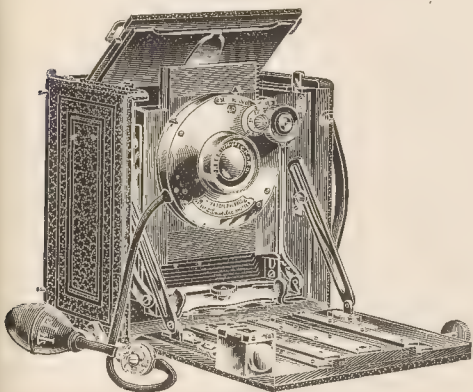
Thornton-Pickard "Folding Ruby" Hand Camera. Made by the Thornton-Pickard Manufacturing Company, Altrincham, Cheshire

In reviewing recently the new model of the "Royal Ruby" camera of the Thornton-Pickard Company, we drew attention to great improvements recently introduced by the makers into that instrument. These improvements centre in certain mechanism which permits of a larger front or lens panel being given to the camera. Precisely the same advantage is possessed by the "Fold-



Showing rise of front by means of independent rising panel:—Lens at extreme top of plate.

"Ruby," a hand camera of the very widest capabilities, which practically a self-contained version of the stand instrument which we have already described. The two figures which we give scarcely convey an adequate impression of the wide range of movements. They illustrate, however, a very essential part of the camera, namely, the double-action rising front, by which a very great amount of rise may be obtained, not only at the normal extension of the



Shortest Focus,  $2\frac{1}{2}$  in., showing great rise obtainable in this position by independent panel.

camera, but also when a wide-angle lens is being employed. The range of up (and down) movement is obtained by raising the front whole on the struts and afterwards by still further elevating the lens on the divided panel. For this latter movement a very convenient rack and pinion adjustment is provided.

The range of movement rendered possible by the universal swing will be understood by those who read our previous notice. The other features of the camera need only to be briefly epitomised on account of the suitability for all classes of work and its convenience and comfort in the hands of the user. It possesses a dropping

baseboard for use with short focus lenses, it has an expansion of 15 in. in the quarter-plate size, reversing back, and automatic snaps for such parts as the dark-slide runners, the swing front and infinity adjustment so that a great part of the need of looking to the proper fixing of the camera is done for the user. One other point, the smoothness of the exterior and its freedom from screws and catches, is deserving of a special mention. The price of the camera is £6 10s. in the quarter-plate size, with three double dark slides, Thornton-Pickard Panoptic shutter, spirit level, and Beck R.R. lens. In the 5 x 4 size the price of the set is £7 10s.

**THE ISOSTIGMAR LENS.**—Messrs. R. and J. Beck, Ltd., 68, Cornhill, E.C., are quickly in the market with their new "Isostigmat" lens, the new instrument which possesses theoretical interest in addition to its high optical perfection. During the present month they offer a number of Isostigmars fitted with Celverex shutters at greatly reduced prices—e.g., £1 17s. 6d. for the quarter-plate lens and shutter, instead of £3 7s. 6d. Announcement of Messrs. Beck's offer appears in our advertisement pages.

## New Materials.

**SEMI-GLOSSY BROMIDE PAPER.**—A new brand of bromide paper has been placed upon the market by the Bayer Company, 20, Booth Street, Mosley Street, Manchester. It possesses a very fine-grained surface, approximating to that of albumen paper. The makers, in their circular of instructions, recommend edinol developers, and a fixing bath of hypo and acetone sulphite.

## CATALOGUES AND TRADE NOTICES.

**MESSRS. J. LANCASTER AND SON, LTD.,** whose new address is Camera Buildings, Broad Street, Birmingham, have sent us a copy of their latest catalogue of photographic apparatus, the 72 pages of which are crowded with useful information respecting the well-known Lancaster specialties, each article being illustrated and accompanied by descriptive letterpress. The items are too numerous for us to mention individually, but the booklet is well worth perusal, and Messrs. Lancaster will send a copy to those of our readers who apply for same.

**ORTHOCHROMATISM FOR BEGINNERS.**—We welcome the publication, by Messrs. Wratten and Wainwright, Ltd., of a brief and lucid treatise on the elements of orthochromatic photography. After a short exposition of the principles of the subject, a number of useful hints are given on the use of orthochromatic plates for various classes of work, concluding with some tabulated information as to the selection of plate and screen when employing panchromatic plates. A number of useful notes are also given on development, including the employment of the "time" method. Messrs. Wratten and Wainwright will send the booklet free to any photographer on application.

**THE "BIRDLAND" CAMERA.**—A new booklet of this well-known reflex camera, designed by Mr. Oliver G. Pike, has been issued by the makers, Messrs. Sanders and Crowhurst, of Shaftesbury Avenue, London, W.C. It contains some interesting notes on natural history photography by Mr. Pike, together with a number of reproductions of photographs by the author and other users of the "Birdland." The booklet deserves to be in the hands of those intending to purchase a high-class reflex camera.

**THE VANGUARD MANUFACTURING COMPANY,** Maidenhead, notify us that, by courtesy of Messrs. Wellington and Ward, they are able to send a cabinet portrait study upon Wellington cream crayon bromide paper, toned in the Vanguard "Bertha" sepia toner. The sample before us is an admirable example of what a sulphide toned bromide should be.

**MESSRS. JAMES WOOLLEY AND CO., LIMITED,** of Victoria Bridge, Manchester, send us a copy of their 1907 "Photo Handbook and Catalogue," which, in addition to particulars of the various goods sold by this firm, contains hints to the beginner as to the purchase of his photographic outfit, etc. A copy of the booklet will be sent, post free, to any of our readers, on application to the above address.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, APRIL 5.

Cardiff Photographic Society. "In North Cornwall." F. C. Williams.  
West London Photographic Society. "Systematized Exposure." By Chas. J. P. Robertson.

#### SATURDAY, APRIL 6.

Chelsea and District Photographic Society. Outing to Wimbledon.  
Photo Art Club. Outing to Black's Dam.

#### MONDAY, APRIL 8.

Preston Camera Club. "Experimental Photography." By T. France, Preston.  
Gravesend and District Photographic Society. Lantern Evening.  
Southampton Camera Club. Lantern Slide Competitions. 1.—Architecture. 2.—Portraiture or Figure Studies.  
Leeds Photographic Society. "Easter Wanderings." By Jasper, Atkinson, and B. A. Burrell.  
Catford and Forest Hill Photographic Society. "Enlarging." By F. H. Fenton.  
Derby Photographic Society. "Recent Advancements in Photography." By Harry Wade.  
Bowes Park Photographic Society. "Ozobrome." A. G. Warren and E. H. Down.  
Kidderminster Photographic Society. "In Birdland." By G. Tomkinson.

#### TUESDAY, APRIL 9.

Royal Photographic Society of Great Britain. "The Spectroscope, Part I," with a lantern demonstration, showing continuous line and absorption spectra. By C. P. Butler and E. J. Wall.  
Hackney Photographic Society. "Primitive Man in Devon and Cornwall." By J. G. Veysey.  
Keighley and District Photographic Association. "Spain and Barbary," By J. J. Brigg.  
Worthing Camera Club. Annual Meeting.  
Redhill and District Camera Club. "Enlarged Negatives on Rotograph Negative Paper." By the Rotary Co.  
Hove Camera Club. "Lantern Slides, &c." By A. H. Dunning.  
Sheffield Photographic Society. "Enlarged Negative Making." By Dr. H. G. Paterson.  
Rotherham Photographic Society. "The Volcanic Eifel." By J. M. Fitzclark.  
Holmthorpe Photographic Society. Annual Meeting.

#### WEDNESDAY, APRIL 10.

Croydon Camera Club. "The Use of Screens in Photo-Micrography." By J. Rawson.  
Hamstead Scientific Society. "Exhibition Work." By E. O. Hoppé.  
South Essex Camera Club. "Postcard Photography on 'Rotax' and 'Rotograph' Cards.  
Leicester and Leicestershire Photographic Society. "Norman Architecture in our English Churches." By J. Wallace Watts.  
Woodford Photographic Society. "Finishing Lantern Slides." By E. Marriage.  
"Mounting and Finishing Prints." By F. Martin.

#### THURSDAY, APRIL 11.

Handsworth Photographic Society. "The Theory and Practice of Time Development." By W. F. Slater, F.R.P.S.  
Liverpool Amateur Photographic Association. Meeting and Lecture at Walker Art Gallery.  
North London Photographic Society. "Amateur Photographer" Prize Slides.  
London and Provincial Photographic Association. "Carbon Printing." By Ernest Human.

**CROYDON CAMERA CLUB.**—"Orthochromatics" once again held the field last week, Mr. F. Hicks contributing a paper on the subject from a pictorial point of view, Mr. Terry illustrating the ease and certainty with which panchromatic plates could be developed in total darkness. Mr. Hicks was of the opinion that the correct record in monochrome, of the relative brightness of objects as seen by the eye, if the ideal from the scientific point of view, was not necessarily essential, and in some cases might be even detrimental, from the pictorial aspect. What should be striven for rather should be a harmonious and pleasing result, regardless whether it was a correct monochromatic translation or not. Orthochromatic plates and filters were by no means a short cut to the attainment of pictorial triumphs, though many might be led to believe so. The retention of cloud forms was an advantage in some cases, but if unsuitable, the mere fact that they were true to nature, formed no excuse for their existence in the picture. For landscape work he had come to the conclusion that a strong cutting filter was generally speaking undesirable, as having a distinct tendency towards killing atmosphere, and obliterating distance. On the other hand, for cloud work pure and simple, he had found a strong cutting filter, in conjunction with a panchromatic plate, secured the beautiful modelling and soft tracing of cloud forms with aerial perspective, so often the making of a picture. For sea and marine work the same plate and a medium screen (Wratten 8 x 4 screen) were very effective. In his, the lecturer's opinion, thanks to the plates now on the market, largely more sensitive to yellow than to blue, fair correction on ordinary subjects would be attained without the use of a filter. With screened plates great care should be taken to obtain approximately correct exposure. An actinometer should certainly be used, but the sensitive

paper employed for gauging the light left plenty of room for improvement. This was especially the case in weak and yellow light. An undoubted tendency of screened plates was to emphasise heavy tonal grounds and shadows. This might possibly be due to the steep gradation obtained. However, whatever might be said "for and against," the panchromatic plate and adjusted filter had come to stay. In many directions it undoubtedly scored, and for open view the combination was unsurpassed.

In the discussion which followed, some interesting points were raised. Mr. W. C. Woodland said he had read a letter from Mr. Watkins, recently appearing in *THE BRITISH JOURNAL OF PHOTOGRAPHY*, commenting on some statements made at a meeting of the Croydon Camera Club. Mr. Watkins claimed certain orthochromatic properties for his "steadfast paper." He, the speaker, as suggested by Mr. Watkins, had exposed the paper behind a Chapman Jones plate tester, and whilst it was true that the red and green squares gave about the same reading, yet the sensitiveness of the paper to these colours, as compared to blue, was roughly the ratio of 256 to 1. The orthochromatic properties of the paper were therefore not remarkable. In answer to a point raised by Mr. H. Allen, Dr. Meade said that the conditions necessary to prevent mottling of the film stand development in flat dishes were: (1) the plate must be perfectly level, and (2) the strength of the developer so adjusted that development should not be completed under fifteen minutes. The evening terminated with a brisk argument on the gradation, latitude, and ratio values of orthochromatic plates, and a hearty vote of thanks to the joint lecturers.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—At Wednesday's meeting of the organising committee of this society, Mr. A. Haddon was in the chair, and on the motion of Mr. J. Nixon, the committee rescinded its previous decision to put off the question of financial arrangements till the first general meeting of the society. The crucial question settled, Mr. Nixon was unanimously re-elected secretary, and promised to do his best to make the society a success. A supplementary club was thereupon constituted to raise the capital to provide premises, furniture, and apparatus. As organised, the club will consist exclusively of members of the photographic society who subscribe for one or more five shilling shares, and it will be registered so as to limit the liability of the members to the amount actually subscribed. The photographic society will thus start free from any burden of debt, and will simply pay an inclusive rent for the club for the facilities provided. The provision that no person who is not a member of the photographic society can hold shares in the club, and that every member of the society is entitled to become a shareholder in the club, also secures to the photographic society full control over the financial arrangements, and prevents the financial control from getting into the hands of any clique. The meeting also appointed sub-committees to carry out the details of the decision, and to select the necessary furniture and apparatus to enable the society to start work in April, as originally intended. Major Coates, M.P. for Lewisham, having been invited to accept office as a vice-president, is now considering whether he can accept the invitation. He is president of the Catford and Forest Hill Photographic Society, and in writing to the hon. secretary of the South Suburban Society, expressed a hope that the two societies will be able to amalgamate, as originally suggested. We understand the South Suburban Society already numbers over six hundred members.

## Commercial & Legal Intelligence

**A TROWBRIDGE BANKRUPTCY.**—Edward George Shotter, 85, Palace Street, Trowbridge, Wilts, photographer, formerly of Salisbury, Frome, and Gloucester, appeared for his public examination at the Bath Bankruptcy Court last week before Mr. Registrar Robertson. The statement of affairs filed by the debtor disclosed unsecured liabilities amounting to £142 1s. 9d., and assets (a cycle) £2. The Official Receiver's observations debtor was said to be 29 years of age, and stated that he began business in December, 1904, as a photographer at Winchester, without capital, and had since resided at Gloucester, Frome, Sutton-in-Ashfield, Kirkby-in-Ashfield,



ding, and Trowbridge. In answer to the Official Receiver, debtor before he became a photographer he was an insurance agent, and a little stock-in-trade, which he obtained during his practice as an amateur photographer. Through a fire he lost between £200 and £250. He was not insured. He sold the business at Frome for last June. With regard to this and the disposal of other businesses, the debtor was closely examined. The examination was held.

#### NEW COMPANIES.

**CURRIE AND CLIFFE, LTD.**—Registered March 19. Capital: £1000, in £1 shares. Objects: To take over the business of art photographers carried on by M. H. E. Currie and P. Sutcliffe, at Plymouth, as Currie and Cliffe, and to adopt an agreement with said vendors. No initial public issue. The first directors (to be not less than three nor more than five) are: M. H. E. Currie (managing director), Annie L. Currie and P. Sutcliffe. Capital: £50. Registered office: 16A, Brunswick Street, Plymouth, Devon.

## Correspondence.

- *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- *We do not undertake responsibility for the opinions expressed by our correspondents.*

#### BLISTERS ON BROMIDES.

To the Editors.

Gentlemen,—Mr. Gallagher offers a "specific cure" for the above, I fear the matter is not one which may be dismissed so easily. As a chemist of over thirty years' training, I have a tendency to methodical working—with due regard to temperatures—and a special respect for clearing and hardening baths. I cannot bring myself to look upon "a handful of alum in my fixing bath," which would be one part to anything you wish, and is certainly no information of business value—as a legitimate cure for the complaint. To an extent, the reason of the blistering is a mystery, e.g.: One may work for months at a time with no particular regard to temperatures and fresh baths, etc., and actually forget that you had any experience of blisters, then all at once the epidemic breaks out. (b) Two operators may be working together, and one will have blisters while the other has none, using the same solutions and washing water. This is an actual fact. (c) Alum (or saline baths) before and after fixing is not an absolute cure. The fact of a bromide print not blistering in a hypo alum bath proves nothing, as the same print might not have blistered in the ordinary bath. (e) Out of twelve prints exposed one after the other taken consecutively from one package, three or four may blister, while the others will be perfect. (f) Thick and rough paper never blisters, in my experience—blisters, intimating that the density of the print may be a safeguard, but Mr. Gallagher says bromide prints blister especially! It is clearly impossible to draw a straight line through all these conflicting conditions. I think we shall find a solution of the mystery not so much in the temperatures of baths, which, naturally, the photographer (not being an unmitigated ass), keeps as nearly uniform as need be, so much in baths of average freshness and strength, alum, etc., as in some fault in the gelatine used in making the emulsion—that is to say, the cause is some fault which is not to be laid upon the shoulders of the paper. Now, it would surprise me if several hundreds of yards of paper could be made uniformly thick or thin throughout the whole of its length. It would not be unreasonable to expect what we may call "flats" here and there, not numerous, nor large. Again, an emulsion be evenly spread over an uneven surface? We must imagine the fault to be very small—one "flat" in a

surface 30 ft. by 30 in. would be enough; but realise that the emulsion might not make quite such intimate contact there, and you may look forward to a blister.

A slight accidental error in drying the paper might have its due effect in the same direction, and, above all, we might say that if the fingers are ever used in very occasional passages—mere smoothing touches on the moving surface of the support—then the cause may again be suspected.

I have used the sulphide toning bath with a good measure of success—I refer to Mr. Blake Smith's formulæ. The other day, after toning two bromides 24 x 20 (on rather thin but rough paper) successfully, I took in hand four 15 x 12 size, using the same baths. Three out of the four blistered badly in the first washing water; all had been subjected previously to a hardening bath.

I fear, after all, I have not thrown much light upon the mystery of the blister fiend, but I am more than ever convinced that the fault is not one to be laid upon the operator nor the chemicals—nor even the temperatures.—I am, Gentlemen, Yours, etc.,

Nottingham.

J. P.

#### BUSINESS METHODS IN THE STUDIO.

To the Editors.

Gentlemen,—I do not claim to be the originator of the columnar cash book. As an accountant's method it has doubtless been in existence longer than I have.—Yours faithfully,

309, Regent Street, W.

C. H. HEWITT.

To the Editors.

Gentlemen,—With reference to your articles dealing with "Business Methods in the Studio," and the letter from your correspondent "Rutts," we beg to enclose you a sample leaf of our special summary book, which we published some years ago, and which is designed by a practical accountant for the exact purpose you advocate. This book gives a complete dissected record of the whole working of a photographic business, and a very valuable feature is the summary at end and the formal balance-sheet. It is so simple that anyone can keep it. Unfortunately the average photographer seems, as you say, to neglect a proper system of book-keeping but we could easily get testimonials as to its efficiency from those who have used this book for years.—Yours faithfully,

DE GRUCHY AND CO.

Reliance Paper Works.

45, Mitchell Street, London, E.C.

March 26, 1907.

[We are glad to draw attention to Messrs. De Gruchy and Co.'s publication, which appears admirably adapted to its purpose.—Eds., "B.J."]

#### PROFITS ON PICTURE POSTCARDS.

To the Editors.

Gentlemen,—I am obliged to Mr. Corkett for his estimate of charges for negatives to publishers by local photographers for reproduction purposes, and consider it reasonable, though I have found even the most wealthy firms complain of paying 10s. 6d. for the right to reproduce from picked negatives, which is equal to paying for negatives taken to order; in many cases they are better than could be re-taken, except at specific times.

I ought also to be obliged to "Postcard" for enlightening my darkness respecting his term of "printing postcards in the camera." I had never heard the phrase used for reduction in the camera, and, as he says, it seems ridiculous that any photographer should waste his time in multiplying postcards by so slow a method for such a result; but when I read "Postcard's" letter enlarging on the benefits of the process-printed card I was reminded of a letter that appeared in the "B.J.P.," probably six or seven years ago, signed "Postcard," which also was in a similar strain, and which I found a traveller from a well-known process-printing firm calling on me shortly after produced in circular form as an evidence of the monetary value of the picture postcard so produced. Hence, perhaps,

I was a little more sarcastic than I might have been; but memory sometimes reproduces facts which appear grotesque.

PROFESSIONAL.

To the Editors.

Gentlemen,—I have been much interested in the correspondence, re "Postcards," appearing in the "B.J.," particularly the question of price to charge publishers for taking negatives for their own series of cards. I very much question whether any photographer would be able to demand a fee of 10s. 6d. per negative for half-plate size, especially when a number are taken at the same time. I have taken some two or three hundred negatives, half-plate, both for local publishers and publishers in the neighbouring town, and although not "a small amateur professional sort of a man," I have not been able to get more than 2s. for each negative—that is, taking a series of a dozen upwards at one time. I find this to be about the average rate, and if the local photographer is not willing to do the work at this price, it is very easy for the publishers to find someone who will; in fact, most of the town publishers will send out their own photographers. What chance, then, has the local man to demand anything like a remunerative price?—Yours truly,

ANOTHER POSTCARD.

To the Editors.

Gentlemen,—Referring to Mr. Corkett's letter in your issue of March 22, I am quite in agreement with him as to the scarcity of good landscape photographers, in which category I include topographical work suitable for postcard and guide-book illustration. But I should like to hear where the editor is to be found who will prefer good work, involving the unavoidable extra expense in time, etc., to the ordinary thing on the cheap.—Yours faithfully,

25, Rosendale Road, Dulwich.

J. A. C. BRANFILL.

April 2, 1907.

#### BRITISHERS NOT ASLEEP.

To the Editors.

Gentlemen,—In your issue of December 28, which was lately to hand, I read a most extraordinary letter under the heading of "Britishers—Wake Up!" As a showman in the East for sixteen years, I can hardly pass such a bunch of wild statements unchallenged. For my own part, I have never seen the rough shanty or canvas tent show run by an Englishman. As you are probably aware, all is not English in the East that sports an English-written signboard. It has never been my luck to meet with either a Chinaman or a Japanese who knew the first thing about an animated picture exhibition, and I have seen quite a number. Their shows were chiefly to be remembered by the breaking of films, popping of the jet in the case of limelight, a wild attempt to focus the arc, resulting in a dark grey disc or a composite picture of moving film and some of the spectrum, in the case of electric light, and frequent intervals of darkness. Unsteadiness and flicker I will not speak about, as I never stayed long enough to get used to them. Native music can only be described as an "infernal din," and would drive any Englishman out quicker than a loaded gun would. But perhaps your correspondent is a Scotchman?

I'll guarantee the fiddle did the same old wail for the dying scene it did for the cake-walk, and that the pistol went off five seconds after the man had dropped oftener than at the right time.

I have an idea that John Chinaman saw your correspondent coming when he charged him \$1.50 for a seat. The shows I have seen charge 30 cents at the most, and are glad to take less. If he will tell me where I can get \$2 for a seat in the East, and get an audience, I shall move there at once. I have a good picture show, the best of machines, 15 h.p. of electric light, building well lit inside and out, and electric fans in the hot weather. I don't show old and dirty films; I keep a stock of about 600 subjects which are constantly changed, and I charge 50 cents at the most, oftener 30 cents. I know of four others out here who have all good shows, and, if not Englishmen, are white, and know their business, and I don't know one of them who would put up a shanty and play to beach-combers.

The comparison between the chief London halls and a Chinese-run animated picture show is too ridiculous. No, we are not asleep, though I should never expect your correspondent to admit the fact.—Faithfully yours,

T. J. STEVENSON.

The Bioscope Co., China, February 15, 1907.

[We are very glad to publish our correspondent's letter. The

previous writer, who represented himself to us as the engine of a trading vessel, acted in good faith, so far as we know, in giving his opinions, but we are unable to say why he came to the conclusion reflecting on British cinematography in the East.—"B.J."]

#### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

To the Editors.

Gentlemen,—I feel sorry for the correspondent in your issue of March 29, 1907, who signs himself "One who would see his profession raised, and not lowered, by the use of the 'M.P.P.A.'." He is evidently so superior to the rest of us that he thinks he is best out of any organisation of any kind.

When one allows false pride and other objectionable characteristics to be imported into matters of this kind no good can be looked for.

I take it that a Professional Photographers' Association intended to include *all* professional photographers, and if that is not the case, another title should be chosen. Why this sneer at "backyard photographers"? Many who would doubtless be described by your very superior correspondent are quite as good as he professionally, but prefer to work in a corrugated iron wooden studio because they do not believe in making a present of a fully equipped brick and mortar building to their landlors in return for being for a few years allowed to rent his premises at good rental.

No doubt your correspondent was able to make most favourable terms, or to purchase suitable premises, but we cannot all do so.

Further, with regard to printing the letters "M.P.P.A." on mounts, I read, *re* this, that: "It is suggested by the committee that on their cards, note headings, invoices, and business stationery, members should print the words 'Members of the Professional Photographers' Association.'" Can you blame members for doing as they are advised to do?

If we are to see our profession raised, do not let us allow our prejudices or any idea of our individual superiority to enter into these matters. Even a "stick-back" producer is a professional photographer, and may be socially equal to your correspondent. Yours, etc.,

A HATER OF CASH.

[There is an important distinction between the use of the designation, "Member of the Professional Photographers' Association" recommended by the Association itself and that of the letters "M.P.P.A." Actually, under the law of this country, any person may use any letters he pleases after his name. He cannot be prevented from doing so, but he can be made a laughing stock, and may be proved to be acting with fraudulent intent by assuming a given title. It is because we desire to add to the strength and dignity of the Professional Photographers' Association that we publicly and privately discountenanced the use of the letters "M.P.P.A." Appended in that shape to a name they may be taken by the public as a proof of efficiency on the part of the photographer, even though the photographer may not have that object in mind when employing them. The risk which a photographer runs in using them is that any interested person can show that the qualification which they imply is the subscription of five shillings annually.—Eds. "B.J."]

THE SERVICE COMPANY, LTD., are organising an exhibition of photographic apparatus, to be held at their premises, 292 and High Holborn, London, W.C. This exhibition, which will include samples of the most recent apparatus of practically all the leading makers, will open on April 15 and continue for a fortnight, during which time demonstrations of the working and use of the various exhibits will be given.

HISTORY OF THE BLEACH-OUT PROCESS.—Dr. W. Neuhaus, in his current number of "Photographische Rundschau," strongly repudiates a recent statement to the effect that the bleach-out process to which he himself has notably contributed, and which is now before the market in the "Uto" Paper of Dr. Smith, of Zürich, was a discovery of Vallot. Dr. Neuhaus points out that the bleach-out paper made in 1899 by the late E. Liesegang, six years before Vallot's, Liesegang's work was qualitatively in advance of that of Vallot, inasmuch as he used certain materials in order to enhance the sensitiveness of the dyes.



## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### TOGRAPHS REGISTERED:—

Sawyer, Westfield, Dover Road, Walmer, Kent. *Three Photographs of The Rev. Canon D. B. Payne, D.D.*  
 Gilliver, 2, Granville Street, Plymouth. *Photograph of the 'Craces of the 10 Victims of the Submarine "A 8" Disaster in Cansand Bay, 8.6.05.*  
 Ark, 119 High Street, Deal, Kent. *Two Photographs of the Band of the Royal Marines, Deal.*  
 and H. Ancell, 71, High Street, Sandown, I.W. *Photograph of Submarine "B2," stranded on sand in Sandown Bay during fog.*  
 Peterson, 19, Academy Street, Inverness. *Photograph of The Rev. J. J. Black.*

### WING REGISTERED:—

athrie, St. Andrew Avenue, Latch Road, Brechin, N.B. *Drawing of old Arms of the long defunct family of the House of Edzell, Edzell, Forfarshire (1604).*

ENT PHOTOGRAPH.—I have secured the sole right to photograph and publish a very important engineering patent, which will be on the market shortly. Could you tell me my best way of getting the photographs simultaneously published in the greatest numbers of journals and periodicals, so as to get the greatest possible advantage from it.—A. H.

It is difficult for us to advise you as you do not give us a very clear notion of the article. It is not very likely that the newspapers will allow you to indulge in gratuitous advertisement of it.

RIGHT.—Last year I asked a prominent gentleman to favour me with a sitting for his portrait, which he did. I gave him a few copies free of charge. Since then he gave me an order for 1 doz. copies which he paid for. After that I got the photograph registered as I expected a large sale for them "permission being granted me." The point I am not clear about is this: Is the copyright really mine, seeing he paid me for 1 doz.? My reason for asking above is, that a poster firm called upon the gentleman in question for one of the photos, which they have now reproduced and are going about canvassing, and selling copies. If I can prove that the copyright is really mine, can I compel the firm to return to me all copies sold, also how much damages can I claim, as they never asked my permission.

The copyright became yours in the first instance, but you should have obtained a written assignment from the sitter at the time. The fact that subsequent copies were paid for does not affect your rights, but before taking action we should advise you to be prepared with proof that the photograph was to be your copyright in the first instance.

USE.—My wall show case generally has steam on the glass, rendering the photographs hardly discernible to passers-by. Afterwards it streams down like a greenhouse. I have made two 1-in. holes top back, without any improvement. The show case faces N.E., and the back (wood) is warmed by the sun, which probably causes steaming. Can you give me any advice on this matter? I thought I must have a special kind of ventilation without letting in too much damp air in inclement weather, which is not desirable for photographs exhibited for at least three months.—V. LOX.

More ventilation will improve matters; but if the trouble does not disappear it will be best to fit a metal lining in the

case and to attach an extra back to shield the case from heat, the extra back taking the form of a screen an inch or two from the back of the case, thus leaving an air space between the two.

COMBINED BATH.—Being a reader of your JOURNAL, I have written to ask if you will kindly give me a formula for a 16 oz. combined toning and fixing bath to keep before or after using, and to suit any P.O.P.—J. JAMES.

A. Hypo .....	6 ozs.
Ammonium Sulphocyanide .....	48 grs.
Water .....	32 gs.
B. Gold Chloride .....	15 grs.
Lead Acetate .....	150 grs.
Water .....	16 gs.

Take 14 ozs. of A. and 2 ozs. of B.

PLATE ENVELOPES.—We have heard of a system of carrying plates for outdoor work in patent envelopes, only one slide being necessary. By this method a quantity of plates may be carried in a smaller space than slides would take. Could you give us any information respecting the use of these. Are they safe and as simple to use as ordinary dark slides. Where may we purchase them?—DARR SYLVE.

There are several pieces of apparatus of the kind. Messrs. Mackenzie and Co., 17, Douglas Street, Glasgow, were the originators of the system in the commercial form, and you will obtain particulars from them. In our experience the system has proved perfectly safe.

F. VERNON.—We do not know them, and inquiries in the trade have met with the reply that there is no such firm.

F. D.—Try 4, Avenue Road Villas, Goldhawk Road, W. We think the son is in business at this address.

YANG.—We shall reprint the paper, but single parts of the society's journal may be purchased by anyone.

PUZZLED.—If you will commence reading at line 19 of the article you will see it clearly mentioned that the light is to be at a point on the circumference. The points 2 and 2A are intended, we take it, to represent actual positions of the camera; the lines passing through 2 and 2 the directions for the line of the lens and of the gaze of the sitter.

W.—1. We see the articles are in the 1906 list of the firm whose name we gave. The only other likely source is Mr. Tylar, High Street, Aston, Birmingham. 2. There is nothing quicker in printing than the matt varnish. You can fix a mineral paper to the back of the negative with seccotine at the edges, and apply the stump or colour to it, but we prefer the varnish method. Using a pot of dry carmine colour, we have never had a difficulty in applying the colour evenly with the first finger.

CEMENTING CELLULOID TO PAPER.—Can you give me the formula for a perfectly transparent and colourless cement, and the method of using it to unite ungelatinised paper to celluloid, one which will not admit of the celluloid peeling when the paper has dried? I am quite familiar with the method adopted and the appliances necessary in the case of P.O.P., bromide, etc.—J. C.

If the paper is one with a hard surface we should say that it could be made to adhere to the celluloid in the same way as bromide or other prints are, without any cement at all—namely, by soaking the paper in spirit and then rolling the two in contact with a heated roller. If that does not answer you might try a solution of gelatine, say an ounce and a-quarter of gelatine to a pint of water, with a little glacial acetic acid added. The acid, having a slightly solvent on the celluloid, would probably give it a tooth and prevent the paper peeling off.

SCOT.—Yes, you can stop publication of copies as soon as you have registered, but you cannot proceed in respect of infringements before registration.

MOUNTS.—Could you kindly give me an address where I could purchase some mounts same as enclosed corner piece?—A. T. B.

We are unable to identify the mount, but if you send a sample to Messrs. Marion or Fallowfield they will in all probability be able to supply you.

TONING P.O.P.—Will you kindly advise me under the following circumstances:—I have been constantly experimenting, for the last twenty years, in toning prints with gold. As a result, I find that, using ordinary P.O.P. and usual sulphocyanide toning bath, under certain conditions, that any colour or combinations of colours may be obtained. The finished print may be of a

single colour, either black, blue, green, violet crimson, orange, yellow, etc., as well as all kinds of intermediate tertiary hues—or of two or more colours, for instance—the shadows may be bronze-green and the half-tones salmon, or the darkest shades may be peacock green, the middle tones blue, and the light tints crimson, or any other assortment desired. In the case of more than one colour in same print they appear simultaneously in the one operation, and the finished print contains no other metal than gold. What I want to know is, how to proceed to (1) obtain an expert opinion as to whether the process is of any commercial value; if so (2) pecuniary and other help to exploit it?—THOMAS AGER.

We should advise you to approach one or two makers of photographic chemical preparations, from whom you could discover if the process is one they think worth while embodying in a special preparation. If, as we take it, you wish to lay the whole process before an expert, we can give you the name of a gentleman who would give you an expert opinion and who would respect your confidence. We cannot advise you as to exploiting the process.

**A WAGES QUESTION**—If an assistant is away from business for a week through illness, and by the doctor's orders, can he or she claim full or part of salary for that week?—B. L. H.

He or she cannot. The master is not obliged to pay wages in such circumstances unless he has bargained to do so.

**MARINE PHOTOGRAPHY**—Is it possible to take fairly good photographs from a boat while sailing, and which would be the best arrangement for shading sun, etc.?—PHOTOGRAPHER.

Certainly, with any camera with a rapid shutter, say 1/100 of a second. Messrs. Dawbarn and Ward's book, "Photography on Tour" (1s.) will give you some useful hints.

**PEN**—In France, "Photo-Revue," 118, Rue d'Assas, Paris; in Germany, "Deutsche Photographen Zeitung," Karl Schvier, Weimar, and "Photographische Chronik," W. Knapp, Halle a/S. The two latter also circulate in Austria, where there is also "Wiener Freie Photographen Zeitung," Paysegasse 13, Vienna II./16.

**SEASIDE PHOTOGRAPHY**—I should like to obtain a situation with a photographer in a seaside town this summer, as I am advised that I should be better for a year's living near the sea. Can you give me any advice as to how to proceed?—IMPROVER.

We can say no more than that the summer season in seaside resorts begin about June (May in some places), and lasts until September. We should advise you to insert a small advertisement of your qualifications in our columns at the proper time, when you will get into touch with employers requiring help.

**COPYRIGHT**—Last summer I was employed by a camping-out party who were living for several weeks by the river near this town to make a series of photographs of themselves and their camp and boat. I delivered the photographs and retained the negatives, from which in the course of the last few weeks I have issued and sold a good few postcards, the photographs being very attractive subjects and good negatives. I have now heard from one of the party who happened to be in — last week that I must stop the sale of the postcards, or he will take proceedings against me. I told him that the negatives were mine, and I should do as I liked with them, and he now threatens me with an action. What do you advise me to do?

You say "you were employed," and you ought to know that, if you were, you have not the faintest right to make any use whatever of the negatives. You had better make the best terms you can. You are absolutely in the wrong, are guilty of a breach of contract, and if the parties like to go to the trouble they can proceed against you for infringement of copyright. You deserve it.

**MAJOR R. B. (Alexandria)**—We do not supply books or apparatus. We have passed on your application to a firm who will be able to give you a quotation.

**CUTTING HALF-TONE NEGATIVES**—Like most half-tone operators, I have been accustomed to use the iodine-cyanide reducer for sharpening up the dots, and have only one cause to complain of it, and that is the expense. The charges for iodine become quite an addition to the day's expense when a good, big batch

of work is being got out. However, my object in writing you is to ask you if a substitute which is cheaper is known, and so, if you can give me a formula.—RASTER.

You can use potassium ferricyanide instead of iodine. We cannot give you a definite formula, as the quality of the cyanide is so variable, but try adding about  $\frac{1}{2}$  oz. of 10 per cent. solution of ferricyanide to, say, 4 oz. of weak solution of good 30 per cent. cyanide cake.

**C. E. M.**—We should advise you to address your inquiry to Messrs. Houghtons, Ltd., who will probably be able to deal with the matter.

**ALBUMEN SOLUTION**—For the preparation of a certain mixture which I am experimenting with for a certain trade purpose regarding which I may be able to advise you later when I have completed my tests, I require to keep a solution of albumen but find it almost impossible to get this chemical to keep good for any length of time. Can you tell me of anything which will preserve it for, say, three months, something which I can mix with other solutions.—SIGMA.

We should advise you to try pure carbolic acid, using about 1 part of the pure acid to 50 or 60 parts of the albumen. Carbolic acid will mix without harmful effects with a very large number of substances, but we cannot, of course, pronounce definitely in your case, as we are ignorant of the composition of your mixture.

**INQUIRER**—The address of the Professional Photographers' Association is 89, Albany Street, London, N.W. Certainly you can do no better than join the Association.

**RESTORING DAGUERREOTYPES**—I have had sent to me a specimen of a Daguerreotype portrait which is much tarnished and stained. Before taking any steps to its renovation, I should like to ask you if the portrait is liable to be spoiled in the process, and if the method to be followed is difficult?—CHILFORD.

Briefly, the process is as follows:—All dust is first blown off the Daguerreotype, and the latter is then treated with a weak solution of potassium cyanide—say, 10 grains per ounce of water—until the tarnish is removed. It is then washed, first under the tap, and finally in distilled water. It has finally to be dried, the most tricky part of the process. This is done on a small spirit lamp, and requires some considerable skill to avoid drying marks. If you have had no previous experience in the restoration of Daguerreotypes, we should advise you to send the specimen to an expert such as Mr. E. W. Foxlee, 22, Goldsmith Road, Acton, London, W.

**C. S. E.**—Messrs. Staley and Co., 19, Thavies Inn, London, E.C., can send you particulars of the anachromatic lenses.

**PRESS PHOTOGRAPHY**—Can you tell me the best way to get a position on one of the illustrated newspapers as photographer of events and incidents such as are reproduced week by week? I have had a fair experience with focal-plane and reflex cameras.—SUSSEX.

We can only suggest that you apply to the leading illustrated papers, sending specimens of your work, and of any articles you have written. "Willing's Press Guide" (1s.) is as useful a directory of the newspapers as any.

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# THE BRITISH JOURNAL OF PHOTOGRAPHY.

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PRICE TWOPENCE.

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## SUMMARY.

exhibition representing the work of the National Photographic Association opens at the "B.J." Offices this day week.

correspondent writes bitterly from Sydney complaining of the cutting in that city. (P. 266.)

photographic exhibition is to be opened at the "Tribune" reviews on April 29 in connection with a competition in which number of prizes are offered. (P. 282.)

regret to record the deaths of Dr. Aarland and Colonel edat. (Pp. 275 and 282.)

nts on bird photography by Mr. Oliver G. Pike appear on 275.

specification of a new form of construction of "Cooke" lens is g the patents of the week, which also include a further patent g to catatype printing. (P. 275)

call attention to the facility which exists for keeping sensi-carbon tissue in good condition. (P. 267.)

W. Scheffer has continued his researches on the effect of sation on the grain of a plate. (P. 271.)

uggestions have been made by the Drug Stores Association of Britain in reference to the proposed changes in poisons tion. (Pp. 266 and 281.)

Homolka has continued his interesting experiments on pment of the latent image with indoxyl, and is further con- in his belief in the compound nature of the latent image. (P. 271.)

recent paper read before the R.P.S. by Mr. E. C. Middleton ibes the rule for securing uniformity in half-tone negatives. (P. 282.)

rs of the use of the cinematograph in the diagnosis of lung es comes from Wiesbaden. (P. 281.)

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## EX CATHEDRA.

### An Exhibition of Survey Photography.

To-day week we shall open at these offices an exhibition of photographs representing that eminently important branch of applied photography in which several societies are now engaged, and in which the National Photographic Record Association, under the presidency of Sir Benjamin Stone, has led the way. The collection of prints which will be on view are, in fact, the most recent acquisitions of the latter body, and have been selected from a number of others by the secretary of the N.P.R.A., Mr. George Scamell, to whom we are indebted for this opportunity of bringing the work of the Association actually before all those who choose to pay a visit to the little gallery in which the photographs will be housed for the next six weeks. We shall refer more particularly to the photographs themselves and to the work of which they are the outward and visible sign as soon as the exhibition is open.

### Harmonising Harsh Negatives.

A substitute for the persulphate reducer is advocated in the current number of "Das Atelier" by Professor Namias in the shape of a modification of the permanganate reducer which the same Italian savant worked out some years ago. Namias employs the permanganate solution as a means of staining the gelatine film. The action consists in the deposition of manganic oxide equally on both high-lights and half-tones of the negative, with the result, of course, that the contrast between the different portions is lessened. The advantages claimed by Namias for the process are its facility for local application by brush, and for its similar local removal by means of a solution of bisulphite of soda of about 5 per cent. strength. The formula recommended is:—Potassium permanganate, 5 parts; water, 1,000 parts; acetic acid, pure, 5 to 10 parts. The negative is soaked in water prior to being immersed in this solution, in which it is allowed to remain until the necessary intensity is reached.

### Blisters on Prints.

It appears that the old trouble of blisters is still being met with by many correspondents, and by others whose complaints we have received. Very differing opinions are expressed as to the cause, and we should like to point out that it is difficult to even guess at the cause when the particular kind of blister is not described. Most correspondents seem to assume that the blister is between the gelatine film and the paper support, but if they take the trouble to dissect the various examples of the defect that they meet with they will find that there are two varieties. One is between the film and the paper, and the other in the body of the paper. If a cut is made right through the blister it will often be found that the underside of the gelatine is coated with

paper, torn or split away from the body of the support. Blisters of this kind generally disappear on mounting, and can generally be cured by soaking the paper in a very fluid mountant; but blisters consisting of gelatine only are practically incurable. The paper blisters are certainly suggestive of imperfect or impure paper, but as a matter of fact we have traced them, in the case of one brand of P.O.P., to the injudicious use of a salt bath. If the bath was not used, no blisters appeared, while they broke out with the greatest readiness when the salt was again employed. The paper may have been defective, but if so, its defects only became manifest by faulty manipulation; and, in spite of the opinion of our correspondent, "J.P.," on page 261 of a previous issue, we are much inclined to think that faulty manipulation is the prime factor in all such mishaps. Paper blisters are probably due to violent local chemical reactions that should be avoided, and gelatine blisters partly to similar causes and partly to mishandling. A slight dragging touch from the corner of another print may cause a blister sometimes, and the over-use of hardening agents may encourage the separation of the gelatine from its support. Considering the delicate nature of a photographic image, the manner in which it is handled, and the sometimes excessive variety of more or less unknown chemical reactions to which it is submitted, we are not so much surprised at the occasional appearance of blisters as at their comparative infrequency. We will return to the subject again shortly, when we will prescribe a course of procedure which has proved effective in preventing blisters.

#### Silver Chloride Crystals.

Every reader will probably be familiar with the classic figures given by Eder of crystals of silver bromide, and others will remember that quite recently (in our issue for February 15, 1907) Dr. W. Scheffer's photo-micrographs of crystallised silver bromide were published. According to R. E. Liesegang it is extremely easy to obtain crystals of silver chloride by coating a sheet of glass thinly with a 0.2 per cent. solution of gelatine containing the same amount of salt. On drying the salt crystallises out in treelike forms, and if the film is then painted over with a 1:1 aqueous solution of silver nitrate, the silver chloride formed takes the same shape. If treated with a developer, the metallic silver is also reduced in the same shape. Liesegang points out that the trick in forming this and similar pseudomorphs is in the use of the very strong solution of silver nitrate. There is thus formed at the commencement of the reaction a skin of silver chloride, which is penetrated by the silver nitrate with great difficulty. If a dilute solution of silver is used the chloride is in excess, and the crystalline form is destroyed. As, according to Pringsheim, these skins are always very opaque or difficult of penetration for salts of equimolecular weight which act upon one another, Liesegang proposes the name for them of Pringsheim's skins or films.

#### Cutting in the Antipodes.

A Sydney correspondent sends us copies of the newspaper advertisements of two photographers in that city, which show the lamentable condition of competitive cutting which is being resorted to. We are called upon to witness the spectacle of two leading studios bidding against each other for trade which cannot surely be profitable to either. The special offer by each is a framed "Rococo" enlargement for 7s. 6d., the work, so we learn from our correspondent, being 25 x 21 in., and distinctly good in quality. It may be cold comfort to our Australian friends to be told that almost every populated district in England could show competition in photographic portraiture even keener than the instance which has been cited above. For all of which

those who share our own regrets at this feature of modern commercial photography are able to prescribe no remedy save that which has been adopted by some men, whose position has been assailed by the very cheapest workers putting up simultaneously both the quality and the quantity of their own productions. As the continuance of such prices must react unfavourably upon assistants in Australia, we would suggest to the association of employers in that country that the position of influence which they believe them to occupy might be utilised in no better manner than in discouraging the persistence of these cutting practices.

### THE POISONS ACT.

FROM the Drug Stores Association of Great Britain we have received a communication, which appears in our "Correspondence" columns, calling attention to the Government Poisons Bill, which is to be referred to a Select Committee, and suggesting that photographic dealers should make an attempt to obtain some concessions in the sale of poisonous chemicals used in photography. At the present time only two chemicals appearing in Part I. of the schedule of the Poisons Act which are employed in photography are cyanide of potassium and bichloride of mercury—corrosive sublimate as it is called in the Act. Unless a photographic dealer is a pharmaceutical chemist, he renders himself liable to a penalty of £5 if he sells either of these. If he sells a solution of the latter and one of cyanide of silver, to be used for the intensification of negatives (Monckhoven method) he is equally as responsible as if he sold the two salts in solid form. Now cyanide of potassium is, of course, but little used for photographic purposes compared with what it was in the wet collodion process, though the mercury salt is still largely employed; but it is a question whether dealers will trouble themselves to deal about these two substances alone. But the Pharmaceutical Society have for a long time been anxious to get the Poisons Act, necessary to the industrial arts, added to the Schedule so as to restrict the sale of them to pharmaceutical chemists, and thus, allegedly for the protection of the public, to give them a monopoly. Most of the developments now used are poisons, and we have heard of one dealer, at least, from our old friend "pyro," through a solution being swallowed by accident. If the whole of new developing agents were scheduled, dealers could no longer sell them, users would perforce have to go to the pharmaceutical chemist, and would probably have to pay more for them. This is a matter that dealers may do well to give attention to just now. One of the suggestions of the Association is that any person should be allowed to sell any poisonous chemicals used in photography without incurring a penalty, provided they are sold in a wrapper, box, or other vessel bearing the name of the pharmaceutical chemist as the compounder or manufacturer of such poison, together with the name and address of the seller. Why, we should like to know, should it be necessary that the chemicals be compounded by a pharmaceutical chemist for the dealer to be allowed to sell them? The latter best knows the requirements of photography. It may frequently be the case, he wishes to sell to his customers a preparation containing a poison scheduled under the Act, the package, according to this recommendation, must bear the name of a pharmaceutical chemist, by whom only it must be prepared. This suggestion looks very like keeping a monopoly in the hands of pharmaceutical chemists.

There is one suggestion in the circular with which we, and we think most of our readers, are in perfect accord, which is that the administration of the Poisons Act should be taken out of the hands of the Pharmaceutical



Society and placed in those of the local authorities, when everyone would get impartial justice, and prosecutions for mere trivial offences without receiving any warning would be at an end." At present, if a photographic paper sells a little bichloride of mercury, or an oilman a "paper" containing arsenic, the Pharmaceutical Society prosecutes and recovers a £5 penalty, which goes into its pockets. Yet the pharmaceutical chemists are the worst infringers of the Poisons Act, as they frequently do not conform to the terms under which they are allowed to sell poisons. For example, only quite recently a chemist sold to a person just liberated, on trial, from a lunatic asylum, some bichloride of mercury, with which she committed suicide. At the inquest the chemist admitted that he had not complied with the Act, and was severely censured by the coroner. Although we have read of many prosecutions by the Pharmaceutical Society of photographic dealers, oilmen, and others for infringements of the Act, we do not remember having heard of a single one against a member of its own body for its infringement. The administration of the Act were placed, as the Drug Association suggests, in the hands of local authorities, there would, probably, be more impartial justice administered all round.

#### KEEPING SENSITIVE CARBON TISSUE.

Every year sees an increasing popularity in the carbon process, alike with professionals, and amateurs, and what is still more important, the public generally. The tising and drying of carbon tissue is looked upon upon as being a troublesome operation, though as a matter of fact it is a very simple one. The tissue can now be obtained from any of the makers in the sensitive state, and it will keep in working condition for about a fortnight or much longer, that is, if kept under the usual conditions. This short-keeping quality often entails some waste, and the whole of the purchase may not be used up before it becomes so insoluble as to be unworkable, insolubility is really brought about by moisture in the gelatinous tissue. It may not be known to every one that if the tissue is absolutely dry it may be kept several months after sensitising in a perfectly workable state, say, if it be stored under the same conditions under which platinum paper can be kept. A few years ago the Autotype Company introduced a preservative case for sensitive carbon tissue. It was a flat case with a small receptacle at one end for

chloride of calcium. The tissue is kept flat under slight pressure so that it does not curl. At the time of its introduction the company furnished us with one of these cases filled with sensitive tissue, which we kept for three months before we printed it. We found, after this long keeping, that the tissue worked as well, and yielded prints in every way as good, as if it had been used at the time it was made. This preservative action is due to the chloride of calcium absorbing the moisture from the gelatinous film and keeping it perfectly dry. The same result would, of course, be secured had the tissue been stored in an ordinary platinum-type tin, although it is necessary in the case of carbon tissue for the pieces to be kept as flat as possible.

It is well-known to everyone, we believe, nowadays, that in the carbon process the prints become darker by being kept long after they are printed, therefore it is recommended in all the manuals, and by most writers on the subject, that the pictures be developed as soon after they are taken from the frame as possible, unless allowance be made for this action in the printing. Yet it is not always convenient to develop the pictures directly they are printed, and the longer they are kept the more over-printed they will turn out when developed; and it is not easy to estimate the under-printing necessary for a given time of keeping. Hence it may be well to point out that this continuing action is entirely due to the presence of moisture in the tissue, and if there is no moisture there is no continuing action, even if the prints are kept for many months. Therefore, if the prints, after they are removed from the printing-frame, be put directly into a calcium case they may be kept until any convenient occasion for development. In this way they have been kept for six months, and have proved at the end of that time no darker than if they had been developed immediately after printing. If the prints have to be kept for a long time—a month or two—before development, it will be well to dry them somewhat before the fire, previous to putting them into the case, to get rid quickly of some of the moisture, but they should not be made actually warm, as heat accelerates the continuing action. If the tissue, either before or after exposure, is stored in a cylindrical case, the coated side should be rolled outwards, as if rolled the other way there would be a danger of its cracking when unrolled. It is for this reason that flat cases are preferable to cylindrical ones. The object of these notes is to point out that sensitised carbon tissue, if kept under the conditions just mentioned, will remain in good working order as long as will the average P.O.P.

## SOLARISATION AND THE THEORY OF A COMPOUND LATENT IMAGE.

(A paper in "Photographische Korrespondenz.")

Under the title of "Experiments on the Development of the Latent Image,"<sup>1</sup> I published recently a treatise in which I showed that the image developed with indoxyl or thioindoxyl is not of an homogeneous nature, but consists of an indigo and a silver image. On the ground of the theoretical considerations and supported by further experiments, I came further to the conclusion that the substance of the latent image could not be of an homogeneous nature, but consisted very probably of a mixture of silver per-bromide  $\text{Ag Br}_2$  and sub-bromide  $\text{Ag Br}$ , in which in place of the latter the expression  $\text{Ag} + \text{Br}$  should be placed.

Further mentioned that development with indoxyl can illustrate the phenomena of solarisation. This latter

phenomenon I have more closely examined, with the following results.

In order to prepare a solarised image, gelatino-bromide plates, of about 12 deg. Scheiner,<sup>2</sup> were exposed behind a Chapman-Jones scale photometer to diffused daylight, between 10-12 mid-day on a cloudy November day, for ten minutes at two metres distance from a window.

When a plate thus exposed was developed with the above mentioned indoxyl solution,<sup>3</sup> a beautifully solarised image was obtained: numbers 1 to 10 were strongly solarised, 11, 12, and 13 were a "neutral zone," whilst the remaining numbers to 25

<sup>2</sup> This is about equal to 100 H and D.—Eds. "B.J."

<sup>3</sup> For the sake of brevity, development with indoxyl to an indigo image will alone be mentioned; the behaviour is exactly the same with thioindoxyl.

showed a normal negative. The fixed plates when examined by daylight showed the normal green colour, which has already been mentioned. When the plate was placed in a cyanide solution, to which some potassium fericyanide had been added, the "silver image" dissolved quickly, whilst the pure blue indigo image was left behind. This indigo image was not solarised, but showed the gradation of a normal negative, from which one must conclude without further argument that the silver per-bromide constituent  $\text{Ag Br}_2$  of the latent image was not solarised.

Lüppo-Cramer has proved<sup>4</sup> that reversal of the image is not obtained by physical development of a solarised and primarily fixed plate. I proved the correctness of this statement by developing one of these solarised plates after primary fixation with the sulphocyanide-metol-silver physical developer given by Haschek.<sup>5</sup> A clear negative with normal gradation was the result.

We therefore come to the remarkable fact: in a silver bromide film exposed sufficiently long to cause solarisation neither the silver per-bromide constituent  $\text{Ag Br}_2$  nor the silver sub-bromide  $\text{Ag} + \text{Ag Br}$  is solarised; the two developed chemically together give, however, a solarised negative. This apparently paradoxical phenomenon finds a natural explanation in the following considerations:

Assuming that my views on the nature of the latent image are correct, the film in an exposed dry plate is composed of the following three substances:

1. Silver per-bromide  $\text{Ag Br}_2$ .
2. Silver sub-bromide  $\text{Ag}_2 \text{Br}$ , or  $\text{Ag} + \text{Ag Br}$ , and
3. Unchanged silver bromide in the ripened highly sensitive form.

With continued exposure the quantity of per-bromide and sub-bromide increases in molecular proportion. A reversible action—that is, a reversal of the image—as proved above, does not take place either with the latent per-bromide or latent sub-bromide. Naturally the proportion of silver bromide must decrease in the same ratio, as with continued exposure the per-bromide and sub-bromide increase.

<sup>4</sup> "Phot. Korr.," 1905, p. 260.

<sup>5</sup> "Eder's Jahrbuch," 1899, p. 476. Haschek's formula is:—I. Ammonium sulphocyanide, 24 gms.; silver nitrate, 4 gms.; sodium sulphite, 24 gms.; hypo, 5 gms.; potassium bromide, 0.5 gms.; water, 100 gms. II. Metol, 15 gms.; sodium sulphite, 150 gms.; water, 1,000 ccs. For use mix about 6 parts of No. I., 54 parts of water and 34.40 parts of No. II.—EDS. B.J.

In the decrease of the silver bromide I see the cause of solarisation.

For, if we describe chemical development as a disassociation by the developer of  $\text{Ag Br}$  into  $\text{Ag} + \text{Br}$  through the agency of the "silver germ" of the silver sub-bromide, it is obvious that by continued exposure with simultaneous increase of sub-bromide, "silver germ," and decrease of silver bromide, there must appear at a certain stage a condition of equilibrium—that when to a molecule of sub-bromide or to every atom of "silver germ" there is still one molecule of silver bromide. If the plate is developed at this stage it will perhaps give the maximum density. If the exposure is pushed further, beyond the state of equilibrium, the sub-bromide increases and the bromide decreases. If the plate is now developed, the "silver germ" of the sub-bromide finds less reducible silver bromide than in the previous stage, and the natural result of this is that the density of the negative must decrease.

Against these arguments one may advance the statement which I made in my previous papers, that in development with indoxyl the silver per-bromide is reduced to bromide, therefore there cannot be a decrease of the latter. This objection would doubtless be justified if the two images, the silver and the indigo image, were simultaneously formed; this, however, is not the case, for the silver image is formed first, and only with continued development is the indigo image gradually formed. This can be easily proved by developing an exposed plate for only a short time in the indoxyl bath—that is to say, only till the details of the image are distinctly visible. If the development is then interrupted and the plate fixed, a pure silver image is obtained, black-brown when looked through, with strong metallic lustre. The fact must also not be overlooked that the silver bromide formed by the reduction of the per-bromide is simply chemically-produced bromide, and in its photo-chemical properties in all respects totally different from the "ripened" bromide originally present, and obviously only reduced with difficulty, or not reducible by the "silver germ."

The above conception of solarisation most satisfactorily explains the fact that solarisation can be remedied by careful treatment with bromine water. A part of the existing silver sub-bromide,  $\text{Ag} + \text{Ag Br}$ , is converted back into  $\text{Ag Br}$  by the bromine, so that the amount of sub-bromide in the film is lessened, that of the bromide, on the other hand, increased, so that the normal un-solarised condition of the plate is more or less approached.

B. HOMOLKA

## HALF-TONE NEGATIVES: AND A SUGGESTION FOR SECURING UNIFORMITY IN THE SAME.

(A paper read before the Royal Photographic Society.)

THE remarks I have to make are founded on something I published some years ago when it passed without comment, either favourable or otherwise. At that time half-tone work interested comparatively few, and those few were following it for a living, jealously guarding their secrets, and keeping their own counsel. Now the production of half-tones is no longer shrouded in mystery, and I hope to-night for a discussion and consideration of the suggestion.

For some years I have not carefully followed the photographic press, but before writing this paper I made efforts to ascertain that in the meantime nothing had been published that would prevent it being of interest. I found with regret the most notable development in half-tone work of late has been the steady cutting of prices.

Everything in block production depends on the perfection of the negative, and I am afraid this cutting of prices must often mean the using of a negative that the operator recognises full

well is not up to standard, but with the low price ever before him, he fears that to take another negative would mean a loss of that particular block. The negative for really successful work must come within very much narrower limits of perfection than a negative for any other purpose. One firm I know produced the best work, years ago had a man sitting in judgment on every negative produced, destroying all such as were short of perfection, and that course I thoroughly endorse; it means the loss of many negatives, but all after processes are much simplified and an ultimate saving effected, I believe—certainly a high standard of work is maintained. It is the complexity of manipulation that leads to uncertainty in the production of high-class work, and too often tempts the operator to remark, "That will do," they must "dodge the printing a bit," or "The fine etching will put it right." I may here remark that a large percentage of the fine etching is a clumsy and expensive expedient for making use of a faulty negative, and possibly the production of rea-



uniform negatives for half-tone is the most difficult of all photographic problems; at any rate, I expect those who do the work think so. The full meaning of regularity is this—the negatives must take a uniform time to print and a uniform time to etch; the printer and etcher should be merely mechanics, performing operations governed by the same set of conditions—exposure, and time, and fine etching should be practically eliminated.

As to the failures, many operators, I am afraid, attempt too much and court too much complexity in their methods. The high percentage of good work under present conditions is very wonderful, but if by simpler means more can be done, why should we not adopt the simpler conditions and work, if possible, by rule, instead of by "judgment"? As to the conditions that govern half-tone work, I am unaware of any scientific investigations that we can regard as adequate. Theoretically, the work cannot be done at all; in practice we know it can, but as to exactly what part the various factors such as screen distance, stop, shape of stop, pin-hole effect, what I term general lens effect, the vignetting action of the screen, the spread in development, cutting, and intensification, have in making up the total will perhaps never be determined—there is no money in such investigations—and the matter is one of extreme complexity. In the "British Journal" twelve years ago I published and pretty fully illustrated some experiments with regard to stops of various shapes, and the following year Dr. Eder reported some experiments in the same direction by Placezsk, but many of the conclusions arrived at were unacceptable to me, a single variation in their details giving contradictory results. A few details may be of assistance to those unfamiliar with the practical applications of the half-tone process (if there be any here), in following my remarks.

First the screen is separated from the sensitive plate by a distance usually varying, the screen being adjustable. Some operators vary this adjustment with every exposure, a method which sometimes causes unevenness; for when the movement is worn there is difficulty in maintaining parallelism between screen and plate, and that results in a difference in the effective size of the dots in varying portions of the plate, a difference in the joining up and an irregularity of the dots from end to end of the plate.

I advocate working with the screen at a permanent distance eliminating the possible want of parallelism, and fixing one factor, the screen distance; the separation may vary considerably in quite successful work, providing that the stop and exposure are in harmony with the distance—if relatively too close the screen will be too apparent in the result and much of the contrast of the copy cut out. If screen and plate are too far apart relatively there is difficulty in getting properly defined dots, and in the high lights the dots run together too fully, producing too much contrast. This may be corrected in three ways at least:—

- Altering screen distance.
- Altering stop, its size, or shape.
- Altering time of exposure.

Some operators use one method of correction, some another, and very many alter all three conditions in varying degree and as their "judgment" may dictate.

The operator who gets the correction in the simplest way by altering the least number of factors, is the cleverest operator, though there are some who seem inclined to think that the man who makes one alteration only cannot possibly be so clever as he who makes three.

**Stops.**—Here again complexity seems the rule—many operators use two stops during an exposure, some three—claiming to get better gradation, and I have heard of four being used and recommended as giving better gradation still—possibly more correct gradation is obtained by the use of many stops (if a change is to be made at all), but I have convinced myself by practical experiment as well as theory that between two stops there is a mean or average stop that will give a better result and more

easily than the use of two if our object is the true reproduction of the gradation of the copy—an important point is, you get clearly defined dots instead of two or three superimposed dots with ill-defined edges, the dots being, in fact, surrounded with a vignetted fringe. As to gradation with two stops there is a jump from one to another, and unless a certain exact balance is struck between the two exposures whatever the jump is, from one exposure to another it is present in the dot translation. Three and four stops will give better gradation because the jumps from one to another are less violent, i.e., the error is less apparent because divided into smaller portions; it is still there, however. But I again repeat, there is an average stop that will give a better result at one operation, and one operation being better than three or four, I advocate relying on the simpler method.

With all these factors each operator becomes a law unto himself; he may strike an exact balance occasionally, but I have never met one who could convey any law or regulation for what he did to another.

An important question is—are multiple stop exposures a necessity or a custom? I believe the latter. I know that by ringing the changes with large and small stops faulty copies can be modified and improved, and this improvement is often put as the reason for such action; but, after all, there is still a mean stop between those that will produce the same modification; it is merely a matter of correct selection, and my advice is—try to select one, not two. The reduction of the number of stops makes for simplicity, and therefore let us use one stop of the correct size, rather than two, or more, that are individually incorrect.

I do not propose giving exact conditions for each worker; the offered rules must be applied according to circumstances. I worked under conditions that some regard as fatal to success. The light, the focal length of lens, the plates, and especially the screens, their coarseness or fineness, the stop and its shape, and, in fact, every tool and part, may be different to what I used, but no one need make changes in these directions. I will illustrate the principle in such a manner that anyone can apply the conditions of exposure according to the circumstance under which they have to work.

The first need is a correct exposure, and a standard artificial light, known sensitiveness of plate and a similarity in the work help materially. Success will depend on the admission to the camera of the precise amount of light required by the other conditions of exposure, for the latitude is very narrow. A good standard copy should be taken and experimented with until the conditions produce an ideal result, then analyse very carefully such conditions. They may be as follows, and I here quote from my own experience:—

Fixed screen distance .....	$\frac{1}{8}$ inch.
Time of exposure .....	10 min.
Single stop .....	Extension/35.

The first two items are self-explanatory, the last needs comment. The aperture of the stop is one thirty-fifth of the extension of the camera from stop to sensitive plate, and that stop will admit the exact amount of light required by the conditions under which the stop is used.

**Screen distance, etc.**—The determination of this takes some time to determine for aperture of stop used, and must be done by each worker. Once ascertained, it remains constant, and any operator with the above data given can produce negative after negative of good uniform quality.

I have experimented under other conditions as to lenses, screens, etc., and found the extension to vary from thirty to forty-five times the size of the stop, whether it be owing to colour of glass screen, varying perhaps through the colour of the Canada balsam, or the glass, or the light, or perhaps a combination of these and other factors. I say, therefore, accept the principle and work to your own conditions.

In further repeating the experiment twice, from the same copy we will reduce one and considerably enlarge the other, maintaining the screen distance and time of exposure; those used to copying will say, "Oh, but if you are going to reduce, you must expose less, or, if to enlarge, you must increase your exposure." Well, so I do, but by an alteration of one factor only, i.e., the stop, the others remaining permanent, the amount of light admitted previously having given just the amount of closing up of the dots, to produce the exact result wanted, the easiest way I can see to admit the same amount of light again, i.e., the same amount relatively, though the stop be larger or smaller, is as

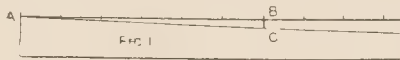


Fig. 1.

follows:—Produce a scale E 35 on a strip of cardboard or stiff paper, say 45 inches long and two inches wide, set out from A 35 inches to B, and drop a vertical line from B one inch long to the point C—from A draw a diagonal line through C and the scale is complete. With a penknife cut through the line AC, and the scale can be fixed on the side of the tailboard, A being level

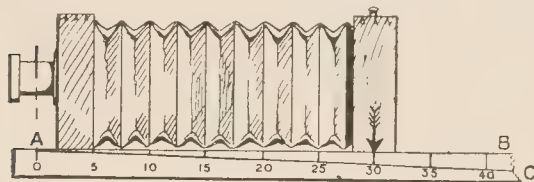


Fig. 2.

with the stop aperture, the camera will extend freely without interfering. At any point on the line AB, that the ground glass may come to rest after focussing one thirty-fifth of the extension is automatically indicated under the arrow-head by the width of a vertical line from the line AB to the line AC, and this gives the size of stop required. With extension towards B for enlargement or movement towards A for reduction the increase or decrease in stop is shown by where we find the arrow-point.\* In practice the scale may be set out along the tailboard, the usual progressive numbers of the iris diaphragm can be dispensed with and other divisions corresponding with the tailboard indications marked on the mount, the iris diaphragm lends itself well to exactness. I attach no great importance to the shape of the stop, believing that many shapes of stop will produce what is wanted if other conditions are right. The Levey stop (Fig. 3) I always regarded as faulty, because when overlapping, as in exposure, the corners did not coincide, the tendency being to produce large joinings of insufficient density. The stop which I first suggested (Fig. 4) is, I believe, superior for joining up dots, as the corners do fall upon each other, and practically give double the light action at these points. I do not see how this can be made in iris form, and otherwise it cannot be so finely adjusted as the circular one, the various sizes progressing in steps, more or

A brief discussion followed Mr. Middleton's paper. The following is the report of it which is appended to the official text of the communication:

Mr. A. J. Newton said he was sorry he had not heard the whole of Mr. Middleton's paper, but thought he had heard the principal points. He asked if Mr. Middleton had brought examples of work produced under the conditions laid down. He (Mr. Newton) had found that when one stop only was used with originals of great contrast they generally lost gradation, and to get more perfect results two stops had to be used, or

\* If one find the aperture wanted is one-fortieth, then the vertical line in Fig. 1 should be put 40 inches from A, a vertical line B of 1 inch long dropped to C and the same method followed. If E. 30 is required the vertical line B must be dropped 30 inches from A, B, and so on.

less gradual, according to the number provided. A square stop, if preferred, can be made in iris form, and possibly curves could be calculated for giving an iris stop a modified square of this form (Fig. 5), for those who incline to the stop with strong corners.

There is nothing in this principle of working to scale to prevent those who prefer two stops using them, but I would suggest always maintaining a determined ratio between the exposures, say, one-half the total for each size.

One cannot in a single paper cover all the various ramifications of half-tone work, but I may say a word or two on copies; if the



Fig. 3.



Fig. 4.



Fig. 5.

copies are faulty every possible improvement ought to be made upon them by the artist; that being done, mentally divide them into three classes—good, too heavy, too flat. If a copy be perfect, the use of a single stop is the most practical way of getting the full gradation. How often do we find the more artistic work with "atmosphere" or "feeling" reproduced badly—or not at all. I believe the multiple stop business accounts for much of this; the balance has not been struck, and a copy false in the middle tones results. This is less likely to occur when one stop only is used. If a copy is too hard, is heavy in the shadows and has chalky lights, cut the shadows up by using a stop a size less than indicated on the tailboard; this will also keep the high lights sharp, but, of course, increases the time of exposure. In extreme cases a pre-exposure may be allowable as a time-saver if it must be understood that half-tone exposures are of necessity very long from the fact that shadows which produce, or, rather leave, almost clear glass in ordinary negatives have to be exposed so long that opacity is produced in the dots representing them. A point, that I have never seen alluded to, may be called attention to here, and that is that the fact that when we look at a half-tone illustration the image has been produced by those portions of the negative that have been totally covered with the screen lines, and have never been exposed to light in the camera, or action of the lens at all.

In the case of a flat copy lacking in contrast, the screen distance should still be maintained, but a stop a size larger than indicated should be used, and the exposure should be shortened.

I have indicated the principle of a method which I carried into practice for some years, one which I consider produced creditable work with a reduction of negative waste and fine etching, but happily I am now otherwise engaged. There are other conditions not alluded to that possibly prevent the rule being absolute in all cases, but I think there is latitude sufficient in the manipulation of the negative to cover this, and if my rule is but half a rule, I hope—like half a loaf—it is better than none, and that my remarks may direct more capable thinkers to a very wide subject.

E. C. MIDDLETON.

one stop made in such a way as to be equivalent to two. The principles which Mr. Middleton advocated were well known, and had to be in some cases departed from in favour of double exposures. The methods of finding the size of stop, when one only was used, as suggested by Mr. Middleton, had been published by Mr. Biermann in "Penrose's Annual" for 1907. The lecturer advocated that the originals should be worked up, but in many cases that would not be allowed. In artistic work it was not permitted to touch the originals at all. It was necessary to obtain a perfect negative of the original in the condition in which it was delivered, and the special qualities required in a half-tone negative could not always be produced with one stop. Mr. Newton quite agreed that one stop might be used for



ying normal originals, but he would undertake to say that average operator using two stops would get better results than the totality of his work than would a man using one stop only, for everything. These remarks apply to wet collodion, which Mr. Middleton recommends; the conditions are different in the case of dry plate and collodion emulsion.

Mr. Fogwell said that he could quite endorse what had been said about the use of one stop, and had found in practice that an ideal stop was round in shape, and it was infinitely better in the use of two or more stops for the preservation of true colour values, and to prevent the harsh jumps from one tone to another, which were so often made when multiple stops are employed, but its exclusive use was impossible in a process of use, owing to diversity of copy, and other matters, and the compromise he had effected was a round stop with lacinated edges, practically a multiple pointed star. Mr. Middleton had said that a perfect half-tone negative should have perfect black and white, but Mr. Fogwell differed from him in that, and said there was a fallacy of old process workers, who had all along been endeavouring to obtain this opacity and clear glass result from both collodion emulsion and dry plates, which leave a halo round the dot. This partially prints on the metal plate and is technically known as "scum," and he had found that this scum on the metal plate was a very decided advantage, as it held the half-tones in etching, thereby allowing the highest lights, which had very much less of the scum, to etch faster than the middle tones.

Mr. Middleton said the opposite opinions expressed by his critics as to stops well illustrated the divergency of opinion, and

as his methods had been published in "Penrose's Annual" it would appear as if he had appropriated the ideas. As a matter of fact, the author of the article was in the same town as himself—Birmingham—and had obtained the suggestion, perhaps not directly, but certainly indirectly, from him. As long ago as 1875 he (Mr. Middleton) had published his ideas, though briefly, in the "British Journal." He had no doubt that the inexperienced operator working without a rule to assist him would get passable results by using a number of stops, because he made his error cover a wider area, but if he applied the rule laid down and worked with one stop only he would get less errors and more perfect results. That scum round the dot assisted in the production of the block was quite a mistake; it led to waste in printing, because a longer or shorter exposure produced different results. With a black and white negative a much wider range of exposure in printing produced no variation in the range. If the dot was hard, and the spaces clear, printing became mechanical. He had found the value of his methods by experience. A youth who had had no experience in making half-tone negatives was told to work absolutely to the rule, with the result that a high percentage of negatives were so perfect that they could be printed from automatically. He (Mr. Middleton) had been out of the block-making business for some years, and could not, in consequence, exhibit examples of his work. At the time he was engaged in the business collodion was in exclusive use, and he had not used gelatine plates. He did not think it was possible to produce the same quality of work with dry plates as with wet collodion.

## MICROSCOPIC RESEARCHES ON THE PLATE-GRAIN.

In the BRITISH JOURNAL, February 15, 1907, I published researches from which it can be seen that there are reasons for dividing the definition of plate-grain into at least three divisions. We have in the exposed film:—

(1) Original grains—i.e., grains which have germs round

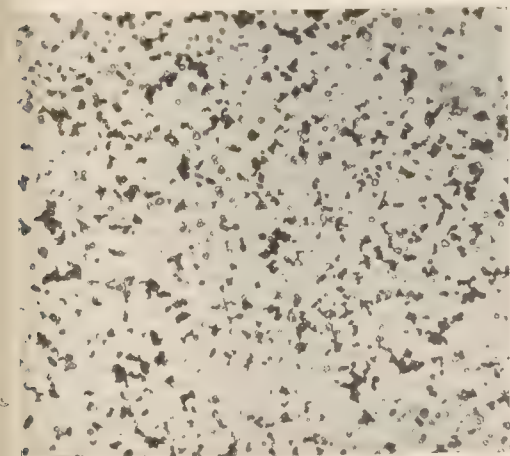


Fig. 1.

themselves, which germs are the points where development commences. These original grains are not dissolved by development.

(2) Dissolving grains—grains which show no germs, and

which are dissolved either partly or entirely by chemical development.

(3) Developed black grains.

The veiling grains of the unexposed plate behave like original grains, and the unexposed grains behave like dissolving grains

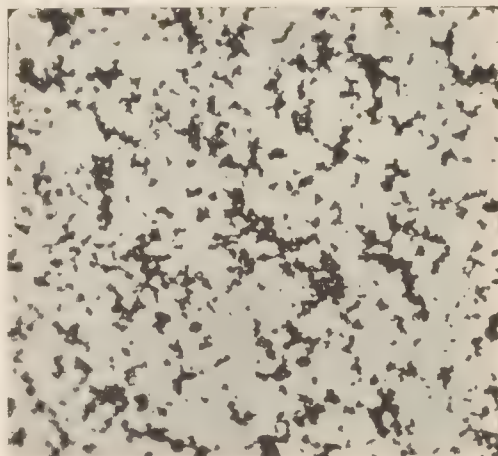


Fig. 2.

in exposed films—i.e., they are only dissolved in chemical developers if they are in the same solution close together with original grains. The researches published here examine the relation of dissolving and original grains under different con-

ditions of development and exposure. In the experiments Figs. 1, 2, and 3, only the time of exposure was changed. All other conditions were the same. The time of exposure of the three films had the ratio of 1 : 100 : 60,000. In Fig. 1,

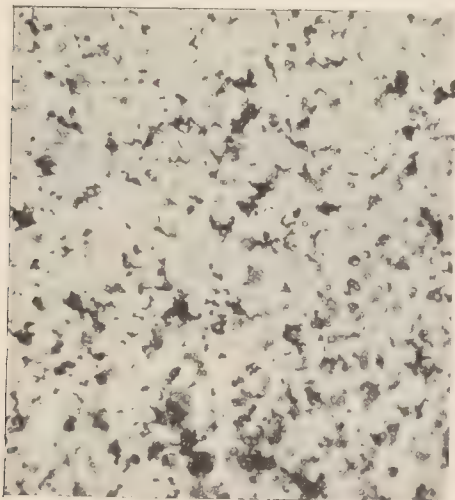


Fig. 3.

beside the developed grains we see many dissolving grains which are not at all, or only partly, dissolved, and the original grains which are not yet covered by the developed grain. In Fig. 2 all dissolving grains have disappeared. We

Fig. 2 is longer exposed, and Fig. 3 is solarised. As we have already stated, in the three films the concentration of the developing solution, the temperature, and the time of development were equal. From these experiments it results that the solubility of the dissolving grains in chemical developers is governed by the exposure, and the solubility increases at commencement corresponding with the exposure up to a maximum, after which it decreases with the increasing exposure.

The curve of the solubility of the dissolving grains corresponds with the well-known blackening curve; it rises quickly with the increasing exposure, and it decreases slowly. The rising portion is the part of the normal exposure. Its slow decreasing part the solarisation. The curve of solubility of the dissolving grains is probably similar to the curve which indicates the mass of the developed grains formed in every case. In the figures Nos. 4 and 5 the action of developing solutions of different concentration is shown. The exposure and the time of development were unchanged in this case.

Both films are solarised, Fig. 4 is developed in a dilute solution, and Fig. 5 in a ten-times stronger solution of developer. It can be seen that the solubility of the dissolving grains, as well as the size (i.e., the general mass) of the developed grains, corresponds with the concentration of the developing solution. We call "optimum of exposure" an energy of light acting upon the plate, which in development gives a picture like Fig. 2—i.e., which causes the dissolving of all dissolving grains and the maximum of size of the developed grains. From the Figs. 4 and 5 it can be seen that the optimum of exposure is quite different for the different concentrations of developing solutions, and that also the part of the curve which indicates this optimum has quite a different length towards the rising part of the curve, as also towards the decreasing part of the curve. The stronger the developing solution, the weaker the exposures sufficient to reach the

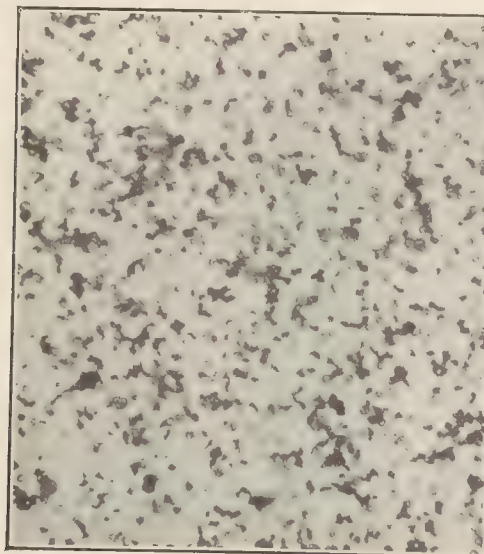


Fig. 4.

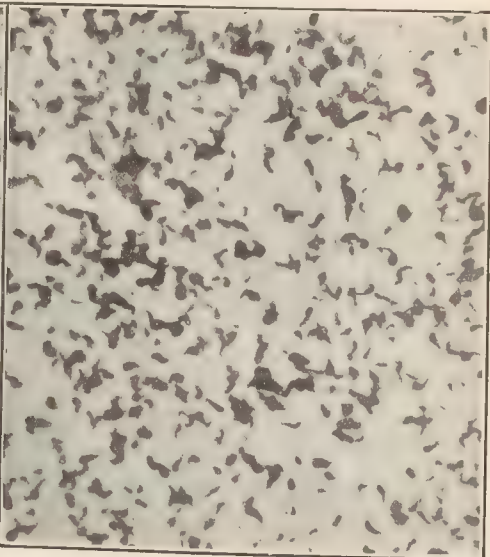


Fig. 5.

see only the developed grains and some original grains which are not covered. The developed grains are much larger here than in Fig. 1. In Fig. 3, beside the relatively few developed grains we see many dissolving grains, and some original grains resting upon the developed grains. Fig. 1 is a short exposure,

maximum size of the developed grain, and the later the decreasing of the curve sets in when we increase the exposure. It is well known that it is easy to considerably change the density curve by changing the ratio of the solution of the developer and the other conditions of development. Therefore,



is not correct to say "exposed at optimum": we must take note as to the conditions of development. Figs. 6 and 7 show that the size of the developed grains depends upon the number of grains in the unit volume of

the place of Fig. 6 the quantity of grains in the unit-volume has been greater than in the case of Fig. 7. Probably this phenomenon is caused by the fact that if the grains lie more closely together the germs are immersed in a more concentrated



Fig. 6.

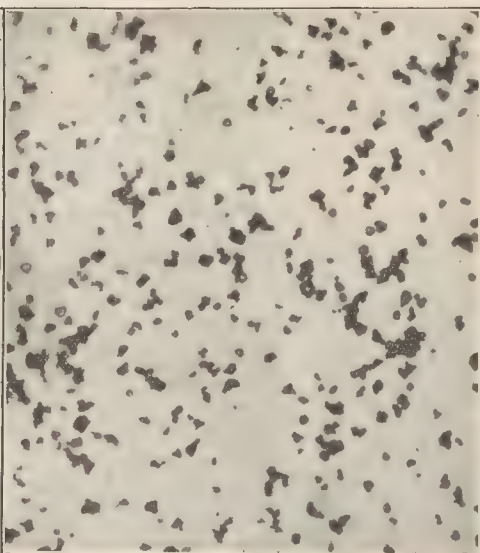


Fig. 7.

fine. The less grains are suspended in the unit volume the smaller is the size of the developed grains, all conditions being the same—viz., exposure and development—remaining the same. The Figs. 6 and 7 are of the same plate, only in

solution of developer than in films poorer in grains. In films rich in grains the quantity of the dissolved dissolving grains lost by the formation of developed grains can be recovered more quickly and more efficiently.

DR. W. SCHEFFER.

#### HINTS ON BIRD PHOTOGRAPHY.

OLIVER G. PIKE, in the "Birdland Booklet," just issued by Messrs. Sanders and Crowhurst, gives the following hints on the difficult branch of photography:—

When stalking a bird, don't walk straight towards it, but walk in a zigzag fashion, stopping every few steps.

When photographing a bird at a nest, always try to be hidden with the camera.

Never keep a bird off its eggs more than two hours. If it does not do so in that time there is something wrong with the photographer's method of hiding.

If it is not possible to hide with the camera, use string, or an electric release for the shutter. When using the former, attach the string to the shutter release with a piece of thin cotton. This will prevent the camera rocking during exposure, for if the string is pulled too hard the cotton breaks.

If a long pneumatic release is not satisfactory, the air wave takes time to pass from the ball to the shutter. The quickest and best method of all is the electric.

Don't try to do impossible things with the "Birdland" camera. When you blame the camera for your non-success. The camera will do more than any other hand camera made; but it is emphatically a camera for photographing birds, animals, and insects, and is not suitable for nests. A half-plate camera with a long swing should be used for the latter.

Don't try to make exposures with a telephoto lens while holding the camera in the hand. A solid support must in such cases be used. Remember that it is always better to obtain a small and sharp image of the bird on the plate than a large and badly focussed one. It is always better to use backed plates when photographing sea

A very rigid tripod should be used with a large top. It is a good plan to also have a small tripod 18 inches high. This is very useful when working in a tent or other shelter.

When working in a bird tent don't go to sleep.

The following notes on exposure refer to Imperial "Special Rapid" plates, with Goerz Dagor lens, an average light without the sun shining:—

Birds at rest on their nests in an open meadow—stop lens down to  $f/32$ : wind shutter right up, put mirror catch out of action, and give an exposure of three seconds, using the mirror itself as a cap or shutter.

Birds walking up to their nests— $f/8$  exposure, about 1-10th second.

Birds feeding, such as tits or finches— $f/6.8$  exposure, 1-25th second, or even 1-15th. Not quicker than 1-25th.

Small birds flying— $f/6.8$ , 1-500th second.

Large birds flying, such as gulls—1-300th second.

When making exposures of sea birds on such places as the Farne Islands or the Bass Rock, where the light is very strong, be careful not to over-expose. A third part of each of the exposures mentioned above might with advantage be given in such places. Imperial "Special Rapid" plates are quite rapid enough for the fastest exposures for birds flying over the sea.

Don't try to give rapid exposures in a dense wood—it is impossible.

Don't put the camera away for any lengthy period with the shutter set or with the tension spring wound up.

DEATH OF COLONEL LAUSSEDET.—It is with regret that we announce the death of Colonel Laussedat, whose work, as one of the pioneers in photogrammetry, was extremely valuable. He was a prominent member of the Société Française, and practically organised the public conferences of photogrammetry in 1891-2.

### THE INFLUENCE OF HEAT IN BICHROMATE PRINTING

ACCORDING to a recent paper in "Photographische Mitteilungen," a number of experiments have been carried out by W. Struck on the effect of heat rays in direct sunlight on the printing of pigment and gum papers. The temperature which a printing frame exposed to direct sunlight attains was found by filling a frame with wool, covering the latter with black paper, and laying on the paper the pigment paper and the glass negative. A thermometer was placed between the black paper and the pigment film. After five to twenty minutes the author found a temperature of from 35 to 67 degrees in the printing frame, whilst that of the surrounding air was 20 to 26 deg. A parallel experiment in which a paper negative was used gave a temperature only of 25 to 42 deg. This is explained by the fact that a very large proportion of the heat rays are reflected by the white paper.

In afterwards tracing the action which is exerted by the heat rays in the absence of light, the author laid a glass vessel with water at a temperature of from 40 to 60 deg. on a pigment of gum bichromate film. The latter showed at a temperature of 45 deg. in about fifteen minutes, or at about ten minutes at a temperature of 55 deg. A weak, scarcely-visible action in the case of gum paper did not manifest itself at a temperature of 60 deg. until twenty-five minutes had elapsed. At a temperature of 100 deg. the coating of gum became insoluble. Finally, the author studied the action in combination with artificial heat. He employed two printing frames, one of which contained a scale of gradations serving as a negative. It was exposed to a certain degree of heat, whilst the other printing frame was left at the ordinary temperature. For heating the former an iron chamber provided with a glass lid was used, being heated by a small flame beneath it, and being provided with a thermometer. The printing frame was suspended under the glass plate.

A print exposed at a temperature of from 35 to 40 deg. showed ten divisions of the actinometer in five minutes. One exposed at 40 to 50 deg. showed thirteen divisions, whilst the unwarmed pigment film showed only eight divisions. Gum pigment paper exposed at a temperature of 30 to 40 deg. showed only eight divisions. At a temperature of 45 to 50 deg. eleven divisions were shown, whilst the unwarmed paper showed six divisions only. It may, therefore, be taken from these experiments that increased temperatures without simultaneous action of light have a very slight influence on the sensitive film. At the same time the action of a simultaneous impact of sunlight is very considerably enhanced by heat. As a consequence the general view that the rays of direct sunlight cause the film to become insoluble is scarcely tenable, and any action which takes place under these conditions is actually to be ascribed to over-exposure, such over-exposure in its turn being due to the combined action of light and heat.

### THE RAPID PRODUCTION OF POSTCARDS.

APART from its evidence of the growth of the picture postcard trade in America, the following notes from the "Photo-Beacon," by Mr. G. W. W. Bucklin, may provide one or two hints of service to those who have to turn out cards at short notice:—

"All the rage!" If you don't think so ask the mailman. My experience has been a gradual development, first using P.O.P. until I was swamped; then experimenting with 2,000 c.p. arc light I obtained my present system. Some claim to make cards, develop, fix and wash in ten minutes and ask \$25 for the know how. The best I can do, and do right, is about thirty minutes. But as my method dispenses with an expensive lantern-camera, I have stayed by it. Two things are essential—fast-working plates and chemicals, and my special method of printing wet plates and dry paper. This last-named process is the only excuse for writing this article. It is as follows:—

(A) The fixed plate is taken from the hypo, rinsed and squeezed to a plain glass under water. The plates are then stood up at an angle of forty-five degrees to allow air bubbles to escape, as they will cause rings.

(B) The plates are then rubbed dry and the dry postal placed on plain glass side; print is masked with movable cut-out on the face of frame.

(C) Printing is done by the long rays of the arc light at a distance of about eight or ten feet. At that distance the shadow of the negative image is so sharp that the general public cannot tell between

prints made by this method and those printed after negative is in fact, they prefer this method, as the blemishes are not so pronounced. The exposure is made by a cord after the frame has placed on a rest where it will be absolutely still during exposure. side notes on the postal-card business I will add the following portion of my camera:—It is a sliding back, making three exposures a 5 by 7 plate, and is equipped with a portrait lens working exposures range from two to six seconds.

The light is an 8-arc, 2,000 c.p. street arc, furnished by city electric company, screened with 2 by 4 in. opaque oval, the light being diffused from 4-foot wing-shaped reflectors and the usual side reflectors.

Cramer plates are used, as they develop fast. For developer I use the tube M. Q. 'velox, for both plates and cards, using the same method on exposed end of cards, thus having the advantage of using a brush of fresh developer for each print.

Time required runs about:—Exposure, two to six seconds; developing, five minutes; fixing, five to eight minutes; printing, five to five minutes; fixing, extra strong bath, three to five minutes.

Rush orders are rinsed, placed in blotters, customers doing washing for themselves.

### PORTRAIT PHOTOGRAPHY.

THE ideal room for portrait-photography (says a writer in "Photo-Era") is the same as that chosen by the painter, a room the third or fourth floor, or even higher, with a north light. The reason why a painter chooses the north light is because it is a soft, even light, and does not fluctuate as does the light in a room where the sun shines into it some portion of the day.

Most of us cannot command such a room, and we must learn the possibilities and limitations of the one at our disposal. With w reflectors and properly adjusted screens one can secure almost any sort of lighting he desires, and, with care in manipulating his camera obtain excellent results.

If one has studied portrait work, then he is already well fitted to practise portrait-photography. If such is not the case, however, his best plan—lacking a teacher—is to buy photographs of some of the best works of the masters of portrait-painting and study well the posing and lighting of the subjects. Then with a certain picture model, choosing at first the most simple, both in composition and lighting, pose the subject and endeavour to have the lighting correspond as nearly as possible with that of the study chosen. If the first attempt is not successful—and the chances are that it will be—then try another and another from the same study until the result approaches in some degree the model.

For the beginner in portrait-work the most pleasing results can be obtained if the face is turned away from the light, as the shadow will give softness and roundness to the features. If the head is turned to either side care should be taken that it is not turned so far as to bring the muscles of the neck into prominence, as the effect is unpleasant. The lighting of the face should be so adjusted that the lights and shadows seem to melt and blend into each other without sharp definition between. This effect is termed the proper gradation of lights and shadows, and this treatment of the lighting distinguishes between the photographer with and the photographer without artistic training.

The hands are perhaps as difficult a part of portrait-photography as one encounters. They should be kept in shadow as much as possible, and in posing, the side, instead of the back, of the hand should be turned toward the camera. One should never try to arrange the hands of a subject. If the position of the hands does not seem pleasing, ask the subject to lift them and drop them again in his lap. The muscles of the hands when at rest should be relaxed, the sitter before a camera is all too prone to hold his hands stiff and rigid. The fingers should seldom if ever be doubled or shut, as this gives the effect of stubbornness to even the most slender hand. Sometimes it is a good idea to use a book or a small picture in the hand, choosing for the book a small volume with rough leaves in yellow or brown tones. The picture should be on a rough mount of dull gray or drab cream. Where use is made of a book with shiny leaves it gives a strong high-light where a high-light is not desired. The light should always be concentrated as much as possible on the face, the figure and accessories being subordinate in tone and decorations.

The sitter should not be allowed to look straight into the camera. The focus of the eyes on an object so near detracts from the expression.



sion, and the result is not so pleasant as when the sitter looks beyond the camera at some distant object.

The dress of men and boys has little of the artistic, but the dresses and draperies of girls and women are full of artistic possibilities. One point to remember is that the simpler the dress the more artistic will be the picture. If one wishes to make a picture which shall not lose its charm in after years, then use a very simple gown, and have the hair dressed loosely and in none of the exaggerated fashions of the moment.

In focussing for a portrait use one of the largest, if not the largest stop, focus on the eyes, then turn the lens outward just enough to do away with the sharp focus. The exposure varies with the light and with the rapidity of the plate. On an ordinarily bright day, with quick plates, an exposure of five seconds is quite long enough, but if the day is dull or the sitter placed some distance from the window, the exposure should be prolonged to from fifteen to thirty seconds.

Do not make your subject wait too long. Have everything in readiness, and work quickly. If one spends too much time in arranging and rearranging his accessories and posing and re-posing his sitter, both operator and sitter will become tired and the picture will be a failure.

Never being satisfied with one's work is the way to advance; though you do well, do not give up the idea that you can do better.

#### PHOTOGRAPHY IN SMOKE PREVENTION.

THE deleterious effects of coal smoke escaping into the atmosphere (says the "Lancet") have often been referred to in our columns, and the discharge of black smoke from a chimney has been made a statutory offence. The prosecution of offenders is, however, not infrequently difficult on account of conflict in the evidence as to the density of the smoke emitted. Writing on this subject in the Engineering Supplement of the "Times" of March 20, Mr. James Swinburne points out that the excellent smoke chart of the Institution of Civil Engineers is imperfect, because it is almost impossible to compare smoke seen against the sky with a shade on paper which is not only in close proximity to other darker and lighter shades, but is not really comparable at all. He says that this difficulty may be overcome by having the smoke scale made on glass or transparent celluloid which can be held up in such a way that the smoke can be compared with the progressive series of tints forming the scale. These scales might be standardised so that different observers might have exactly similar tints before them, and a further improvement would be to photograph the smoke scale together with the smoke which is to be tested. They then both receive the same treatment, and the smoke on one print is compared not with the smoke on another print, but with its own smoke scale. Thus, smoke on one print may be very light, the scale being very light too, so that the smoke corresponds with the scale at, say, 0.4, which means that the smoke stops four-tenths, or 40 per cent. of the light. On another print, taken by someone else at the same time, the smoke may look very dark, but the scale will look very dark too, so that the smoke will still correspond with the part of the scale marked 0.4. Mr. Swinburne further describes how a smoke scale, with its varying tints, is prepared on a photographic plate, and how different smoke scales can, for purposes of comparison, be calibrated in terms of their light-stopping power. He says that for photographing a column of smoke which is to be tested, a pocket quarter-plate camera does quite well, its only drawback being that the shutter has only one speed, which will probably be too fast for smoke photography.

#### SEEING WITH A FISH'S EYE.

THE British high school girl of scientific turn in search of instructive holiday entertainment for her seniors might try photographing the world as it appears to a fish. The Professor of Physics at John Hopkins (Baltimore) University, Dr. R. W. Wood (says the "Standard"), has shown how this may be done. Rays of light, as every high school girl knows, are bent by refraction on passing from air into water; and hence to an eye under water the terrestrial horizon appears lifted up so that the sky is compressed into a comparatively small circle of light. (The cone of light entering the fish's eye has, in fact, an aperture of only about 96 deg., though the rays within it originally came from a cone of 180 deg.) The appearance is

much as if the pond were covered by an opaque roof with a round window cut in it. Objects surrounding the pond must appear round the rim of the above-mentioned circle of light. The simplest way of seeing how they look from under water would, at first sight, appear to be to get into the water and try. But human eyes are not adapted for distinct vision under water, though a lens of half-inch focus held in front of one eye might help a little. By the use of photography, however, the affair becomes quite simple. There are various objections to employing an ordinary camera for the experiment. The following plan is recommended:—

Get a small pail, and a metal disc, perforated by a pin-hole, fitting into the pail rather over half way up. Lay the photographic plate on the bottom of the pail in the dark room, and fill the pail with clean water (both above and below the disc). The pail camera is then set on the ground, and the surface of the water covered with a sheet of glass to prevent ripples. There must be no air between the glass and water. The pictures obtained with this device are extremely interesting, but it will not work pointed horizontally. In order to represent things as seen by a fish through the glass sides of an aquarium, the following method may be adopted:—Take a water-tight box with an opening in one end. Make a pin-hole in the amalgam film on the back of a piece of looking-glass, and cement the looking-glass, glass side out, over the opening in the box. Bring the box into the dark room, insert the plate, fill the box with water, and put on the cover. Add a little more water through a small hole to displace air. Very curious results are obtained with this apparatus, which will photograph objects right up to the tripod, and those nearly due right and left, and directly over the camera. The marginal portions of the picture are, of course, distorted. When a straight row of nine men, side by side in a garden path, was photographed with the camera held 18 inches in front of the central figure, the straight path appeared bent into a semi-circle, and the end figures were reminiscent of "Pictures of pre-historic times."

Pointed downwards from a balloon the device would give a compressed bird's-eye view of the entire surface of the earth out to the horizon in all directions. Pointed upwards, it would photograph the entire sky, and might, therefore, be applied to serve as a sunshine recorder.

An article, with illustrations, on this same subject appeared in our contemporary, the "Photographic Monthly" of February last, page 50.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between March 25 and March 30:—

**FILMS.**—No. 7,132. Improved manufacture of photographic films.

A. J. Boulton, 111, Hatton Garden, London, for Société des Plaques et Papiers Photographiques A. Lumière et ses fils, France.

**COLOUR-PHOTOGRAPHY.**—No. 7,217. Process for the production of coloured photographs. John Henry Smith and Waldemar Merckens, 65, Chancery Lane, London.

**SHUTTERS.**—No. 7,235. Improvements in photographic shutters. Félicien Blanpain, 18, Southampton Buildings, London.

**DARK SLIDES.**—No. 7,268. Improvements in or relating to photographic dark slides or plate-holders. Albert Posso, 111, Hatton Garden, London.

**CINEMATOPHONES.**—No. 7,277. Improvements in cinematographs. Stanislaus Kucharski, 18, Southampton Buildings, London.

**CINEMATOPHONES.**—No. 7,376. Improvements in cinematographs. Claude Antoine Lumière, 7, Southampton Buildings, London.

**CHEMICAL SHEETS.**—No. 7,439. Photographic chemical sheets. John Edward Thornton, Altrincham, Cheshire.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**TONING SILVER IMAGES.**—No. 21,584, 1906. This invention is a simplification of the processes described in Specifications Nos.

18,370, 1903, and 10,898, 1904, manganous salts being now employed instead of manganic salts.

The new process is conducted by immersing a silver bromide positive or negative picture in a bath consisting of a solution of a manganous salt and ferricyanide of potassium, whereby the silver picture is converted into one consisting of manganous ferro-cyanide.

Baths of suitable composition are as follows:—

#### Example I.

100 c.c. of potassium ferricyanide solution of 0.5 per cent. strength.

20 c.c. of manganous sulphate solution of 2 per cent. strength.

15 c.c. of potassium bromide solution of 10 per cent. strength.

#### Example II.

100 c.c. of potassium ferricyanide solution of 0.5 per cent. strength.

20 c.c. of manganous sulphate solution of 2 per cent. strength.

#### Example III.

100 c.c. of potassium ferricyanide of 0.5 per cent. strength.

25 c.c. of manganous sulphate of 2 per cent. strength.

15 c.c. of potassium bromide of 10 per cent. strength.

5 c.c. of normal hydrochloric acid.

Instead of a solution of a manganous salt and potassium ferricyanide, a solution of manganous ferricyanide may be used. A suitable mixture is, for instance, as follows:—

#### Example IV.

200 c.c. of saturated manganous ferricyanide solution.

10 c.c. of potassium bromide solution of 10 per cent. strength.

It is advantageous to use a mixture of a manganous salt and potassium ferricyanide with a substance, like sodium tartrate, which forms complex salts with manganous salts. A suitable mixture, for instance, is as follows:—

100 c.c. of a saturated solution of manganous ferricyanide in a solution of sodium tartrate of 25 per cent. strength.

10 c.c. of potassium bromide solution of 10 per cent. strength.

The action of the baths can be hastened by heat.

The pictures obtained may be treated with an alkaline solution of potassium ferricyanide in the manner described in Specifications Nos. 18,370 of 1903, and 10,898 of 1904.

The manganous pictures may be coloured, if desired, in the manner described in the last-named specification, by means of suitable dyestuff formers. Besides the substances named in that specification, solutions of cobaltous salts may be used. Neue Photographische Gesellschaft, 27, Siemensstrasse, Steglitz, Berlin.

NEW "COOKE" LENSES.—No. 7,661, 1906. The invention relates to a new construction of "Cooke" lens, consisting of a negative

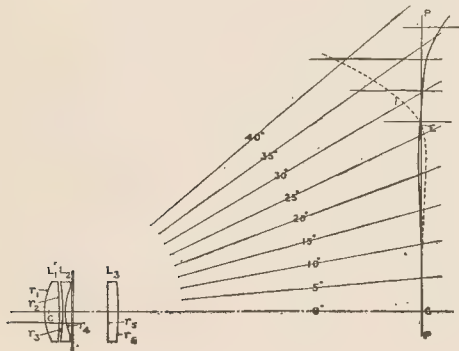


Fig. 1.

lens placed between two positive lenses of very unequal focal length; the power of the negative lens approximating towards 90 per cent. of the sum of the powers of the two positive lenses; whilst the radii of the separation between the second and third

surfaces are so mutually adjusted as to permit of the image of a distant vertical line keeping well defined without re-focussing right across the horizontal diameter of a flat plate subtending an angle of 70 deg. or more at the lens.

The author points out that the curves of focus of horizontal and vertical (radial and tangential) lines obtained with a "Cooke"

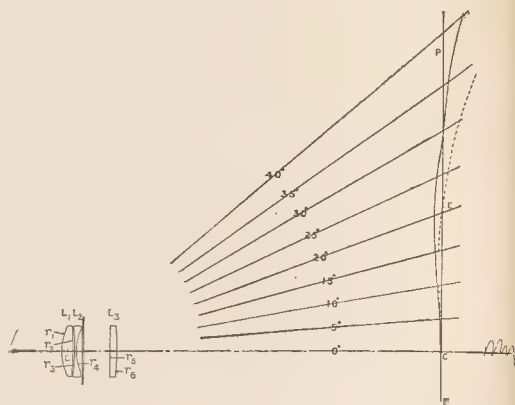


Fig. 2.

Lens of Series III. and of construction shown in Fig. 1 are as in that figure in which the abscissæ are enlarged three times for clearness. In the case of Series V., "Cooke" lens (fig. 2), the curves are as shown.

If one form of Cooke lens shows the characteristics of Fig. 1, and another shows the characteristics of Fig. 2, surely some intermediate form of Cooke lens may be devised whose image curves would approximately coincide with the focal plane C — P, and thus yield a flatter image with less astigmatism over a larger angle of view than any existing Cooke lens. This general idea led the author to further investigations into the causes of the image curves deviating in the manner shown from the ideal plane, with the result that he came to the conclusion that these curves are the resultants of corrections of a hybrid nature affecting the pencils of light refracted obliquely through the lens, that is, they result from certain residual obliquity and eccentricity errors varying as the square of the tangents of the angular distances from C, being opposed by contrary obliquity

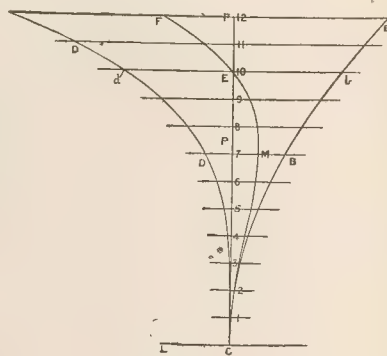


Fig. 3.

and eccentricity errors varying as the fourth power (and in lesser degree 6th power) of the tangents of the angular distances from C.

Fig. 3 illustrates this. Let C — B be a curve whose abscissæ vary as the square of the vertical height from C, and let C — D be a curve in the opposite direction whose abscissæ vary as the fourth power of the vertical height from C, then at a



certain height we have abscissæ E — — b and E — — d equal. Now C — — P represents the focussing screen, and C the axial point, and C — — L the optic axis, the lens being on the left. There are certain errors in the lens of the order  $\tan^2 \phi$  tending to throw the image back from the lens and away from C — — P in degrees represented by the curve C — — B, but at the height C — — E there exists an equal and opposite error of the order  $\tan^4 \phi$ , tending to curve the image towards the lens. That is, the two sorts of error are equal at the height C — — E, but clearly unequal at all other heights, for between C and E the abscissæ of the curve C — — B are in excess of those of the curve C — — D, while at greater heights than C — — E the abscissæ of the curve C — — D rapidly grow the greater. Therefore, the curve C — — M — — E — — F is the resultant of the two opposing curves C — — D and C — — B. The resultant curve between C and E is at a maximum at M, the height C — — M being

$$\frac{C - E}{\sqrt{2}}$$

and the abscissa at M being

$$\frac{d - E}{4} \text{ or } \frac{E - b}{4}$$

Beyond E the resultant curve rapidly bends in towards the lens. It will easily be seen that this hybrid curve C — — M — — E — — F substantially resembles the dotted curve of Fig. 1 for the Cooke lens Series III. If the curve C — — D varying as  $\tan^4 \phi$  were on the right hand of C — — P, and the curve C — — B varying as  $\tan^2 \phi$  were on the left, then, of course, the hybrid curve C — — M — — E — — F would be turned the other way, and then we have the counterpart of the dotted curve shown in Fig. 2 for Cooke lens Series V. The corollary is, that if I can eliminate from a Cooke lens system the curvature errors of the order  $\tan^2 \phi$  and  $\tan^4 \phi$ , I shall then be able to obtain a flat image up to a considerably larger angle from the axis than is the case with Series III. or Series V. Cooke lenses. That being done it then becomes a question of bringing the curve C — — B of the order  $\tan^2 \phi$  down to the flat C — — P, in which there is no difficulty.

It can be shown that the chief origin of these errors of the order  $\tan^2 \phi$  and  $\tan^4 \phi$  lies in the second surface  $r_2$ , and in much lesser degree in  $r_3$  of Figs. 1 and 2. These surfaces are convex towards the stop. It would take a very long mathematical demonstration to prove this; but the broad argument is this; that certain corrections tending to curve the final image rapidly inwards towards the lens and varying as  $\tan^4 \phi$  and  $\tan^2 \phi$  arise in  $r_2$ , which rapidly increase in amount as the distance from  $r_2$  to the stop is increased. Not only so, but the third surface  $r_3$  also exerts an influence contrary to that of  $r_2$ , but  $r_3$  is nearer to the stop than is  $r_2$ .

In Fig. 2 the distance between  $r_2$  and the stop, and also between  $r_2$  and  $r_3$  is less than in Fig. 1, and we have the hybrid curve for a pair of tangential lines showing opposite characteristics in the two lenses. In these lenses the power of the negative lens is about 90 per cent. of the sum of the powers of the two positive lenses, but in various forms of the Cooke lens the relative powers of the two positive lenses,  $L_1$  and  $L_3$  are different. In those of large relative aperture the powers of  $L_1$  and  $L_3$  are about equal; Series III., Fig. 1, the power of  $L_1$  is 4.4 times the power of  $L_3$ , while in Series V., Fig. 2, the power of  $L_1$  is 51.8 times the power of  $L_3$ . It will be seen that the more the power of the positive constituents is concentrated into  $L_1$ , while the power of  $L_2$  remains constant, the closer must the front positive lens  $L_1$  be brought to  $L_2$  in order to get the spherical aberration balanced. Hence the suitable division of power between  $L_1$  and  $L_3$  is one indirect step towards getting the proper amount of separation between the contiguous surface of  $L_1$  and  $L_2$ , which is necessary to getting rid as much as possible of the curvature errors of the order  $\tan^2 \phi$  and  $\tan^4 \phi$ .

But the requisite separations or air space between  $L_1$  and  $L_2$ , in order to obtain the above, depends also upon the relative radii of curvature of the opposing surfaces  $r_2$  and  $r_3$ . Two Cooke lenses of the same relative aperture and focal length may have their front lens  $L_1$  differently shaped, one having its radii in the ratio +1 to +20, and the other +1 to +6, and there will be a

marked difference between the two lenses in this respect, that while the spherical aberration of oblique pencils may be very slightly overcorrected in the latter form of lens, yet in the former lens it will be so much overcorrected as to ruin the marginal definition. It is also of the greatest importance in order to avoid this latter defect that the lenses  $L_1$  and  $L_2$  should be kept as thin as possible. It is therefore highly important to keep  $L_1$  not only as thin as possible, but also as nearly tending to equi-convex as is consistent with the elimination of the curvature errors of the order  $\tan^2 \phi$ , although the two conditions are to a considerable extent antagonistic, and the more  $L_1$  tends to equi-convexity, the more will  $L_2$  have to be bulged backwards and thus tend to take the meniscus form, with its concave surface towards the stop, and the finished lens which I shall shortly describe has its back lens in that form. What I am aiming at is a Cooke lens so modified and designed that with an aperture of F. 6, if possible, it will give a flat or approximately flat image up to at least 35 deg. from the axis, curvature errors of the order  $\tan^2 \phi$  and  $\tan^4 \phi$  being as much as possible eliminated, while at the same time it will give reasonably good correction against spherical aberration for oblique pencils. As the chief feature of the lens lies in its image for tangential lines, or, in other words, its image formed by rays contained in primary planes, being approximately flat over as large a field as possible, therefore a very appropriate name for the construction is the "Primoplane" Cooke lens.

Below are the curves and other data for two different forms of this lens.

The equivalent focal length is supposed to be unity and the radii and other data are expressed as decimal fractional parts of such equivalent focal length, so that for a required equivalent focal length of say 10 inches, such figures would have to be multiplied by 10 in order to obtain the proper actual radii, etc., also in inches. The + sign indicates a convex surface, and the — sign a concave surface.

Primoplane lens, No. 1.

F  
Full aperture ———  
6.5

Glasses.

$L_1$ and $L_3$	$L_2$
Dense barium crown glass.	Extra light flint
$\mu D = 1.6053 \quad V = 59.3 \text{ (C to F)}$	$\mu D = 1.5372 \quad V = 47.2 \text{ (C to F)}$
$\mu G - \mu D = .01298$	$\mu G - \mu D = .01476$

RADII, &c.

$r_1 = +.169$	$r_2 = +1.272$	$r_3 = -.634$	$r_4 = -.157$
Central thickness =	.0316	Central thickness =	.005
Diameter =	.160	Diameter =	.145

$L_3$  (Meniscus)

$r_5 = -3.16$	$r_6 = +.527$
Central thickness =	.028
Diameter =	.160
Axial air space between $r_4$ & $r_5$ =	.0807
Total length over vertices of outer lenses =	.154

The front lens  $L_1$  must be screwed towards the negative lens  $L_2$  until the full aperture axial pencil of light coming from a distant point yields a focus substantially free from spherical aberration, or shows a little positive spherical aberration in the sense that the edge rays focus slightly shorter than the central rays. The field of this lens extends to fully 35 degrees from the axis.

The stop may be placed either behind  $L_2$ , as in Fig. 2, or else immediately in front of and grazing the front  $L_1$ .

Primoplane lens No. 2.

F  
Full aperture ———  
5.56

Glasses.

$L_1$ & $L_3$	$L_2$
Dense barium crown.	Extra light flint.
$\mu D = 1.6053 \quad V = 59.3 \text{ (C to F)}$	$\mu D = 1.5420 \quad V = 46.8 \text{ (C to F)}$
$\mu G - \mu D = .01298$	$\mu G - \mu D = .01502$

RADIi, &c.			
$r_1 = +.202$	$L_1$	$r_2 = +.611$	$L_2$
Central thickness		$r_3 = -.4137$	$r_4 = -.1924$
Diameter		Central thickness	$r_5 = -.0045$
		Diameter	$r_6 = .171$

$L_3$ (Meniscus)			
$r_5 = -.719$		$r_8 = +.3595$	
Central thickness			$r_9 = .044$
Diameter			$r_{10} = .171$
Axial air space between $r_4$ & $r_5$			$r_{11} = .082$
Total length over vertices of outer surfaces			$r_{12} = .166$

$L_1$  is in correct adjustment with respect to  $L_2$  when the spherical aberration of the full aperture axial pencil is very slightly under-corrected, the edge rays focussing shorter than the central rays. The stop is best placed in front of and just grazing the front lens  $L_1$ . It can also be placed behind  $L_2$ , as in Fig. 2, but the angle of good image is not then so extended. With the stop in front the angular extent of passable image at full aperture is  $37\frac{1}{2}$  to 40 degrees from the axis, while with the stop placed behind  $L_2$ , the extent of passable image is reduced to about 35 degrees, even when the aperture of the front lens is reduced to F. 6.3.

Of course, any two of these lenses may be screwed together with the stop in common between the two front lenses, which will then face one another, and thus a flat field lens of large aperture will be obtained.

I have found in working out these lenses that there is a certain incompatibility between the condition of good correction against spherical aberration for the very oblique pencils, and the condition of continuous flatness of field for tangent lines up to a large angle of obliquity, or, in short, the primoplane condition.

So it is that in primoplane lens No. 1, while the primoplane condition is very closely fulfilled up to 35 deg. from the axis, yet the oblique pencils are considerably over-corrected for spherical aberration. On the other hand, in primoplane No. 2, while the oblique pencils are better corrected against spherical aberration, and the angular extent of good image is greater, yet the primoplane condition is not quite so well fulfilled as regards medium angles from the axis. The curve of best foci for tangent lines somewhat leaves the ideal plane in the neighbourhood of 30 degrees in order to come back on to the focal plane a little further away from the axis. Nevertheless, the image of a tangential line if focussed at the centre, will then, on rotating the camera, remain in fairly good definition right across a field of 75 to 78 degrees even at full aperture, so that the primoplane condition may be said to be practically fulfilled.

In both lenses the effect of screwing  $L_3$  nearer to  $L_2$  is to round the image or make it more concave to the lens; it also tends to outward coma and to pincushion distortion of straight lines, while screwing  $L_3$  further away from  $L_2$ , of course, has the opposite effects. Harold Dennis Taylor, Stancliffe, Mount Villas, York.

## Analecta.

Extracts from our English weekly and monthly contemporaries.

### Sulphocyanide in P.O.P. Development.

Mr. R. E. Blake-Smith (writing in "Photography" on "Certain Aspects of Silver Intensification") says, of the development of P.O.P. by the Paget process:—In this method one is always told to immerse the print in a 10 per cent. solution of potassium bromide after printing and before development. Now, merely immersing the print in potassium bromide solution will not, as a rule, convert all the silver other than silver chloride present into silver bromide. In the P.O.P. which one generally buys the soluble silver compounds have combined with the paper and gelatine to a certain degree, and in order to convert this combined silver into bromide a certain amount of some suitable solvent of silver compounds must be added to the potassium bromide solution. The best solution is:—

Potassium bromide	.....	$\frac{1}{2}$ oz.
Ammonium sulphocyanide	.....	10 grs.
Water, to	.....	5 ozs.

If ammonium sulphocyanide or other similar substance is not added to the bromide bath, the developing solution, which is here much stronger than in the first case, will decompose the combined silver producing yellow stains. I do not consider the development of P.O.P. at present a process of any real practical value, for the image obtained is not itself of a pleasing colour, nor is it suitable for toning to one.

### Control in Ozobrome Printing.

THE REV. W. DICK (writing on "The Ozobrome Process" in "The Amateur Photographer" of April 9), says:—A strong print may be made from a weak bromide print. To do this it is only necessary to add to the working sensitising solution a quantity of a 10 per cent. solution of ammonia.

In about six ounces of the working solution, not the strong solution as purchased, put 10, 20, 30, 40, 50, or 60 minims of the ammonia solution, and the vigour of the ozobrome will increase with the increase of the ammonia.

A flat ozobrome print may be made from a strong bromide print. To do this, proceed as above, only use a 10 per cent. solution of chrome alum in place of ammonia. Almost any degree of vigour of flatness may be had by adopting the above directions.

## New Books.

"Patents and Designs." Critical Notes on Mr. Lloyd-George's Bill. By Ernest Lunge and Bernhard Dukes. London: Stevens and Sons, Ltd. 1s.

The new Patents Bill now before Parliament will doubtless excite much controversy and be the predisposing cause of the appearance of not a few pamphlets on the subject. We believe the present one the first to be issued, and it is frankly antagonistic to the Bill. The authors say in their preface:—"Hidden in casual amendments of the present Act are daring innovations which completely alter the nature of a British patent and introduce the German system, while the provision whatever is made for the vast administrative apparatus entailed by the change. Apparently this change was neither intended nor grasped by those responsible for the measure, since Mr. Lloyd-George failed to allude to it with a single word. Other actions deprive enormous British vested interests, represented by British patents in actual existence, of their present legal protection. A patent may, under the Bill, be revoked on application by a member of the public to the comptroller, and the final appeal will go to a single High Court judge. At the same time the present system of revocation on petition to the High Court continues in force up to a limited number of grounds, and the practical result is anarchy and confusion. The Bill purports to be in aid of the poor inventor, against powerful syndicates, foreign or British; whereas in truth it provides unscrupulous syndicates with every conceivable means of "freezing out" an indigent patentee. Certain grievances have been brought to the notice of the Board of Trade, where British manufacturers had entered into embarrassing engagements with American patentees. The Bill insults the British manufacturer at large, placing him, in his dealings with any patented article, under similar disabilities to those of a prodigal minor. The reckless generalisation indulged in by the draftsman produces, the authors submit, the effect, that the tying clause in the lease of a public-house may be null and void, if the fixtures include one single patent lock or lever, and the section in question ceases to be of any practical virtue until it is applied with all the strict regard to its wording that would also make absurdities like the one suggested unavoidable."

This is a very strongly-worded indictment of the Bill, and one to which we prefer to reserve judgment until the Bill has been further discussed in Parliament. But meanwhile the pamphlet is of the greatest interest to those whose property or living is wholly or partially vested in patents.

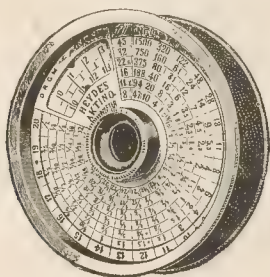
PORTRAIT PHOTOGRAPHY.—A new edition of Herr Fritz Loesch's "Die Bildmässige Photographie" has been issued by the house of Gustav Schmidt, Berlin. The text has been revised and added considerably, but the chief interest of the book for English-speaking photographers is still in the large number of illustrative example photographic portraiture by leading Continental and some British workers. Herr Duhrkoop has liberally supplied the author with



specimens of his varied portraiture, and on account of its illustrations the book should provide suggestion for and incentive to any trait photographer who is approaching his work with an open mind, desiring to let his own work benefit from a study of that of others.

## New Apparatus, &c.

Heyde Universal Actino-photometer. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C. A new and improved model of this actinometer has been submitted by Messrs. Staley, who are the British and Colonial agents for the instrument. In the new pattern the range of the instrument is eased so as to permit of its being used for exposures by lamp-light and other artificial light, as well as in daylight; also the exposure, when an orthochromatic screen is employed, is ascertained



the Heyde apparatus by placing the screen across the aperture of the instrument, a method which, we would point out, can only be capable if employed consistently in conjunction with the same kind of colour-sensitive plate. In use the apparatus is very easily and expeditiously employed by pointing the instrument upon the darkest shadows of the subject and rotating the disc which carries the prism until the detail is just extinguished. This gives a number on a scale, which number, when read against a scale engraved on the apparatus, gives the exposure for any given light. The apparatus is very lightly made in magnesium

## New Materials.

Crayon "Seltona" (Self-Toning Paper). Made by the Leto Photo-Materials Co. (1905), Ltd., Rangoon Street, London, E.C. "Seltona," an exquisite collodion self-toning paper which we introduced on its first appearance some year or two ago, has now been improved by a variety giving the toned effects which photographers are familiar with by the designation "cream crayon" as used first to bromide paper. We found not the slightest difficulty in obtaining, by fixing only the rich sepia which is characteristic of bromide paper or, by the use of preliminary bath of salt for a time ranging from five to ten minutes, a series of tones ranging from dark brown to purplish blue. Our own preference is for the tone obtained by simple fixation or for the very pleasing warm blacks which the paper yields on toning in the usual platinum bath, the use of this on practically giving the effects of gold-platinum toning without the expenditure of time on the first bath. In thus favourably improving the paper as we have found it, it may not be out of place to add that judging from the recent specimens of the ordinary matt glossy "Seltona," the makers have not been content with their action in the first instance, but have evidently sought consistently to perfect the paper, with the result that the present make, for memory serves us correctly, affords prints of a richness of depth surpassing the first issue of the paper. The prices of all grades are based on twenty-two quarter-plate pieces for one exposure.

## CATALOGUES AND TRADE NOTICES.

MESSRS. TAYLOR, TAYLOR AND HOBSON, LTD., of Stoughton Street Works, Leicester, have issued a list of the various makes of cameras on the market which are fitted with one of their well-known "Cooke" lenses, together with particulars as to size of plate, focus and aperture of lens, and price of the outfit complete, thus giving at a glance the initial information needed by the would-be purchaser. These outfits can be supplied through dealers or direct from the above firm, who will be pleased to answer inquiries relating to any cameras not mentioned in the list.

THE CRITERION WORKS, Stechford, near Birmingham, send us the full catalogue, just issued, of the printing papers prepared specially for the use of amateur photographers. The firm makes a particular feature of small sizes suitable for users of the smaller hand cameras. Dealers should also make a note of the very handsome showcard, advertising in large, raised, gilt letters, the firm's "Criterion Papers," and bearing a specimen print. The card is sent free to bona-fide dealers.

MR. A. H. BAIRD, of 33 to 39, Lothian Street, and 2 and 4, Brighton Street, Edinburgh, sends us a copy of his latest catalogue, which contains illustrated particulars of the photographic and scientific apparatus and accessories which may be obtained from this enterprising firm, which claims to stock "everything photographic," and a perusal of the list before us seems to bear out this statement. We commend the list to our readers' notice, and think they would do well to obtain a copy.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, APRIL 12.

Sutton Photographic Club. "Developing by Time." C. Thwaite.  
Hampstead Scientific Society. "The Scientific Elements of Photography." R. W. Wylie, M.A.  
Cardiff Photographic Society. "Shakespeare." Miss H. A. Coates.  
Photographic Society of Ireland. Slides and Prints.  
Aberdeen Photo. Art. Club. Salon Prize Slides.  
Loughton Photographic Society. "Home Portraiture." H. Fraser Black.

#### SATURDAY, APRIL 13.

Hackney Photographic Society. Outing to Chingford.

#### MONDAY, APRIL 15.

Preston Camera Club. "Record and Survey Work."  
Polytechnic Photo. Club. "Enlarging on 'Graph' Bromide Paper, including a Chat on Toning Bromide Paper."  
Stafford Photographic Society. Competitions: Contact Prints, Enlargements, Portraiture, &c.  
South London Photographic Society. "The Romantic in Landscape." F. C. Thley.  
Central Photographic Society. "Photographic Possibilities in Camp Life." W. J. Bristow.  
Oxford Camera Club. "S.C.P. Lantern Plate." A. H. Dunning.

#### TUESDAY, APRIL 16.

Royal Photographic Society. "Some Dutch Pictures." Arthur Marshall.  
Hackney Photographic Society. "Wireless Telegraphy." J. Williams.  
Blairgowrie and District Photographic Association. Scottish Photographic Federation Prize Slides.

#### WEDNESDAY, APRIL 17.

Woodford Photographic Society. Lecture. H. W. Bennett, F.R.P.S.  
Croydon Camera Club. "Useful Hints, on Matters Photographic and Otherwise."  
W. H. Smith.  
Leicester and Leicestershire Photographic Society. "After Treatment of the Negative." A. Newton.  
Tunbridge Wells Amateur Photographic Association. Members' Lantern Evening.  
Everton Camera Club. "Flashlight Group." Demonstrated. E. C. Alcock.  
North Middlesex Photographic Society. "Negative Making." L. Dick.

#### THURSDAY, APRIL 18.

Handsworth Photographic Society. "Some Portraits Connected with the Bacon-Shakespeare Controversy." A. J. Williams.  
Liverpool Amateur Photographic Association. "Stereoscopy." J. O. Wakelin Barratt.  
North London Photographic Society. "Elementary Portraiture." W. D. Atchison.  
Rugby Photographic Society. Members' Lantern Night. Annual General Meeting.  
Richmond Camera Club. Members' Print and Negative Competitions.  
London and Provincial Photographic Association. Exhibition of Lantern Slides. T. E. Freshwater.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held April 9, Mr. J. C. S. Mummery, President, in the chair. The Secretary announced that a number of daguerreotypes and of albumen prints made by Scott Archer had been presented

to the Society by Mr. F. Stanley Hogg, and on the proposition of the Chairman a vote of thanks was passed to Mr. Hogg.

A demonstration of the "Spectroscope" was then given by Messrs. C. P. Butler and E. J. Wall. Mr. Butler briefly reviewed the development of spectroscopy from the first observations of Newton to its establishment as a branch of science by Bunsen and Kirchhoff. Mr. Wall showed a number of spectroscopic experiments on the lantern screen. The effect of a narrow slit in sharpening the regions of the spectrum was demonstrated, as was also the formation of bright line spectra by the volatilisation of metallic salts in the arc. A table demonstration was also given of the absorption spectra obtained when the vapour of a given element surrounded a flame in which the element existed in a state of vapour. Mr. Butler dealt briefly with the formation of diffraction spectra, and exhibited the "echelon" grating of Messrs. Hilger. A vote of thanks to the two demonstrators brought the proceedings to a close.

THE SOUTH LONDON PHOTOGRAPHIC SOCIETY held its annual general meeting on April 3 last. The secretarial and the treasurer's report, which were adopted by the society, showed the membership to be about 200. The business accounts showed a slight loss on the working of the society for the year, chiefly owing to heavy purchases of books for the library. The hon. excursion secretary reported the increasing popularity of the excursions. The hon. treasurer then brought forward a motion that "owing to the great expense incurred by the society in awarding silver plaques at the annual exhibition, in future bronze plaques only be awarded in all classes, except the gold medal class. This motion was adopted unanimously. Mr. E. G. Ruckes then brought forward a motion that the committee insert, in exhibition entry forms the condition that no signature, monogram, or mark should appear on the front of exhibits which would disclose the identity of the exhibitor. Dr. A. R. F. Evershed and Mr. H. Creighton Beckett spoke against making any such arbitrary condition, as suggesting it was questioning the ability and probity of the judges, Dr. Evershed remarking that a fancy monogram or mark often gave balance to a picture as part of the general scheme, and he would not care to purchase an unsigned work. The motion, upon being put to the vote, was lost. Mr. W. Calder Marshall was then elected president for the ensuing year, and Mr. W. Llewellyn White, hon. treasurer, Mr. Gideon Clarke, 101, Calbourne Road, Balham, S.W., being hon. secretary. A hearty vote of thanks was then accorded the officers and committee for their work during the past year. The proceedings then terminated.

CROYDON CAMERA CLUB.—A capital smoking concert at the invitation of the President, Mr. A. E. Isaac, filled the bill last week, and a most enjoyable evening was spent. A host of outside friends and many members contributed to a varied programme, which included an excellent string quartette, an amusing little play, assorted comic songs, and recitations. Mr. Lepine Smith's highly trained and beautiful baritone was at its best, notwithstanding the smoky atmosphere. Mr. H. P. C. Harpur, the Club's leading pictorial artist, appropriately sang "Will o' the Wisp" and other songs in the best grand opera style. Messrs. McLennon and Vernon Smith proved that they were both possessed of pleasant tenor voices. Mr. E. A. Salt made billiard balls change colour and size, and cards glide down his sleeves by force of gravity, and fly up by force of habit, in quite a bewildering manner. Dr. Mees, to everyone's astonishment and delight, sang a plaintive love-song with such impassioned fervour as to almost bring tears to the eyes of some of his listeners. Considering the worthy doctor had strictly confined himself to lemonade during the evening (an example not generally followed), his "turn" was considered a remarkable performance. The President made all laugh heartily with "The Lay of the Last Minstrel," as did Messrs. Adrian St. Elms and H. A. Stapleton with their respective contributions.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held April 4, Mr. Burgess in the chair. Mr. H. C. Rapson lectured upon "Stand-Camera Work." For this work he said the stand should be strong and as rigid as possible. In some cases it was required very tall, as, for instance, in churches. He thought a tall stand opened out the near seats better, thus giving a better view. In some cases also, by using a tall stand, one could point the lens over the top of the screens of the smaller chapels, and thus obtain a full view of these interiors. For copying, a very low stand was very

useful. He used one of some three inches high for this class of work and was thus enabled to work in comfort upon a table or packing case. A tilting top was also a very desirable thing to have, because by use many subjects could be obtained that were otherwise impossible. The camera recommended was the square bellows type, for the reason that it gave extra rising front over the taper bellows.

When copying pictures it was often desirable to use a large black screen to do away with reflections. When copying black and white work it was well to give the longest exposure the black would stand, and not, as sometimes recommended, a short exposure; by doing greater contract could be obtained. P.O.P. prints required about one and a half times the exposure of black and white to obtain the best results, whilst glossy albumen prints required twice the exposure of black and white, and sometimes three times.

Mr. Human took exception to the remark that the taper bellows did not give the rise of the square pattern, and said that some make of taper bellows allowed the lens to be raised fully 1½ inches over the top of the plate. Such bellows, when fitted with the tabs and holder for drawing forward, were ideal.

Mr. Haddon queried whether the tall stand, was best for any class of work, and Mr. Human thought that the best position for the camera was such as the general public saw the view from.

A vote of thanks to Mr. Rapson brought the evening to a close.

## Commercial & Legal Intelligence

THE EASTMAN KODAK Co., of New Jersey, have declared an extraordinary dividend of 5 per cent. upon the common stock of the Company payable on May 1 to shareholders of record on April 15.

H. KRUGER AND SONS, LTD. (Photographers, Huddersfield), £600 6 per cent. debentures, created and dated March 18, 1898, charged on the company's undertaking and property, present and future, including uncalled capital, subject to £600 mortgage debentures, have been registered.

SUNDAY TRADING.—At the Burton Police Court on Thursday last Charles Bernard Warner and Richard Sergeant, of High Street, Burton, were charged with doing certain business, to wit, photographing on Sunday the 24th ult. Police Constable Evans stated that at 11 p.m. on the day in question he saw the defendants at the premises which were lighted with incandescent lights. He observed two persons, and then a group of four go in and go behind a screen to hide their photographs taken, for which they paid. When spoken to the defendants admitted that they were aware it was an offence against the law, but in some towns no notice was taken of it. With this advice they did not close the shop. They said they did not know what to do about it as their employer was away. The shop was kept open, and other persons were seen to enter it. Police Constable Bates also gave evidence, and stated that the shop was kept open until 8.30. At 8.10 he went into the shop and reminded those charged that they had been advised to close, and they repeated information that the employer was away. One of the defendants stated that the shop was advertised to close at ten o'clock, but they closed as soon as they could on that occasion—8.30. Defendants were fined 5s. and 11s. 6d. costs.

### NEW COMPANIES.

COSWAY GALLERY, LTD.—Registered March 18. Capital £10,000 in £1 shares. Objects: To take over the business of photographing portrait and miniature painters, etc., carried on by R. B. Hope, G. A. Hope, at 171, New Bond Street, W., as the Cosway Gallery, to adopt an agreement with R. B. Hope, G. A. Hope, and J. St. G. Kane. No initial public issue. Registered office, 171, New Bond Street, W.

LANCASHIRE AND CHESHIRE UNION.—At the quarterly meeting of the Lancashire and Cheshire Photographic Union, held at Elbow Street, Liverpool, on Saturday, the question of the annual excursion was discussed. An invitation to Barrow-in-Furness was received from the affiliated society in that district. The invitation was accepted and it was agreed to suggest June 15 to the Barrow Society as a convenient date.



## Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE ENVELOPE SYSTEM OF CARRYING PLATES FOR EXPOSURE.

To the Editors.

Gentlemen,—I see your reply to "Dark Slide," p. 263. I think the inquiry may be from some one who has seen my system, in which the bags are cheap—some 20s. per gross for quarter-plate plan, although seven or eight years old, is not on the market. I made the changing apparatus for myself. If your correspondent desires it, I will give him every information on the subject.

CHAS. LOUIS HETT.

Springfield, Brigg, April 6, 1907.

### THE POISONS ACT.

To the Editors.

Gentlemen,—I beg to call your attention to the Government Poisons Act, which is about to be referred to a Select Committee, as affording a very favourable opportunity whereby dealers in photographic chemicals might obtain some concessions in the sale of poisonous chemicals.

I would respectfully suggest that you forward a recommendation to the following Government Departments: Treasury, Privy Council and Home Office (the latter will appoint the Committee), advising that poisonous photographic chemicals be relegated into a third schedule; the following being a suitable form of recommendation:—Notwithstanding anything in the Pharmacy Act of 1868 or in any other Act of Parliament, any person may sell any poisonous chemicals used in photography without incurring any penalty or liability, provided that such poisonous chemical or preparation is sold in a sealed wrapper, box, or other vessel, bearing in legible characters the name of the pharmaceutical chemist or a chemist and druggist registered under the Pharmacy Act of 1868 as the compounder or manufacturer of such poison or preparation, together with the name and address of the seller."

I would further suggest that representations be made to the above-mentioned Government Departments, urging that the administration of the Pharmacy Act be transferred from the hands of the Pharmaceutical Society to the local authorities, when everyone would get impartial justice, and prosecutions for mere trivial offences without giving any warning, would be at an end.—Yours truly,

W. HUNTRODS.

President, Drug Stores Association

of Great Britain.

Colbeck Moor, Leeds.

### BLISTERS ON BROMIDES.

To the Editors.

Gentlemen,—Perhaps my experiences will be of assistance to your correspondents.

Two weeks ago I had a fresh batch of paper from the manufacturer, coated on thin, rough paper. All the enlargements on this paper blistered, even if only left to soak in water. The addition of alum bath after fixing did not remedy matters. As an experiment, I tried the alum in the fixing bath. Still the same result. I then put the blame on the developer, metol-hydroquinone, having an idea the potassium carbonate was the cause of the trouble, so I ordered this developer for amidol, which contains no alkali, and since got perfect prints, free from blisters, even after washing with full force of the tap direct on the prints.

I remember six years ago having the same blister trouble, and adding alum to the fixing, which remedied matters, but the prints so treated went a dirty yellow colour within six months, although after fixing they were washed in running water for two hours.

The fault seems to be in the gelatine, which is readily attacked by an alkali, as prints developed with amidol were free from blisters, but after toning in sulphide bath the same trouble cropped up.—Yours faithfully,

E. F. SANDERS.

Sydenham House Studios, Domestic Street, Leeds,

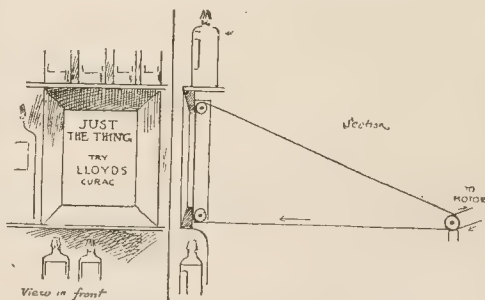
April 9, 1907.

## News and Notes.

MESSRS. A. and E. STALEY and Co. inform us that they have now received a supply of show-cards for "Argo" paper, and dealers can obtain specimens of same for exhibition purposes on application to the above firm, at 19, Thavies Inn, Holborn Circus, London, E.C.

MR. W. J. BRISTOW will be unable to fulfil his engagement to lecture to the members of the Central Photographic Society on April 15, as previously announced. His place will be taken by Dr. J. H. Wilson, who will give a practical demonstration of the new "Oil-Printing Process," at Exeter Hall, Strand, at 7.30 p.m.

A WINDOW DISPLAY.—Mr. E. Dangerfield sends to the "Chemist and Druggist" sketches and notes on several recent displays which



he has made in Bedford, one of which is as follows:—This neat and effective display was a change from more fanciful tableaux. A small gilt frame (of my own manufacture) about  $4\frac{1}{2} \times 6\frac{1}{2}$  in., was fixed at a distance of two or three inches from the window-pane. A dozen or so of our leading counter-bills were pasted at upper and lower edges so as to form an endless band. This band passed over rollers in the frame and then to back of window over another roller, which was kept slowly revolving by the usual geared-down motor. This frame was surrounded by an assortment of dummy specimens of the medicines, etc., advertised on the bills. In this case all "machinery" was out of sight. It was fascinating to watch the gently moving counter-bills passing smoothly upwards through the frame—a sense of "expectancy" supplied the charm. The mechanical details were very simple—correct "alignment" was everything. After a few days another endless band was shown.

THE CINEMATOGRAPH IN MEDICINE.—The latest use of the cinematograph, according to Dr. Köhler, of Wiesbaden (reported by the "Pall Mall Gazette"), is an important part foreshadowed for it in conjunction with the X-rays in the practice of medicine. Dr. Köhler, indeed, has already invented a system by which cinematograph pictures can be taken of the breathing of sick and healthy persons, and some of these pictures were thrown, for the benefit of the conference, on a screen. The value of the system, Dr. Köhler explained, lies in the fact that it shows accurately the sympathetic action of the lungs and heart in inspiration and expiration. At the Hospital for Consumption and Diseases of the Chest at Brompton our special representative was informed that the general outline of the method explained by Dr. Köhler had been in use for some time; that is to say, the breathing of persons has been shown

by means of a series of ordinary photographs thrown on a fluorescent screen; and the use of the Röntgen-rays has enabled physicians to watch the diaphragm moving and to note the weak points in a patient. What, however, is new in Dr. Köhler's system is the application of the cinematograph, and this is undoubtedly a development. Hitherto the difficulty has been, in regard to photography, that the X-rays require a long exposure, and for pictures for the cinematograph the exposure that is needed is short. However, that difficulty, it was remarked, appeared to have been overcome. The advantage of cinematograph pictures, it was stated, would be that one would be able to reproduce those movements of the diaphragm which were revealed by the use of the X-rays. For physicians and students who could not be present at the moment when the rays were being used these reproductions would be of distinct value. And besides, it was added, it is always possible that the photographic plate is a little more sensitive than the eye, and that it will show you at once where there is something wrong.

**CO-OPERATIVE DRY MOUNTING.**—We see from the current circular of the Manchester Amateur Photographic Society that it has installed the dry-mounting machine of the Adhesive Dry Mounting Company, Limited, into its equipment. The example is one which other societies might follow, for the facility could not fail to be appreciated by members, and would undoubtedly act as a strong incentive to other photographers to join the society.

**SIR WM. ABNEY** has been elected an honorary member of the Photographic Society of Vienna.

**DEATH OF DR. AARLAND.**—We regret to have to announce the death of Dr. Georg Aarland, for many years a well-known teacher of photography and professor and principal of the photographic and photo-mechanical departments at the Imperial Academy of Graphic Arts and Bookbinding of Leipsic. Dr. Aarland was born in 1849. He was well known for his contributions on photo-mechanical and three-colour work, and was the author of a German translation of Verfassers's work, "The Half-tone Process."

**TANK DEVELOPMENT.**—It has been proved, by logic, by experiment, and by rule of thumb, time after time, that tank development does all that hand and eye nursing can do, yet there are thousands who refuse to believe what is known as a fact, and who still stick to the old, red light, hot stuffy room and variable formula methods.—C. H. Claudy in the "Photo-Beacon."

**"THE TRIBUNE" PHOTOGRAPHIC EXHIBITION.**—An exhibition of amateur photographs, photographic apparatus, cameras, and the latest developments of photographic science and art, is announced to be held at "The Tribune" Rendezvous, Bouverie Street, London, E.C., from April 29 to May 4, 1907, admission free daily. Prizes of £5, £3, and £2, in each of seven classes, are offered for competition to all bona-fide amateurs, the list of classes, together with the rules governing the competition, and the necessary coupon being published in "The Tribune." The competition closes April 22. The prizes will be distributed by Sir Benjamin Stone on May 3.

**THE UNITED STEREOSCOPIC SOCIETY.**—The following is the result of the annual competition for the best stereoscopic photograph:—Silver medal: Victor Selb, 42, Rue des Drapiers, Brussels; bronze medals (Class A): S. W. Shore, Barsbury, N., and W. T. Furniss, Sheffield; (Class B): J. C. Dancer, Manchester; (Class C): A. T. Snow, Walthamstow; (Class D): A. T. Mole, W. Hampstead. Hon. mention (Class A): Victor Selb and F. Low; (Class B): A. T. Mole; (Class C): Victor Selb; (Class D): T. Lambert.

**ROYAL INSTITUTION.**—A general monthly meeting of the members of the Royal Institution was held on the 8th inst., Sir James Crichton-Browne, M.D., F.R.S., Treasurer and Vice-President, in the chair. The special thanks of the members were returned to Sir Andrew Noble, Bart., K.C.B., for his donation of £200 to the fund for the Promotion of Experimental Research at Low Temperatures; and to Lady Kelvin for her gift of a statuette of the Rt. Hon. Lord Kelvin, G.C.V.O.

**THE L.C.C. SCHOOL OF PHOTO-ENGRAVING.**—A course of four lecture demonstrations on "Duplicate Plate-Making, Electrotyping and Stereotyping," will be given at the school, Bolt Court (on Thursday evenings from April 11 to May 2, inclusive), by Mr. J. A. Corey.

The syllabus includes:—Stereotyping:—An historical review. Past and present methods. Electrotyping:—A description of present day

practice. Some comparisons of American, English and Continental methods. Practical rapid electrotyping. The "Albert Galvano" process.

Succeeding these lectures will be a course of four lectures on the theory of photographic processes concerned in negative making, by Dr. C. E. Kenneth Mees, commencing May 9, and then a course of four lectures on three-colour and orthochromatic photography, by Mr. A. J. Bull, commencing June 6. Further particulars will be announced in due course.

**COMFORT FOR CATS.**—Puss is not everybody's idea of a good sitter, but at some time or other most of us amateurs have to turn the camera upon our own or somebody's else's cat. Some are reasonably willing to do what is wanted, but most cats would try the patience of Job. Here is a "wrinkle" (says a writer in the "Photo-Beacon") which I found worked well with a particular obstinate tabby. After all other attempts to get it to stop in front of the camera long enough to draw the shutter of the slide had miserably failed, I was seized with something like an inspiration. A cushion to which it was partial was placed in front of the kitchen fire—the only one in the house, for it was summer—and when warmed right through was put so that the model would be likely to retreat on to it at my next attempt. Puss, for a wonder, did exactly what I had anticipated, and, liking the warmth, settled comfortably down. I got three very good negatives, and could have taken a dozen after that without any trouble.

**THE DEATH OF MR. CHAS. GARDENER,** photographer, of Pitlochry, took place at Monlinear last week.

**THE R.I. AND THE R.B.A.**—These well-known initials constitute the nicknames of the Royal Institute of Painters in Water Colours, whose marble halls are in Piccadilly, and the Royal Society of British Artists, who have a less luxurious habitation in Suffolk Street. The present exhibitions of both are better in merit than any of recent years. The latter show has, in some way, got the right side of the Press since the election of its new President, Mr. Alfred East. The papers have spoken in "linked sweetness long drawn out" of its charms, whilst they have treated the other show with shorter shrift. This is scarcely fair, for both are making strenuous efforts to raise the standard of work, and whilst feebleness is found at each alike, the Institute, on the whole, shows the more clever execution. Its most remarkable work is, perhaps, Hassall's "Jury in Pilgrim's Progress," which displays unerring knowledge of character and a triumphant mastery over a difficult design. Edgar Bundy's crowded cavalier costume subjects are just what such subjects should be—amusing, lucid in tale-telling, and faultlessly drawn with gusto. The landscape that pleases us best is Watson Charlton's "River Tees at Barnard Castle," a noble subject, with a perfectly convincing effect of light. The water and sky could not be truer or more artistic. The Salute church at Venice in evening sunlight, is one of the finest things Arthur Severn has done, and we commend, also, to the visitor, F. Stuart Richardson's "North Sea Haven" as a water colour of charming execution. We have no space to mention other admirable pictures, but we are glad to note that Mr. Tilney has here one of the illustrations to his "Lohengrin," which we recently reviewed. The British Artists is a smaller show, and is mostly of oil pictures. Mr. East's "Winter's Dawn" is a great and masterly picture, perfectly true to the chilly grey of daybreak. We have only one fault to find with it—we cannot understand the bright flash of colour upon the middle distance—an isolated spot—where everything else seems to have missed the first sunrises. We dare not say it is impossible, but its possibility is certainly not made apparent. "The Suffolk Pasture" of A. Carruthers Gould (talented son of "F. C. G.") is in some ways the best landscape here, full of feeling and style. W. J. Laidlay's "Winter on a Norfolk Broad"—a sporting subject—is likewise noteworthy. So is the romantic and mysterious "Pool of Sleep," by Louis Grien. Mr. Frank Swinstead's expensive pastels are not hung in becoming company. Why has he given the same title to two? The usual terrors are in the little South Galleries; but they are all preferable to a ridiculous allegory, neither figure nor landscape, which occupies a place of honour in the Central Room. Of this the less said the better for the misguided artist. It proves what we have always suspected—that colour as well as form and design are lacking in his susceptibilities.



## Answers to Correspondents.

\* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.

\* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*

\* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

J. H. Mumford, 22, Victoria Road, New Brighton. *Photograph of New Brighton Landing Stage, Showing Broken Bridge.*  
W. Webster, 21, Boundary Street, Lostock Gralam, Cheshire. *Photograph of the New Chemical Works, Lostock Gralam.*

**DAMAGED GLASS POSITIVE.**—I have a photograph taken on glass of a lady which I have somehow spoiled by rubbing the silver deposit from the face. It was placed behind another glass and I took it out thinking to clean it. There was a white deposit on hands and face. Can I do anything to it now? Can it be put in a silver bath, for instance, as it is the only one?—**POSITIVE.**

We suspect the picture is irretrievably ruined. However, as it is useless as it is, you might try intensifying it with acid pyro and silver, in the same way as in intensifying collodion negatives, with a view to making something of a negative that can be printed from. But we fear you will not meet with much success, though it may be worth the trial.

**RETOUCHING ("Progressive").**—From a professional retoucher's point of view your samples show no indication of retouching whatever, but only a few scratches here and there—mere dabbling. How can you expect to master retouching unaided in two months, and then secure a situation upon the strength—or, rather, the weakness of such utterly inadequate finish. We are afraid, "Progressive," you must be more moderate in your desires. The best advice we can give you is to at once take first-class instruction in the art.

**E. H. L. (Newport).**—You cannot do better than the Goerz-Anschutz camera, lens, and shutter, from C. P. Goerz, 4 and 5, Holborn Circus, E.C. Practically any of the ultra-rapid plates, selling at 1s. 6d. per dozen, quarter-plate size, are suitable for your purpose.

**BROMIDE TONING.**—I am undertaking to supply certain bromide prints of a tint resembling warm terra-cotta carbon, and find I can only get it with uranium. This, however, stains the paper and the whites, and washing does not entirely remove the stain. The very dilute ammonia bath seems to take the toned part of the image fog away before the stain is entirely removed. 1. I should be glad if you can tell me how to cure this? 2. Also, how long the toned prints should last framed up. Some of them would be in rather exposed positions, I believe, but the cost of carbon is too high? 3. Would a coat of celluloid in acetone help? I am to supply unmounted prints, and my customer will mount and frame them.—**D. B.**

1. A five grain per ounce solution of ammonium and sulphocyanide should remove the stain. 2 and 3. If given a coat of celluloid varnish (Zapon varnish), the toned prints will certainly last for several years.

**BARYTA PAPER.**—Can you give me the address of any firm that will supply me with the glossy baryta paper in rolls of one hundred yards, the same as enclosed, and what will be the proper term to give it?—**J. HARRIS.**

Otto König and Co., 27, Cross Street, Finsbury, could supply you from a similar sample.

**CONTINENTAL PAPERS.**—Will you kindly furnish me with one or two addresses of Continental papers, as I am desirous of advertising in same for a background painter?—**T. E. H.**

In France, "Photo Revue," 112, Rue d'Assas, Paris; in Germany, "Deutsche Photographen Zeitung," Weimar; or "Photographische Chronik," c/o W. Knapp, Halle a/S.

**COLOURED POSTCARDS.**—If I am not intruding too much on your space I would be obliged if you could give me the names of any firms where I can get views published like enclosed as I have some very good pictures and also orders to supply several wholesalers if I can get them direct, I think. If I am not mistaken, they are all or most of them printed in Germany, but I may be wrong. However, if you could find out for me where I could get them direct, as I can take any quantity, I would be deeply indebted to you. As the matter is urgent, if possible I would like an answer in Friday's issue.—**W. C. TIERNEY.**

The card is a gelatin half-tone in colour. Hood and Co., St. Bride Works, Middlesbrough, can supply you in quantities.

**FOG FROM PAPER SEPARATORS.**—1. At Easter I visited the Isle of Wight and made several exposures, all of which turned out passably, with the exception of one, and this was an entire failure. I am in the habit of separating my plates after exposure with a slip of paper, and writing the conditions of exposure thereon, as a guide to developing. This failure, which I enclose, as you will see, has received a distinct impression in fog of the paper slip. I shall esteem it a great favour if you could enlighten me as to the cause of the fog. A pyro-metol developer was used. 2. Also, could you advise me as to what kind of isochromatic screen to purchase for ordinary landscape work. Would it destroy the qualities of a good lens like Goerz Series III. to use a cheap screen?—**R. T. GREGORY.**

1. It is impossible to state the cause of fog without a chemical examination of the paper. It may be due to some injurious chemical, or, on the other hand, as has been often pointed out, some paper exposed to light becomes distinctly luminiscent. It is obvious, therefore, that it is impossible to state definitely the cause. On the other hand, one may assume that such very common wrapping paper as that used would be more than likely to contain hypo. or some other anti-bleach, which would at once account for the whole of the trouble. Nothing but the purest paper should be used for separating plates, and a preferable plan is to place two plates face to face and then wrap in paper. Details can easily be written on the paper for each plate. 2. Almost every maker of colour-sensitive plates issues special screens for use with his plates. For average work a screen increasing the exposure about five times would be correct. A great deal depends upon what is meant by a cheap screen, but in the ordinary way a good commercial screen has no practical effect on the good qualities of a lens, and even poor screens can be used by stopping down.

**COPYRIGHT.**—Is registration of a drawing or photograph sufficient guarantee that it cannot be copied or reproduced or printed by a rival firm, on china? What I wish to know is, if registration of drawing is complete protection from copying or reproducing for sale (without permission of proprietor) on anything?—**G. GUTHRIE.**

Yes, it is complete. Reproduction of a work by any other graphic process, or in any other form, is held by the Copyright Act to be infringement. Reproduction on a support such as china would certainly be infringement.

**TIME DEVELOPMENT.**—1. As one much interested in time development, I should be glad if you would give your opinion on the statement attributed to Colonel Houdaille in the "Journal," April 5, 1907, page 29, with regard to time allowance for change of temperature. 2. Do you think 5 per cent. correct; and, also, does it apply to all developers and all plates? 3. May I point out that the statement is mathematically vague, as a 5 per cent. decrease after a 5 per cent. rise would not produce the original time. Should it be: Add 1.20 to time for decrease of 1 degree, and subtract 1.21 for similar increase; or: Add 1.19 and subtract 1.20. Has not M. Clerc made an extra special mess of it by failing to calculate degree by degree; for if he calculated for a 20 degrees rise, by his method he would

reduce development 100 per cent., which would be very quick indeed?—Q. S.

1. M. L. P. Clerc correctly quotes M. Houdaille, whose original paper runs as follows:—"A variation of 1 deg. C. in the temperature of the developer corresponds to a variation of 5 per cent. in the opposite direction in the appearance of the image and in the total time of development. This rule holds good between 10 and 25 deg. C.

Taking as unit the time necessary at 15 deg. C., it is only necessary to add or subtract 5 per cent. for each degree of difference. Thus, if a negative at 15 deg. C.

Appears in ..... 60 sec.

And is completely developed in ..... 300 sec.

these times for a temperature of development of 23 deg. C. must have subtracted from them 40 per cent., thus giving—

Time of appearance ..... 36 sec.

Total time of development..... 180 sec.

2. M. Houdaille does not explicitly state whether the rule holds good for all developers, but implies that it does. 3. We are aware that the rule is not mathematically exact; but it was not advanced, we imagine, as anything more than an empirical guide. We should say that if it holds good, as claimed by M. Houdaille, the accuracy is quite sufficient for practical work.

E. S. D. (Hindhead).—Messrs. Newton and Co., 1, Fleet Street, London, E.C., are the most suitable people we know.

D. L. M.—Some of your specimens show good taste in posing, and in some of them, particularly those of the men, the lighting is well managed, and evidence shown of an appreciation of, and power to manage, strong lighting. The children's portraits are also well and softly lighted, but those of the ladies, in our judgment, are not what we call average good portraiture. The pose and lighting in nearly every case are too theatrical. The retouching in every case has been done with discretion. We can give you no idea of the salary you ought to ask, since we have no information as to your quickness or personal qualities. "Camera Craft" is issued from 1915 Post Street, San Francisco. Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C., can supply you in this country. The American price is 10 cents (5d.).

STATISTICS.—Will you kindly let me know through the "B.J.P." column the name of any firm or agency who would be likely to furnish full particulars as to population, industries, and general information of any particular town in England, with a view of successfully opening a photographic business, or where this information is to be obtained?—BUSINESS.

Any good modern geographical gazetteer will give you the information. You will probably be able to see one at your local reference library.

A. GATES.—We have not reviewed the lamp. From what we hear, it is an excellent enclosed arc.

J. CLAUDET.—The result is certainly very good; not, in our opinion, for the tone obtained, which could be got by other baths, but for the great economy. We should certainly think the bath would be worth putting on the market, but we should strongly advise you to have it tested by others as to its powers and that, with several different brands of P.O.P. If you care to send us a sample of the bath we shall be glad to try it, and we will, of course, report upon it when it is on the market.

R. D.—You need not sell the negatives unless you wish to do so. If you sell them without transfer of the copyright, the latter expires. It is difficult for us to name a price, but as the parties have offered to purchase, we should say 7s. 6d. each. We will answer your carbon query next week.

BLEACHING BROMIDES.—I shall thank you if you can give me any information about the following: Say you have a bromide print and you make a pen-and-ink sketch on it, how would you take away the print and leave the ink sketch only?—J. B. W.

A solution of mercuric chloride will answer, or, better, a mixture of potass cyanide and iodine, as used for clearing bromide prints, but considerably stronger.

LENS FOR INTERIORS.—Can you please advise me what kind of a lens to use when photographing the interior of engineering works, so as to give the works the appearance of a long distance?—X. Y. Z.

A wide angle lens will give the buildings the appearance of

being much larger than they actually are, say 5 or 6 inches focus on a whole-plate.

BROWN TONES ON BROMIDES.—Can you give me a formula whereby I can tone bromide postcards to a good brown colour, other than by the hypo-alum? Is the metol-hydroquinone developer the proper one to use if the cards are afterwards to be toned brown? By a "brown" colour I mean the usual P.O.P. brown colour.—P. CARDS, BROWNTONE.

A pure brown tone is not very easy to get. The ferricyanide sulphide process will give you a rather warm sepia brown, but we think you might try the copper toning formula given on page 988 of the "Almanac," adding, say, an equal bulk of water to the mixed solution to slow the action, as the brown tone is obtained at the first stage of the process. We should say that if the tone satisfies you it will be far better to use the sulphide process as given immediately before the copper formula referred to.

BOOKS.—Kindly mention publishers and prices of Prof. Silvanus Thompson's translation of "Lummer's Optics" and Mr. Denn Taylor's "System of Applied Optics." Also, if known, publisher and price of "Lummer's Optics" from which Prof. Thompson has translated.—W. WASHAM.

"Photographic Optics" (Silvanus Thompson), is published by Macmillan at 6s. The German "Lummer" is published by Vieweg, Brunswick. The price, we think, is about M.12 for the volume containing the photographic section. The "System of Applied Optics" is issued by Macmillan, price 30s.

INFRINGEMENT OF COPYRIGHT.—Since the registration of photographs of wreck, executed by you in March, 1907, a firm of postcard publishers have taken the liberty of coming to me for some photographs of same, and reproduced them in penny card form and supplied shops all round me. Since these penny cards have been issued my sales of 2d. photographs have dropped from 700 cards per day to something like 25 per cent. of this number, and I have had several trade orders cancelled, of order of 500, and several other small orders. The firm in question I have written to, and threatened them with proceedings, unless they make an immediate compromise. Since my letter a week has elapsed, and I have not heard from them. Herewith I beg to ask if you will kindly favour me by advising me the best course to take. In case I take proceedings, shall I have to show a copy of the registration?—M. H. J.

Of course you will have to prove registration. We should say you have a fairly good case. We should advise you to put in the hands of the Professional Photographers' Association (which we hope you are a member), which would, no doubt, be able to come to a settlement; or you had better place the matter with your solicitor.

CHROME ALUM DEVELOPER.—Some two or three years ago you gave a formula in the "B.J." of a patented developer in which chrome alum was used to give hardness to the film. I should be glad if you could give me the reference to this, which I have been unable to find.—A. J. KNOX.

We expect you refer to Patent No. 9,116, 1905, published in our issue of January 5, 1906.

ESSEX.—The cost is about half, but present conditions are not in favour of the use of collodion emulsion.

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## The British Journal of Photography

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## SUMMARY.

An exhibition of photographs, to be added to the collection accumulated by The National Photographic Record Association, is opened at the "B.J." Offices. A brief review appears on page 290, on page 287 we refer to some matters which appear of importance to photographic record work.

The Professional Photographers' Society of New York, under the presidency of Mr. Pirie Macdonald, held its Convention a fortnight ago. Our correspondent describes some characteristics of the meeting, and we publish the presidential address. (P. 288.)

The Eastman Kodak Company is to be congratulated on its balance sheet for 1906, just issued. A dividend of 17½ per cent. on the ordinary stock has been distributed. (P. 295.)

We regret to announce the death of the Rev. T. Perkins, an enthusiastic photographer of the old school, and a frequent contributor to our columns. (P. 293.)

The calculation of development time for different temperatures of developer is discussed in our correspondence columns. (P. 300.)

The Jena works of Schott and Genossen are stated to have succeeded in preparing yellow glass for orthochromatic filters which is a great advance on existing glasses. (P. 292.)

In reference to the paper read before the Optical Society last winter "The Measurement of the Times of Photographic Shutters," by de Graaff Hunter, we publish a letter from Mr. Kershaw, of Leeds, claiming prior publication of the method. Mr. Hunter's reply is also published. (P. 301.)

A system of colour projection is amongst the patents of the week. (P. 295.)

New developers derived from benzole have been examined by Dr. King. (P. 291.)

## EX CATHEDRA.

**Hand-Camera Orthochromatism.** It is not often that the reproductions of photographs which appear in photographic journals are commendably pictorial and at the same time informative on technical points, but these two qualities are possessed by four landscape photographs which are reproduced in the current number of "Photographische Welt." Their author, Herr Robert Marx, is an enthusiastic advocate of orthochromatic effect, and these particular examples show the excellent results obtainable with a colour-sensitive plate and screen with exposures short enough to permit of moving objects in the subject. With the commercial plates now available there is no excuse for the unharmonious hand-camera photographs which are so largely the result of non-orthochromatic rendering. The user can take his choice between plates which are highly orthochromatic and require only a 1½ or 2-times screen, and others which, while more sensitive, are less so to colour, requiring therefore a deeper screen. It amounts to much the same in the end, and means that the hand-camera worker may obtain full orthochromatism in his negatives, yet with exposures such as he would give to a plate usually classed as of "medium" speed.

\* \* \*

## For and Against the Reflex Camera.

Every one who has been fortunate enough to have seen much of the hand-camera work of Mr. Jas. H. Sinclair will be compelled to respect what Mr. Sinclair

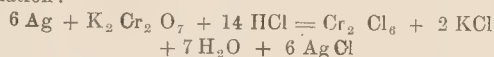
has to say on the choice and use of a hand-camera, and therefore the hints on this subject contained in the catalogue which we review on another page can be recommended to those in need of the straightforward, unvarnished opinion of an expert of the respective merits of different types of hand-camera. Though we may feel the temerity of the act, yet there is one point with which we cannot fall into agreement with Mr. Sinclair, and that is in his preference, quite apart from price, of the box scale-focussing hand-camera for that of the reflex pattern. Granting the lesser complexity—and therefore lesser liability to "go wrong"—of the former instrument, we cannot quite understand how Mr. Sinclair, experienced hand-camera worker as he is, should give the preference to the scale-focussing instrument on the ground of more inconspicuous working. The reflex, we would submit, may be used equally well as a scale-focussing camera by first focussing upon the spot which a figure is to occupy, and then shutting down the hood to await events. This is by far the most common method in scouting with the hand-camera, and one which, to our thinking, the reflex permits just as well as its scale-focussing prototype, whilst on almost all other occasions it is infinitely more certain. We certainly agree with

Mr. Sinclair that a method involving the examination of the focussing screen is not the best for figure study work, and if our memory serves us correctly we have seen reflex cameras by Messrs. Newman and Guardia with a scale affixed for focussing in the ordinary way, although one or two recent models which we have examined do not carry the focussing scale; yet it is an addition which might well be made without depreciating the camera in the least, while at times it would prove of real value.

\* \* \*

### The Misuse of Chemical Equations.

Many photographic writers are fond of translating photographic chemical reactions into equations, regardless of the fact that such an equation proves nothing, and conveys no information unless the truth of the equation has been proved by analysis. The majority of the reactions that occur in photographic processes are of a very obscure nature, and in many cases they relate to compounds that no chemist can pretend to understand. Equations are then purely speculative, and their only use is as speculative bases of future experiments. Thus, a writer in a contemporary, in discussing the use of the potassium bichromate and hydrochloric acid bleaching bath, says: "The action taking place is represented by the equation:—



That is to say, silver + potassium bichromate + hydrochloric acid gives chromic chloride + potassium chloride + water + silver chloride. Out of the number of equations that might be invented to describe the reaction, this is the most plausible at first sight, but it is also the easiest one to disprove, for the chromic chloride cannot be found, while it is very doubtful if the silver chloride formed is truly represented by the formula  $\text{AgCl}$ . Instead of chromic chloride one finds one of the obscure chromium oxides, which no one knows much about, and which, as yet, have no reliable formulæ of their own. There is little reason to doubt that in the bleaching solution mentioned above potassium chlorochromate is formed in accordance with the equation:—



But even this cannot be absolutely proved, and the further reactions with silver can only be guessed at.

\* \* \*

### A Purely Business Matter.

Our readers who constantly have transactions of a business character may be interested in a recent case in which judgment was given on a point in regard to which better business men than are many photographers are very likely incompletely informed. It is not uncommon to see on accounts the statement that "interest will be charged on the amount of unpaid bills." Such an intimation, however, unless both parties have agreed to such an arrangement, has no basis in law, and relies for whatever effect it may have upon the recipient on his amenability to pure and unadulterated "bluff." The practice is one which is not likely to be adopted by reputable firms, but nevertheless it may be well to pen this reminder of its true character. A case recently tried in Dorset is the most recent of many in which the illegality of the threat has been upheld.

\* \* \*

### The Latent Image.

Considerable attention has been directed in recent years to the nature of the latent image, but the sub-haloid theory has so far held its own, notwithstanding the assaults of theories based on electro-chemical and structural change. In the paper,

which we recently published, by Dr. Homolka, the existence of silver per-bromide is assumed, and the experiments with indoxyl and thioindoxyl certainly seem to warrant so much assumption. At a meeting of a chemical society recently held at Bremen, Dr. Hans Herzog also attacked the subject, and whilst the full text of his paper is not yet available, enough has been published to show that he considered the formation of the familiar silver sub-bromide an impossibility. His chief reasons were the fact of photographic action taking place at the temperature of liquid air, a degree of cold at which almost all chemical action ceases. The theory of valency also precluded such action. Dr. Herzog inclines to the structure theory, and incidentally, it may be remarked, gives as the formula for unexposed silver bromide  $\text{AgBr}_3$  or  $\text{AgBr}_6$ . It is obvious that if these formulæ can be accepted the formation of Homolka's per-bromide  $\text{AgBr}_2$  or  $\text{Ag}_2\text{Br}_4$  is quite feasible.

\* \* \*

### The Appreciation of Distance.

Among the most remarkable blunders made by optical writers, from the stating of Brewster downwards, perhaps the most is the theory that we estimate the distance of a point by the angle of convergence of the axes of the two eyes is the most remarkable on account of its extreme absurdity. Imagine the eyes to be converged on to one point at some particular distance. The theory then is that we can obtain an idea of the distance of that point by the magnitude of the angle of convergences; but this angle is in the same plane as the eyes, and consequently its apparent magnitude is quite indefinite quantity. A variant of the theory is that we cannot estimate the absolute distance of one point in this manner, but can estimate the relative distances of two different points by comparing the relative angles of convergence. This is another obvious absurdity, seeing that we cannot estimate the apparent magnitude of either angle and therefore cannot compare them. The only kind of visual angles that can be estimated by, or compared by, the eye are those that have an apex at the eye. In the triangle formed by two eyes and an object we cannot estimate even the angles at the base, for each eye is invisible from the other, hence the whole triangle is quite indeterminate. The only angles that we can estimate and compare are visual angles subtended by two visible object points, and this is the fundamental optical fact that governs the conception of distance in binocular vision, either with or without a stereoscope. If the eyes are regarded purely as a pair of optical instruments, our visual conception of distance is limited solely to the recognition of differences in apparent distance. We can only see that certain points are nearer or farther than certain other points. We cannot determine the magnitude of the differences, and cannot estimate the absolute distance of either point; nor even the ratio of two different distances to one another.

\* \* \*

### Insuring Photographic Assistants against Accidents.

The new law with regard to employers having to compensate employees for accidents which the latter may happen to meet with during their employment will certainly apply to photographic assistants, both male and female. The compensation which, according to the law, is to be given is certainly very liberal, and such a many photographers would have great difficulty in paying. Therefore it will be well for some to consider the question as to whether they should or should not insure their employees against accidents, seeing that the insurance companies grant policies at such low rates as they are not doing. Some may ask, What risks do photographer assistants run? They are not many, though they may have serious consequences, for which the employer will be responsible.



An assistant, for instance, goes up a pair of steps something to the studio blinds, and falls, breaking a leg; the employer would have to pay the whole or part of the wages while he is disabled, and possibly give very substantial compensation for the injury. Or, should a printer cut her finger in trimming prints, and blood poisoning supervene, her employer would have to pay the compensation. Very serious results frequently follow from trivial causes, but the employer will be held responsible. We should advise all our readers, who are employers of labour, to get the new Act and see from it what responsibilities are, and then judge for themselves whether it is worth their while to insure their assistants.

## NATIONAL AND LOCAL PHOTOGRAPHIC RECORD.

An exhibition which is opened to-day at our offices will, we hope, by many photographers engaged or interested in the work of photographic record to which Benjamin Stone and his colleagues of the National Photographic Record Association have so consistently devoted themselves. Our aim in holding the exhibition is understood from the few notes on the exhibits which follow the present article, but we are to seize an appropriate occasion to remark upon those which, it seems to us, are of importance to all bodies which are at present engaging or about to engage in the very desirable work of photographic record. We may be allowed to preface what we have to say by an expression of satisfaction at the constant increase in the number of associations whose first aim is the making and assemblage of photographic documents, including the buildings, customs, and people which must so readily disappear in the process of time. Nearly ten years ago, when the National Photographic Record Association was established, there was but one similar body, the "Photographic Survey of Warwickshire," the inception of which was also the act of Sir Benjamin Stone, who is at the present time its President. In the meantime, similar organisations in various parts of the country have been brought into existence—in most cases through the action of local photographic societies—and the propagandist work in record photography has been carried on by them. It was not taken up, as it was in some cases, directly by a photographic society. Turning to the last edition of the "British Journal Almanac," we find that the official responses to requests for information as to these survey parties place the number of the latter at seven, representing respectively Edinburgh, Essex, Kent, Surrey, Sussex, Warwickshire, and Worcestershire. We believe that, with the one exception, are actively continuing their work. And we are further glad to hear that contributions to the same object are being systematically accumulated by photographic societies which have not evolved separate bodies to devote themselves to record work. Yet the total of these gratuitous activities is far from adequate for the field which remains to be dealt with, but persistent application in season and out of season of existing societies must result in the gradual accretion of other helpers in the task. There is every encouragement in the fact of the really considerable work already done by the National Record Association without the aid of any particular scheme of organisation and from the efforts of a small number of photographers.

We commend photographic record to every photographic society, however small. It should form an incentive to co-operation among the members of which many a society stands in need. Fortunately the work does not call for any special qualification beyond the ability to take a photograph and the readiness to receive a hint from an antiquarian adviser as to the most essential features

of a subject of historical interest, and therefore it may be employed to enlist the services of the many photographers who possess neither the inclination (nor the temperament alleged to be necessary) to pictorial work.

At the same time, it is obvious that societies can do very little individually in comparison with their possibilities when they are joined together for a given purpose. It would be well if any of those whose executives feel a disposition to engage in photographic record would communicate with neighbouring associations, say those in the same county, suggesting the desirability of their uniting in the formulation of a scheme in which would be a place for each separate body. Such a proposition would most probably lead to the formation of an association specially devoted to record photography; and the fact that nearly all the existing work is at present done by associations modelled on these lines suggests that they are the best to follow.

We see in the local development of record work the surest hope that this important application of photography will be carried on within a widening sphere. There is every reason, as Sir Benjamin Stone pointed out at the last annual meeting of the National Photographic Record Association, for developing the establishment and extension of local collections of record photographs. In the majority of cases they are more readily accessible than one of the large dimensions which a national collection must inevitably assume, and further, the stimulating effect on photographers to carry on the work to completion is bound to be greater when the fruits of their predecessors' labours are to be seen and studied.

We commented some months ago on the necessity in such work as this of having a scheme of classifying the items in the collections which shall be both a guide to those which have already been acquired and at the same time allow for the addition of other photographs and subjects. The actual method of storing the prints requires to be very carefully considered, with a view not only to present convenience, but to adaptability to future accessions. We suggest, as we have suggested before, that the existing record associations might do worse than appoint a small committee to inquire into the best methods and present a report. If this were done, the suggestions and information rendered available to each society could, with certain possible modifications, be readily applied in the respective cases.

It need hardly be said, in conclusion, that the executive of the National Record Association, in the person of its honorary secretary, Mr. George Scamell, has always given every encouragement and help to those who have been induced to contribute their quota to the establishment of survey work in different parts of the country, and we know of no better advice to offer to those in need of assistance than to refer them to Mr. Scamell, who throughout his association with the N.P.R.A. has shown his desire to advance the work to which he himself in no small degree has contributed.

**CHANGE OF ADDRESS.**—The firm of Gilmer and Co., successors of Clément and Gilmer, 140, Faubourg Saint-Martin, Paris, announce that their warehouses, offices, and workshops have been removed to 21, rue Henri-Monnier, Paris, to which address all orders and correspondence should be directed.

**TURIN PHOTOGRAPHIC EXHIBITION.**—An International Exhibition of Artistic and Scientific Photography will be held at Turin in May, 1907. There will be two divisions, one for amateurs and the other for professional photographers. Artistic photography will include figure, landscape, marine, flower, and animal pictures. Scientific photography will consist of microphotography and astronomical photography. Applications for space will be received until April 30, and the objects themselves until May 15. Applications can be made to the office of "La Fotografia Artistica," Rue Accademia Albertina No. 1, Turin.

## PROFESSIONAL MATTERS IN AMERICA.

WE publish below the first instalment of the report of the Conference of the Professional Photographers' Society of New York, held in the Assembly Hall of the Metropolitan Life Insurance Company Buildings, under the presidency of Mr. Pirie Macdonald. We have commented in recent issues on some of the promised features of the meeting, and the account from our New York correspondent which we print below will afford a first-hand idea of how the plans of the society have been fulfilled in practice. There is every evidence that the very strict lines on which the convention has been held have fully justified the

executive in their action. No member was admitted who not paid his subscriptions, yet the attendance was a record. A single-picture exhibition, to which each man contributed, for example only of his work, totalled up to 200 exhibits, in addition to which there were selections of photographic portraits by British, French, and German professionals, the latter not being represented by the versatile and cordial Herr Dührke, who, busy man that he is, can always find time to take part in movements for the improvement of the photographer's business status in whatever country of the world that movement takes place.

### A PROFESSIONAL PHOTOGRAPHERS' CONVENTION IN NEW YORK CITY.

*By a New York Correspondent.*

New York is no more to be confounded with New York city than is Yorkshire with York. The city is merely the largest one in the State; but the State itself is about the size of England. Photographers drawn from all over the State have been meeting in their chief city to discuss their craft.

A couple of hundred of photographers are to-day drifting homewards, and talking to each other about the greatest convention "that ever was."

Many—if not all—American conventions have been the greatest ever, but the one just closed has presented some features both novel and commendable, and worthy of note by English photographers.

and on this levy the members have paid their way, apparently given themselves good value.

"Paid their way" is worth passing notice. The all but universal method of running a convention in this country is to make the merchant or dealer pay. Large material manufacturers have contributed lavishly to funds; and the first that most people hear of conventions is an offer of advertising space, at a fancy price, in the programme or catalogue to be issued. The New York photographers have preferred to ignore the advantages of this revenue, and take instead added independence.

The convention places as its first object the betterment of



*Photograph by]*

Hall of the Metropolitan Life Insurance Building, in which the P.P.S. of N.Y. Convention was held.

*[Byron, N.Y.]*

Most conventions have been an annual blaze of glory, when photographers have gathered together for a few days of talking and pleasuring, and have then scattered to their homes for twelve months of solitude. New York State—there are sixty counties in the State—has divided itself into local sections, and these sections have held monthly meetings, where fraternity has been kept alive, and where matters of immediate interest have been discussed. As a result more than two hundred paid-up members were on the roll when the convention began, and the rigidly enforced rule of no participation except for paid members has swelled the number with those who paid cash at the doors. The annual subscription is three dollars—twelve and sixpence—

business condition of the master photographer. Art for art's sake and the glory of the craft retire to the rear. An exhibition of pictures is as essential as a fraternal dinner, and to make this acceptable to all a selection committee was vetoed. Every member might send one picture—no more—and whatever he sent was hung. And there was no line—or rather it was all in one line. The pictures were hung in one straight line around the convention hall; and, if it so happened, the man from the country hamlet, who turns out midgets mostly and has to overwork his lens to deliver a cabinet portrait, found himself sandwiched between two Fifth Avenue leaders.

All paid members got reduced railway rates—and as some



came 400 miles, this was a real consideration. A novel feature of the Convention was an offer of a cash prize of ten guineas for the best hint which would be of benefit to the craft at large. These competitive ideas were enlarged upon in opening by their begetters. One man had a sensible scheme for artificial-light printing; and another pleaded for a method of eliminating against the amateur. A third man, who had tried all depths of devious methods in attracting trade—free prices or free enlargements were among the more innocent of devices—pleaded for high commercial honesty which in his view had led to the haven of good prices. Finally the prize went to a man who prescribed three shillings' worth of sand and cement, plus an equal amount of builder's labour, as the sufficient ingredients towards making an imperishable, unstainable work. Possibly few members will go home and make such a work; but for the chance of the prize all the competitors gave up their ideas free to the meeting.

There is always an interest in the craft as to how the leaders work. Six well-known city men—including Falk, Core, and Hollinger—threw their studios open to members, and demonstrated their methods of work. To those members who wished to study "Old Masters," or the methods of painter artists, a

visit to the Art Museum was arranged, with Messrs. Core and Hollinger as leaders.

Finally, the dinner; a real Bohemian—that is, Hungarian—dinner, in a place where real live artists are supposed to dine and sip beer, and blow clouds of cigarette smoke. The dinner cost six and threepence per head—just half of the total annual dues—and it was paid for out of funds, without any additional levy. If a member wished to do so, he was entitled, on additional payment, to bring one wife or one sweetheart to the feast.

Who attend conventions? The first man I met settled in a tiny village nearly half a century ago. The village has grown, but to-day it numbers less than 3,000 people. His price for a dozen cabinets is twelve and sixpence, and the pictures are well worth the price. Thanks to conventions and educational demonstrations, together with native enthusiasm, he is quite abreast of the times in work; he makes a sufficiency; and he is content. It is very easy to stagnate in a small village; and the small village is the happy camping-place of the travelling photographer who appears from nowhere and floods the country-side with coupons offering a dozen superior and imperishable photographs, guaranteed by the instantaneous process, for three and elevenpence farthing.

### THE PRESIDENT'S ADDRESS.

The following is the address delivered at the opening of the Convention of the P.P.S. of New York by Mr. Pirie Macdonald:

We stand, as an organisation, for two principles paramount to all others—first, the object of this society is the betterment of the business condition of the proprietor photographer, the bettering of the art, as such, being relegated to a place of secondary importance.

We also stand as being self-supporting and independent and opposed to the acceptance of pecuniary assistance, believing that a business organisation should be untrammelled by ties of obligation which would influence or hamper its actions, as well as believing that we should do and have nothing that we cannot fully pay for.

This position was not assumed in arrogance, but as a sane precaution, to preclude the possibility of any interest acquiring an obligation from us which might become embarrassing.

This freedom we consider as essential to our existence, and any curtailment of it has been most vigorously guarded against. This principle is the opposite of that of any other of the professional organisations of the country; as a rule, they look for a large part of their financial support and entertainment from the hands of the interests which supply their materials.

It must be obvious that it has required careful management and a great amount of labour on the part of the Executive Committee to bring about a result, without the help of the manufacturer, which would in any way compare with the associations which have been virtually supported by them. But the result, which we will discuss later, we feel is sufficient to cause you much gratification—and fully repay us for the labour. The matter of correspondence from the president's office alone has involved some 1,192 dictated letters, aside from the preparation, printing, and addressing of some 2,078 circulars and other printed documents; but we have this collection of pictures, involving some 200 persons—more individuals are represented than is usual at a meeting of a National society. We have this magnificent meeting-place, the like of which it has never been the privilege of a society of photographers to use, and one of the few rooms even in this great city where the requirements of the resolution, which authorised the gathering of the exhibit could be carried out, as we were directed to hang the pictures in one line—no picture above or below any other.

We have a paid membership of over 200 at this moment, and are now paying their first dues now.

We have in operation a Free Employment Bureau, which has

placed sixty-two workmen in the studios of our members in about six months, and many more who have not had the courtesy to acknowledge the result of our work for them—a fault unfortunately common also to our members.

We have before us, aside from the benefits to be derived by the contact of men from different parts of the country, a series of demonstrations by six artists of the first rank, all of whom



MR. PIRIE MACDONALD, President P.P.S. of New York.

are justly celebrated, and the unique opportunity of being shown the treasures of the great Metropolitan Museum of Art by Messrs. Core and Hollinger, and a dinner where a plate is provided for every member of the society—and all of this is being paid for by ourselves out of the dues. Surely you will be willing to credit the Executive Committee with devotion!

Lastly, I want to speak of the sections, because the sections are the most important item in our scheme of organisation. It is through the sections that this society must get its real power. The continued touch and the intimacy that is bred in the

sections—the monthly contact and the monthly effort to smooth away the vexed conditions, is what is to prove the health-giving factor of our organisation. Other associations have been formed and have seemed to flourish for a while—have met with more or less success for a while—but have finally “petered” out because the lapse of time between meetings was too great to have interest sustained, and each meeting had to be made out of whole cloth; but our sections, meeting monthly, have kept warm the interest; they have each grown larger and stronger, thus helping to hold together the society all through the year.

The sections have been of use, however, not only in increasing the power of the State Society, but more directly in handling local questions, in knitting together through friendship and confidence groups of men all over the State—groups of men who have by the very nature of their competitive relation been antagonistic—they have come to regard each other as friends and to realise that there is a common interest which must be maintained, a friction to be reduced, with the result of more business, more easily done, more pleasantly done, and a new circle of friends.

Difficulties that have been “discussed” by other associations have been solved in some of our sections; matters that required work and persuasion and confidence have been accomplished within this past short year that other societies have only talked over; and these results have been made possible only through this scheme of dividing the State into small independent units, held together by their common interest in the State Society.

No one capable of prophesying the exact result of the formation of sections happened to be a member of the committee who wrote the Constitution, and it is now obvious that there is not adequate provision for communication between the bodies—

there is no completed scheme whereby the work of each may of profit to the other, where the pioneer's work on a question need only be done once.

There is no complete arrangement for the working together to get any one result, or the dividing of a problem into divisions so that each section may work out its given part and so save the necessity for doing it separately four or five times, and, worse than all, there is no provision for an interchanging of such courtesies which would make for that true cordiality which is the corner-stone of our existence.

The Executive Committee have earnestly discussed this problem and will put forward some suggestions and recommendations in their report which I believe should be given most careful and serious consideration on the part of all those who desire the real success of this society.

While there are many of our members who will doubtless feel that we have as yet not accomplished a sufficient amount of definite result, it is my opinion that, all in all, we are in most remarkably prosperous condition, considering the age of the Society; I feel that we are going slowly but surely to prove that our theory of organisation is the only one which can continue to grow, until we have enrolled every photographer within the State of New York in our membership. We should encourage the building of sections in every locality where photographers are close enough together to be in competition, in order that we may reduce to a minimum the instances where men are doing profitless work, in order that we may establish healthy rivalry through competition of workmanship rather than of prices.

Personally, I should feel perfectly satisfied if this meeting accomplishes nothing more than a deep and earnest desire for more complete organisation.

PIRIE MACDONALD.

## PHOTOGRAPHS BY THE NATIONAL PHOTOGRAPHIC RECORD ASSOCIATION.

THE collection of photographs which we have been able, by courtesy of the National Photographic Record Association, to bring together in the “little gallery” set apart at our offices for such purposes, is of a different character from other assemblages which we have offered for exhibition. The members of the N.P.R.A. do not aim at presenting the mood of a photographer in their pictures, and though a number of the 108 prints possess pictorial value, not that, but the plain record of fact is the quality which is desired in the prints made to swell the number already in the British Museum.

The present exhibited photographs are actually those which are to be the next additions to those deposited with the Museum authorities, and particular interest should attach to them from this fact, inasmuch as the character of print and the form of mounting approved by the National Record Association should be of interest to those whose inclinations are in the direction of similar work.

It will be seen that in almost every case a cut-out mount is adopted in order that the photograph when packed with others shall be protected from abrasion. A standard size of mount is also adopted for convenience of assembling the prints in packages, and, although a print of whole-plate size is preferred, several smaller photographs may be placed on one mount. Those prints in the present exhibition which have not a cut-out will receive one before being deposited with the others.

Turning now to the exhibits themselves, those by Sir Benjamin Stone, the President of the Association, include a great variety of subjects about equally divided between buildings of historical interest and ancient customs in their necessarily modern survival. A press gang party (No. 7), which falls in this latter

division, is a very different thing from that body as it was presented to our youthful imaginations by Captain Maryatt. Yet it represents the equipment actually used in Nelson's day. The same town, Fordwich, Kent, which provides it also supplies the ducking stool (No. 13). “The Hornblower” (the modern Wakeman), of Ripon, Yorkshire, is recorded in No. 22, a photograph which well emphasises the usefulness of record photography to the historian and student. No. 30, “The Speaker's Procession, House of Commons,” is one of the large series of photographs which is the result of Sir Benjamin Stone's tireless energy. The volume, “Parliamentary Scenes and Customs,” in which Messrs. Cassell have reproduced a large proportion of them, may be seen upon the table.

Mr. F. R. Armytage records in No. 43 the ancient office of the “Huntsman” in the Shrewsbury School, the “Huntsman” distinguished in the photograph by his red jersey being the senior boy of his year in the school sports and the dictator in athletic matters. The boys are assembled for the start of the “Tuck's Run.” Among his photographs of the picturesque abbeys of Shropshire, Mr. Armytage includes some of the quaint miseries in St. Lawrence, Ludlow, in one of which (No. 56) is represented a landlady who for using unjust measures is being carried off by two devils to be cast into the jaws of Hell. The lady will be seen in an inverted position in the upper photograph with the illiberal measure still in her hand.

Mr. H. W. Fincham contributes a number of photographs of bygone Clerkenwell, including the copy of an hotel bill of 1853 for refreshments for the churchwardens and others on the occasion of beating the boundaries, the sum of £13 17s. 10d. being expended on the entertainment of the party.



Mrs. Catherine Weed Ward contributes photographs of a series of fonts at Canterbury, Porlock, Lynton, and Warwick, and of a most picturesque ancient stocks at Lynton, Devon. Further photographs of the Yorkshire Abbeys, Rievaulx and Fountains, are sent by Mr. Godfrey Bingley. Lastly, Mr. George Hamell, honorary secretary of the N.P.R.A., continues his

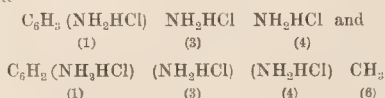
photographs of Essex churches, including that of South Olkendon (No. 108), one of the six round-towered churches in Essex, and of Laindon Church (No. 102), showing the timber framing for supporting the tower utilised as an organ loft.

The exhibition is open to the public from 10.30 to 4.30, Saturdays 10.30 to 12.30.

## TRIAMIDOBENZOLE AND TRIAMIDOTOLUOL AS DEVELOPERS.

[A communication from the laboratory of the works of Meister, Lucius and Brünig to "Photographische Korrespondenz."]

TRIAMIDOBENZOLE and triamidotoluol, whose salts correspond to the formulae—



respectively, have long been known as easily obtainable bodies through the decomposition of the azo dyes of m-phenylenediamine and m-toluenediamine. These compounds were prepared by us for other purposes in a perfectly pure state, and it appeared to be a good opportunity to test them as regards developing powers, which hitherto do not appear to have been investigated. The above constitutional formulae show that there are two amino groups in the "para" and two in the "ortho" position. It might certainly be expected, therefore, that these compounds would show some developing properties. Experiment proved the truth of our expectations. The hydrochlorides of the said diamines develop with sulphite alone, without the addition of alkali, and are considerably more energetic than triamidotoluol and triamidobenzole, and come very near amidol in developing power.

The energetic action of triamidotoluol is all the more striking, amidol, the hydrochloride of diamidophenol, contains only one molecule of hydrochloride, whilst triamidophenol contains three molecules.<sup>1</sup> Sodium bisulphite added to an aqueous solution of the salt in sulphite acts as a much more powerful reagent than with amidol. In order to obtain a good energetic developer this fact should be kept in mind, and a developer made from:—

Triamidotoluol hydrochloride .....	5 gms.
Anhydrous sodium sulphite .....	30 gms.
Water .....	1,000 ccs.

only four to five parts of sulphite are required for one part of amidol. With equal duration of development, triamidotoluol gives the same amount of detail in the shadows as amidol, but the density in the high-lights is somewhat less. Triamidobenzole gives much weaker images.

Whilst diamidophenol or amidol and diamidoresorcine, the two developing agents which have hitherto been used without alkali, will not stand any marked addition of alkali without giving fog, the above-mentioned triamines act energetically and without fog in an alkaline solution, e.g., in a developer composed of:—

Hydrochloride salt .....	5 gms.
Sodium sulphite .....	30 gms.
Potassium carbonate .....	20 gms.
Water .....	1,000 ccs.

The neutral solutions keep for a long time, and scarcely change when on standing for some hours in an open dish. The alkaline solutions, on the other hand, soon turn yellow.

As triamidotoluol has no special advantages over amidol,

either with respect to price or action, its introduction as a new developer does not appear worth while.

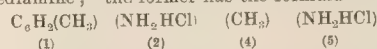
The energetic action of triamidotoluol over the corresponding benzole derivative caused us to try whether the higher homologues of developing agents other than benzole derivatives showed similar increased rapidity.

The homologues of p-amidophenol and amidol have often been mentioned in technical literature,<sup>2</sup> and have been patented, though the patents have now lapsed. Nothing appears, however, to have been published as regards the developing powers of these substances as compared with the lower homologues.

We compared first p-phenylenediamine and p-toluenediamine. The formula used was:—

Diamine hydrochloride .....	10 gms.
Sodium sulphite .....	40 gms.
Potassium carbonate .....	40 gms.
Water .....	1,000 ccs.

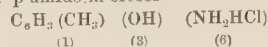
P-toluenediamine gave a vigorous image quickly; p-phenylenediamine gave only a very faint image after long action. P-xylenediamine developed much more energetically than p-toluenediamine; the former has the formula—



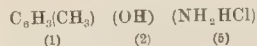
We further determined that the two p-amidocresols develop more energetically than p-amidophenol. The difference is very marked with alkaline carbonate solutions (the phenolates were not tested); it is especially striking, however, in solutions free from alkali. The formula used was:—

Hydrochloride salt .....	5 gms.
Sodium sulphite .....	25 gms.
Water .....	1,000 ccs.

which was tested on transparency plates and gaslight papers. The p-amidophenol gave in five minutes only an extremely faint brownish image; p-amido-m-cresol—

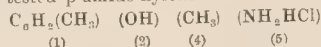


gave in the same time a much stronger image, p-amido-o-cresol—



gave in two minutes a very vigorous black image, so that the latter substance seems very suitable as a developer in neutral solution for gaslight and transparency plates.

Finally we tested p-amido-xenol—



This developed extremely quickly, but produced after a few minutes a brilliant metallic fog.

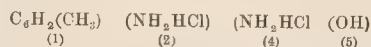
We would lay stress on the fact that the substances used by us were absolutely pure, and that a contamination, caused in the preparation of the same, by diamido-oxi-compounds was not possible.

<sup>1</sup> Hydrochloride of triamidotoluol is acid to Congo red paper, whilst amidol not.

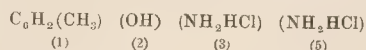
<sup>2</sup> Hauff, "Eder's Jahrbuch," 1893, p. 245; Andresen, loc. cit., p. 420.

It is thus shown that the introduction of  $\text{CH}_3$  into the benzole ring of the developing substance considerably increases the rapidity of the same.

In order to test the amidol series for similar behaviour we prepared diamido-ortho- and meta-cresol. Whilst diamido-m-cresol—



—showed no noteworthy difference in action to amidol, the diamido-o-cresol—



—considerably surpassed amidol; the image appeared much quicker than with amidol, and was much more vigorous in the same time; there was no fog.

The same regularity is again seen with the triamido-diamidol and p-amido-oxi-derivatives, and we must add to the existing laws of developing powers the following:—

The developing power of a benzole derivative, which contains at least the two atomic groups necessary for developing, is increased by the introduction of a  $\text{CH}_3$  group in the aromatic ring. The action of a  $\text{CH}_3$  group is especially strong when it appears in the ortho position to an hydroxyl group.

E. KÖNIG.  
O. STAHLIN.

## NEW YELLOW GLASS SCREENS.

For many years it has been recognised that the ordinary yellow glass filters or screens have been unsatisfactory, because, besides yellow, they contained a considerable amount of black or neutral tint, the only effect of which was to prolong the exposure. This was inevitable, because the black, not acting selectively but generally on the whole of the spectrum, simply reduced the intensity of the yellow, orange, and red as much as it did the blue. Further than that, the yellow of the glass, whilst reducing the intensity of the blue and blue-violet, transmitted the ultra-violet, the very region which, invisible to our eyes, should not be allowed to act on the plate.

This black, according to Eder, was unavoidable, and due to the fact that the molten glass was stirred with a stick of wood, which

have practically had no yellow dye, which was completely opaque to the ultra-violet, except in rather dense colouring.

For many years the well-known glass works of Schott and Genossen of Jena, have been trying to make a yellow glass which should answer all theoretical requirements, and according to Dr. Zschokke, in the current number of the "Photographische Mitteilungen," this has been finally accomplished by Dr. Zschimmer, of the above-named Jena firm.

Some screens of the new glass, worked by C. P. Goerz, have been tested by Dr. Zschokke against the old screens in a diffraction spectrograph, giving equal exposures to each. The results are shown in Fig. 1, the old glasses being marked "K" and the new, "Sch."

From this illustration it will be seen that the plate used gives the whole of the spectrum, from the ultra-violet about  $\lambda$  3,000 to the D lines  $\lambda$  5,903, with two maxima of sensitiveness, the first in the ultramarine blue  $\lambda$  450, and the second in the yellow  $\lambda$  550 approximately. The ultra-violet is absorbed by the "bright K"

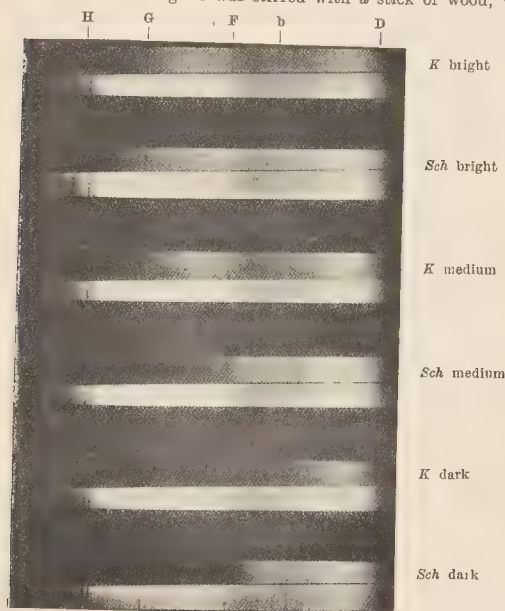


Fig. 1.

not only imparted the colour, but was also partially charred, and caused the suspension of minute particles of charcoal in the flux. Glass with a flashed surface of a silver salt would give a yellow of the necessary brilliancy, but it was impossible to make this coloured in the mass, because the silver separated out as an opaque salt and caused cloudiness.

Failing a perfect glass, we have been obliged to be content with what was obtainable, or have had to use stained gelatine films, which, on account of their sensitiveness to moisture, etc., have never been satisfactory. Moreover, until the introduction of filter yellow K, we

Sch dark K dark Sch medium K medium Sch bright K bright Without filter



Fig. 2.

filter. The spectrum begins at the H line, about  $\lambda$  4,000, and reaches to D. "Sch bright" absorbs approximately the same in the ultra-violet as "K bright," but is so transparent for green and yellow light that from the F line, about  $\lambda$  5,000, scarcely any difference is to be detected between the screened and the unscreened spectra. "Medium K" absorbs to about the G line,  $\lambda$  4,300, does not shorten the other end, but shows distinctly a darkening in the yellow and green, as compared with "bright K." "Medium Sch" absorbs to about the F line,  $\lambda$  4,700, but is practically completely transparent for the D line.

The advance is seen most plainly when comparing "dark K" and "dark Sch." The former absorbs completely only to the F line, but darkens it in such a manner that only the maximum in yellow is visible. "Dark Sch," on the other hand, absorbs beyond the F line to about  $\lambda$  5,000, and remains so transparent from the b line



33, and between the screened and unscreened spectra no differences to be seen.

was determined by experiment that "dark K" required four times the exposure to give the same density in the yellow as obtained with "dark Sch."

2 shows the action of the new filters with an outdoor subject. In too, the whole of the exposures were equal, and the differences were very marked. In order to obtain approximately equal density and without the different filters—absolutely equal densities are obtainable on account of the differences of gradation—the following exposures are required:—

Bright K" .....	3	"Bright Sch" .....	2-3
Medium K" .....	9	"Medium Sch" .....	5
Dark K" .....	18	"Dark Sch" .....	6

advance of these new filters over the old lies in the reduction of exposure to one-third without loss of correctness of tonal

firm of C. P. Goerz is placing these new filters on the market in three tints, which require 2, 4, and 6 times the exposure with the same colour-sensitiveness as those used in the above experiment. With normal density of the maximum in the yellow the greens absorb the spectrum to about the H. S and F lines respectively.

#### THE EASTMAN KODAK COMPANY.

Report of the Eastman Kodak Company, of New Jersey, for 1906 balance sheet as at December 31 last have just been issued. The results of the year eclipse the previous records of the company, although they have been. The net profits, after making provision for depreciation on buildings, plant, and machinery, and after setting aside a sum of £103,092 to create a special fund for the replacement of plant, amount to £1,013,546, as against £827,610 for the previous twelve months—an increase of £185,936. Reckoning £103,092 taken out of net profits, the increase is £289,028. Dividends of 6 per cent. upon the preferred capital and 17½ per cent. upon the common have been distributed—leaving £232,473 added to the undivided Surplus Fund, increasing it thereby to £702. In addition to this surplus there are now special reserves amounting to £276,702.

The financial position of the company appears to be exceedingly strong, its liabilities being only its current trade accounts, amounting to £50,965, while its current assets, excluding the value of its buildings and plant, figure at £2,499,685. Of this latter no less than £1,271,023 consists of marketable bonds and cash on hand.

The earning power of the company shows a steady increase, as will be seen from the following official statement of annual earnings:—

Year ending December 31, 1895 .....	£ 49,656
" " " " 1896 .....	122,676
" " " " 1897 .....	185,232
" " " " 1898 .....	243,232
" " " " 1899 .....	355,919
" " " " 1900 .....	465,816
" " " " 1901 .....	517,347
" " " " 1902 .....	564,455
" " " " 1903 .....	606,740
" " " " 1904 .....	688,484
" " " " 1905 .....	827,610
" " " " 1906 .....	1,116,638

The earnings for last year after paying 6 per cent. upon the preferred capital, are equal to over 25 per cent. upon the Ordinary shares. The shares at the present market prices of \$115 for the preferred and \$270 for the Common, yield 5½ per cent. and 7½ per cent. respectively.

#### INTERNATIONAL PHOTOGRAPHIC EXHIBITION AT DRESDEN, 1909

MEETING was held at Dresden, under the presidency of Geheimrat Dr. Mieth, to discuss, in company with delegates from different parts of Germany, arrangements for the forthcoming international photographic exhibition, to be held in Dresden in 1909. Among others present were Professor Mieth, Berlin; Dr. Schultz-Henke, Berlin; Dr. Seeliger, Leipzig; Herr Matthias-Masuren, Halle; and Herr von Rohr, Jena. Herr Beutler announced that the municipal authorities in Dresden had expressed the greatest interest in the exhibition, and were prepared to support it by every means in their

power, presuming, of course, that the exhibition received sufficient support, and that it was sufficiently financed. Herr Springer, of our contemporary "Der Photographische Industrie," then gave a review of the proposed programme. The exhibition, he said, was to be planned in the widest possible way. Hitherto similar exhibitions had been somewhat limited in their scope, but it was the desire of the promoters to represent photography in all its branches, as it had progressed in all civilised countries. Apart from demonstrating the present industrial, commercial, and scientific aspects of photography, it was desirable to include in the exhibition sections which should show the historical and documentary applications of photography, in addition to illustrating the history of photography itself. Professor Kübler suggested that meteorology, telegraphy, photography by electrical connection, and photometry might figure in the programme. Professor Mieth expressed the opinion that the programme as presented was exceedingly well drawn up and comprehensive, and he suggested that it might be passed in its entirety. Dr. Schultz-Henke advised that the more important German photographic societies should be allowed to appoint a representative upon the organising committee of the exhibition. Professor Oscar Seyffert, of Dresden, was elected chairman of the exhibition committee, and Herr Consul-General Klempner, treasurer.

#### THE BALLADE OF THE GUMMIST.

From "The American Amateur Photographer."

A pallid face and a fishy eye;  
A mien betokening deep despair;  
Clothing corroded with alkali  
And frescoed over with pigments fair;  
Chunks of the same in his tousled hair—  
"Some kalsominer a prey to rum!"  
You say? Ah, no, you're in error there;  
He is the fellow that works in gum!  
His conversation, should you stand by,  
Is "broad and sketchy," and somewhat bare;  
Ideas suppressed do but signify  
Details suppressed in the "studies" rare  
Evolved by him—but his weighty air  
As he speaks strikes all who hear him dumb;  
Dispute, Rash Listener, if you dare!  
He is the fellow that works in gum.

*Sed loquitur*—"If you multiply  
The colloid factor you must beware!

If you use Lalanne you must rectify.  
With a badger blender, the faults that e'er  
Obtrude themselves, for despite your care  
Mucilaginous striae are wont to come,  
And these will the notes of tones impair."  
(He is the fellow that works in gum!)  
But we, impotent, can only stare,  
And wonder whether his prints are bum,  
Or fruits of Genius beyond compare;  
While we mentally vow to refrain from gum.

#### DEATH OF THE REV. T. PERKINS, M.A.

A WELL known worker and writer in the photographic world has passed away in the person of the Rev. T. Perkins, M.A., rector of Turnworth, Dorset, at the age of 65. After a distinguished academic career at Blundell's School, Tiverton and Christ College, Cambridge, Mr. Perkins was admitted to Holy Orders in 1869, and after filling the post of assistant master at the Grammar Schools of Durham and Reading was appointed head master of Shaftesbury Grammar School in 1878. Fifteen years later he accepted the living of Turnworth, where he remained till his death, on March 21 last. Although an enthusiast on photographic matters in general, a regular attendant at the Convention, Mr. Perkins devoted himself chiefly to the study of architecture, both domestic and ecclesiastical, but specially the latter, and his writings on the subject, such as "A Handbook of Gothic Architecture," and several handbooks on cathedrals and churches in "Bell's Cathedral Series," show that his knowledge of his subject was both intimate and thorough. His latest work, a treatise on "Romsey Abbey," completed shortly before his death, will be read with interest at the present time. Archaeology also obtained a share of Mr. Perkins' attention, and a book, entitled "Memorials of Old Dorset," which he was editing and partly writing, was left unfinished at the time of his death.

## Exhibitions.

### WALSALL PHOTOGRAPHIC SOCIETY.

The annual exhibition of this society, which was held in the Assembly Rooms, Walsall, from April 11 to 13, may be described as a huge success, both as regards the number of exhibits and the quality of the work sent in, the latter being of a more artistic character and showing greater individuality than in previous years. The exhibition was opened on Thursday, April 11, by Mr. E. J. Shaw, J.P., Mr. T. Partridge acting as chairman in the unavoidable absence of the president, Alderman Walter Hughes. Mrs. G. A. Barton and Mr. Walter J. Morgan, R.B.A., judged the exhibits, and awarded the two special prizes—namely, Mrs. Barton's, for the most original figure study, and the president's, for the best picture in the exhibition—to "The Bride of Lammermoor," by W. Meikle, the award being so popular that the winner was "chaired" by his fellow exhibitors when announced. In the other classes the awards were as follows:—Landscape: 1st, "The Day was Gently Drawing to a Close," by D. S. Johnson; 2nd, "A Bit of the Black Country," by W. T. Comer (hon. sec.). Hon. mention, "Nafford Mill," by W. A. Hubball; "Sand Dunes," by W. H. Bullock; "A June Morning," by G. W. Richmond; "A Black Country Moor," by Ed. Holmes. Seascape: 1st, "Seafog," by W. T. Comer (hon. sec.); 2nd, "Drifting with the Evening Tide," by W. A. Hubball. Hon. mention, "The Quayside, Teignmouth," by B. J. Dexter; "Sunset Off the Conway," by A. Ford. Genre and Figure Study: 1st, "Sister," by Geo. W. Richmond; 2nd, "Ruth," by Mrs. Dore Leckie. Hon. mention, "The Hon. Sec.," by Mrs. W. T. Comer. Architecture: 1st, "North Ambulatory, Norwich Cathedral," by W. A. Hubball; 2nd, "South Choir Aisle, Tewkesbury," by W. H. Bullock. Hon. mention, "The Abbey Passage," by Ed. Holmes. Flowers and Still Life: "Apple Blossom," by B. J. Dexter. Novices: 1st, "The Smithy," by W. A. Dunham; 2nd, "Early Morn," by Wm. Moreton. Hon. mention, "Silver Birches," by W. R. Bowen. Lantern Slides: 1st, Mrs. W. Bullock; 2nd, Mr. A. Ford. Hon. mention, Mr. W. Meikle.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between April 2 and April 7:—

**PLATES.**—No. 7,885. Improvements relating to photographic plates or films. Philip Arthur Newton, 5, Bream's Buildings, Chancery Lane, London, for Lumen. Ges. mit beschränkter Haftung, Germany.

**PRINTING APPARATUS.**—No. 8,075. Improvements in photographic printing apparatus. Thomas Thomassen Sabroe, 65, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**COLOUR PROJECTION.**—No. 3,766. 1906. The invention consists of a method of three-colour projection, in which a separate projecting lens is used for each colour record, and the images thus formed on the screen superimposed by means of a form of reflecting prism or prisms  $a$   $a^1$ , having faces arranged at such angle or angles as may be necessary to cause the light rays to converge to any desired point. The type of prism is therefore such as to give two internal reflections, and is designed so that the faces of the prism at which the beam enters and emerges are normal to such entering and emerging beam. The invention consists in so modifying the prisms of the Fresnel type above referred to as to cause the rays which enter parallel to the axis of the lens,  $b$ ,  $b^1$ ,  $b^2$ , to emerge, making an angle with that axis, and so make it possible to correctly superpose the images. The

prism or prisms may be mounted in suitable holders or can be adapted for adjustment in a vertical and horizontal plane—the prism or prisms may be adapted for universal movement. By these means the prisms may be adjusted so as to permit superimposing of the images to be effected with accuracy. In projecting three-colour records with three projecting lenses image is preferably projected direct on to the screen with the intervention of a prism, and the other two images caused to register with the first by means of prisms arranged in front of the other two lenses.

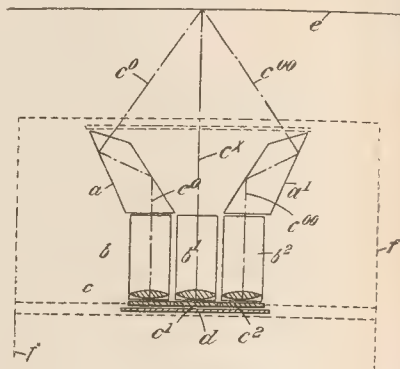


Fig. 1.

The prism may be conveniently arranged with respect to lenses, and to the positives or records  $a$ . The colour screen  $c$ ,  $c^1$ ,  $c^2$  may be placed before or behind the positives, before or behind the lens, before or behind the prisms; or the prisms may themselves be of a suitable colour.

The angles of the faces pertaining to the prisms will vary according to requirements and to the distance of the screen from the lenses, the degree of convergence necessary, but by means of the present invention a correct projection and superimposing of the images

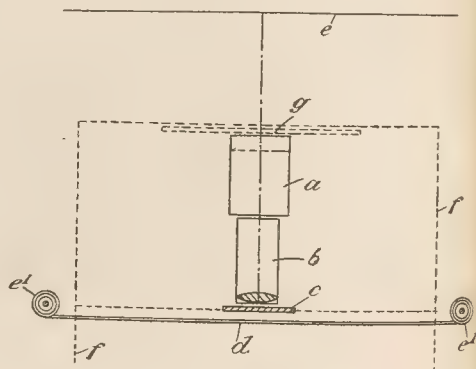


Fig. 2.

is ensured; the colours being truly registered and blurring effect entirely obviated.

It will thus be seen that the employment of reflecting prisms in the projection of a coloured subject in the manner herebefore described enables a superimposing of the two colour pictures to be obtained upon the centre or inner picture.

It will be further understood that in obtaining the negative prisms are not employed, but the negatives are taken by means of three lenses, mounted as closely as possible, so as to reduce stereoscopic effects, and that three-colour screens are disposed between the subject and the film, the three negatives being



taken simultaneously on the film. Benjamin Jumeaux, Southwick, near Brighton.

**COMBINED PHOTOGRAPH FRAME AND CINEMATOGRAPH.**—No. 12,806. 1906. The invention consists in the combination with a frame for holding a photograph of means for producing an animated picture, the object of the invention being to exhibit the portrait of a person or of any other subject, and at the same time an animated portrait either of the person or subject, or of a scene having some relation with person or subject. The four claims require the six figures for the proper explanation of the details of the mechanism. Henri Louis Huet, 114, rue du Temple, Paris.

**WASHING MACHINE FOR BLUE PRINTS.**—No. 12,806. 1906. The invention consists of an apparatus in which the paper is moved upward so as to present one surface to the action of falling water, the water running off quickly and thus never becoming saturated. The action of the apparatus is as follows:—

The sheet of paper 2 is led over transverse rods 3, arranged in a curve over a trough 4, adapted to receive the washing water and arranged so as to maintain the level of the water in the trough at such a height that the sheet 2 will not at any time come in contact with the water, thus keeping the back or rear side of the sheet dry. A guide rod 5 is arranged over the rods 3, and the paper passes between the rods 3 and 5. After passing over the rods 3, the paper is led upwardly over transverse rods 6, arranged on an incline at the back of which is arranged a guard plate 7. The angle of inclination of the rods 6 and the

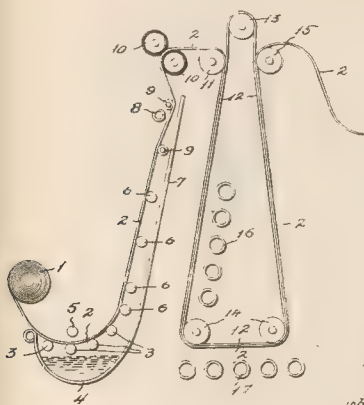


Fig. 1.

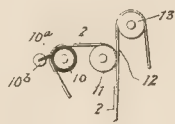


Fig. 2.

guard plate 7 is quite steep, so as to allow the falling water a quick descent and thus prevent the same from saturating the sheet of paper, but acting merely to wash the same as the paper is carried upward. The paper is passed over the front of the lower roller 9, and in back of the upper roller and a spraying device 8, arranged so that the water will be sprayed directly on the sheet of paper and thus running or falling over the outer surface of the same downwards, until it flows off each side of the sheet into the trough 4. The paper, after being led back of the upper roller 9, is passed between two wringing rolls 10, which squeeze the water from the paper so as to reduce the paper from a wet to a moist condition. In Fig. 2 is shown a flat rubber strip 10a, supported in a split tube 10b, so as to bear on the wet surface of the paper, and wipe the surplus water and moisture therefrom. The sheet of paper is led horizontally across and about a roller 11, with which it is held in contact by an endless tape 12, passing over an upper roller 13, and about oppositely disposed rollers 14. The paper is thus carried around by the tape on its outer surface downwards, across and upwards, to a delivering roller 15, mounted opposite the roller 11. Both the rollers 11 and 15 are set slightly inwardly, so as to firmly

engage with the tape 12 and thus keep the sheet of paper taut. Charles Francis Pease, 182, Dearborn Street, Chicago, Ill., U.S.A.

## New Trade Names.

**PRESTO.**—No. 290,186. Photographic paper. Otto Scholzig, 31, Binfield Road, London, S.W., manufacturer. February 6, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Dexterity in Manipulation.

Writing on the above subject in "The Photographic News," Mr. C. H. Hewitt says: "As to the method of applying the developing solution, it may first of all be said—Don't wet the plate in clean water prior to development. Don't pour the developer into the dish and then drop the plate into it. Don't slop the solution over the plate in any indiscriminate way. If the developer starts at one edge of the plate and proceeds across its surface in an even wave, there is not likely to be an uneven mark or a single air-bell. On the other hand, if the developer starts in the middle, flows to one edge, and then by a re-tilting of the dish is made to flow back, a row of air bells is most likely to be formed when the return wave leaves the wetted surface of the film and passes to the dry surface."

### Backgrounds for Flower Photography.

The best backgrounds (says Mr. H. Edwardes, writing in "Photography") are white and grey papers, which can be got in large sheets from dealers in artists' materials. A very dark background is useful at times, though its general tendency is to make lightly coloured flowers look too startling. A piece of black velvet does as well for this purpose as anything, but it must be kept free from creases. If there are any folds likely to show they can be hidden by hanging the board carrying the velvet and letting it swing slightly during exposure, keeping the folds as nearly as possible vertical. Or it may even be shaken during exposure, though this usually results in shaking the flowers. Generally speaking, the grey background is the easiest to use; both plain black and plain white are readily misused.

### Carrying the Camera on a Cycle.

Nearly every modern cycle (says Mr. Percy F. Westerman, in "Focus") has a "forward lug" handle bar, thus allowing a bag to be fastened to it without risk of damage from the head of the brake. To make doubly sure, however, I have had a leather carrying case constructed as follows: The case is provided with straps for carrying across the shoulder, the back of the case—i.e., the part that comes next to the handle bars—is made of double thickness, with a piece of light strong oak wood placed between them. This forms a firm base for the changing bag and its contents to rest against, whilst the camera is placed between the changing bag and the front of the carrier, which in its turn is secured to the handle bars merely by taking a turn round the bars by means of the long straps, and fastening the latter over the front of the leather carrier.

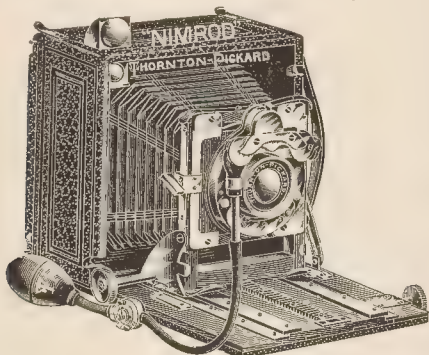
## New Books.

"THE PHOTO-MINIATURE."—Our concise and always informative contemporary has evidently benefited by its recent rest. Though scarce a month ago that its "Focal-Plane" number reached us, No. 78 is to hand, containing a series of contributions on "Printing Papers, Described and Compared." The number conveys a good idea of much needed information on the relative virtues of printing papers, as regards range of gradation. Messrs. Dawbarn and Ward issue "The Photo-Miniature" in this country at 6d.

## New Apparatus, &c.

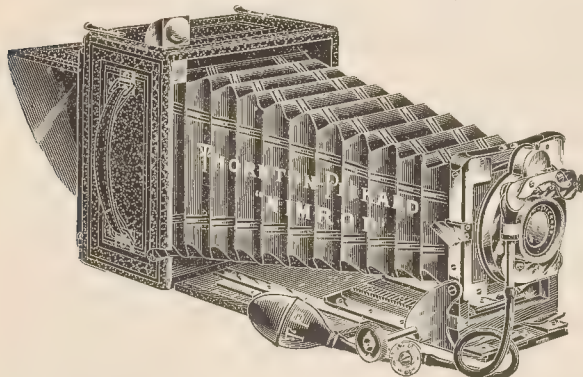
Thornton-Pickard Nimrod "Automan" Hand-cameras. Made by the Thornton-Pickard Manufacturing Co., Ltd., Altrincham, Cheshire.

We have recently had the opportunity of examining four models of these hand-stand Nimrod "Automan" cameras, manufactured by



"Nimrod" Automan No. 2.

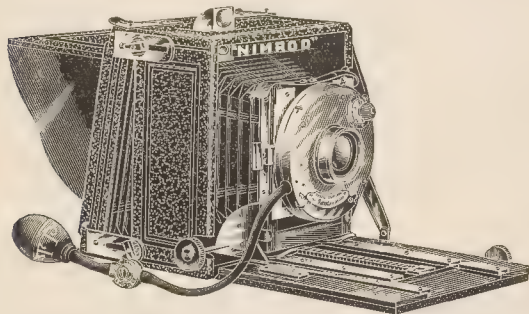
the Thornton-Pickard Company. All have one common feature—namely, the very neat "walk-out" movement by which the camera front moves automatically into the position of infinity focus on the



"Nimrod" Automan Camera, Nos. 2 and 3 Models.

baseboard being pulled down. In other words, the act of "opening" the camera sets it ready for work.

The cameras are sold at prices from 42s. to 84s., No. 1 of the



"Nimrod" Automan No. 4 showing universal swinging back (forward swing).

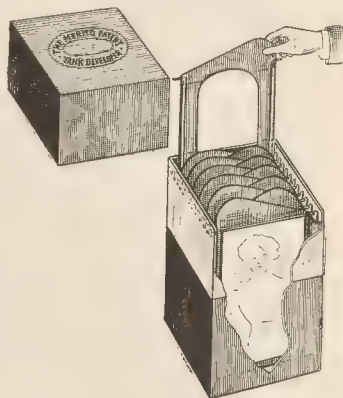
series (42s.) being of single extension. The others, however, are of double extension, and No. 4 (84s.), in addition to the usual features, has a universal swinging movement of the back which provides for

all conditions of verticality and gives a little additional extension. This last camera is fitted with the Thornton-Pickard "Panoptic" shutter and Beck lens, the others having "Gem" between-lens shutter and R.R. lens.

At the very moderate prices at which they are issued, the cameras should have a great vogue among beginners in photography, and dealers in particular would do well to make themselves acquainted with the series, for the utility of the "walk-out" movement—and we are not minimising it in the least—should be felt by the dealer when selling the camera as by the user in the practice of his hobby.

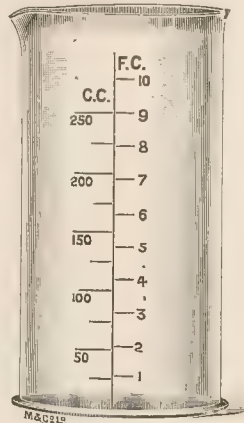
The "Merito" Developing Tank. Made by W. L. Parkinson, Ltd., 5, Commutation Row, Liverpool.

In adopting the principle of the dipper of the old wet-plate days in providing a tank for vertical development, Messrs. Parkinson have undoubtedly consulted the convenience of those employing this method of development, one, we find, which is steadily gaining favour. The tank, which in the quarter-plate size, measures  $3\frac{1}{2}$  by 4 inches, is provided with twelve carriers, each holding one negative, fitted across the upper part with a rod which rests in a groove on the sides



of the tank. Hence the plates in their holders are held free to swing through a small angle, and the user is therefore able to impart a gentle motion to the developer. The apparatus, in japanned metal, with light-tight cover and twelve carriers, costs 5s., and is a welcome adjunct to the practice of development by the tank method.

CELLULOID MEASURES.—Messrs. Marion and Co., 22-23, Soho Square, London, W., have just issued a series of celluloid measures, which, while being beautifully light and unbreakable, have the

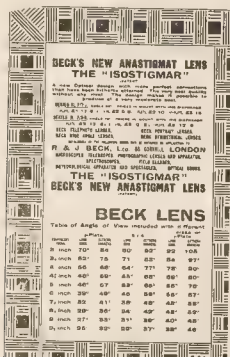


additional advantage of graduation in both British and metric units. It should be a convenience to the worker to be able to measure ounces or ecs. at will, and the graduates will serve to familiarise



user with the metric system. The measures are supplied in 1, 4 oz., and 10 oz. sizes, at 7d., 10d., and 1s. 10d. respectively.

MESSRS. R. AND J. BECK, LTD., 68, Cornhill, London, E.C., send one of the new lens-testing charts bought out by them at the rate, post free, of 2s. 6d. The chart consists of a border of interlaced, horizontal, and vertical bars, and is a conveniently severe test of astigmatic aberration in the lens. The whole space is taken up by a block type printing of various degrees of boldness, and therefore the flatness of field. The chart includes a six-inch line, which



is used to determine the equivalent focal length of the lens. The line is used to give an image of 1 inch in length, and the space from diaphragm to screen is measured. The latter, divided by seven, gives the focal length from the formula  $f = \frac{F}{r+1}$  where F is the conjugate and r the scale of reduction.

## New Materials.

Page-Croft Tinted Self-toning Papers. Made by the Page-Croft Paper Company, Cooksey Road, Birmingham.

Page-Croft's firm has placed upon the market a series of self-toning papers, which, unless we are mistaken, are an entire novelty in particular line of printing papers, and afford results which would be very satisfactory to a wide class of photographers, both amateur and professional. The papers have a matt surface, akin to that of smooth canvas, and are supplied in the following colours: pale green, pale terra-cotta, pale blue, and grey. The tone obtainable on the papers varies with the strength of the fixing bath, and our own trials with one of three ounces to the pint gave us a reasonable brown tone, which on its tinted support gains immensely in effect. The character of the prints is extremely rich, and it is an exaggeration to say that the effects as closely resemble carbon as any of any printing-out papers we have handled; indeed, from a view of suitable vigour, the prints might be mistaken for good ones. We feel sure that a trial of the papers will repay any photographer who is anxious to obtain a variety of effects, and in the simplest possible way.

## CATALOGUES AND TRADE NOTICES.

CATALOGUE of Jas. A. Sinclair, Ltd., 54, Haymarket, London, is one which we would specially signalise as one to be obtained and studied, not chiefly for the number of articles which preface the catalogue proper, but for the very discreet selection evidenced in the apparatus which is illustrated and priced. Mr. Sinclair, than whom no one is better qualified to pronounce on the reliability of apparatus for amateur photography, will have none of the cheap and shoddy, and those anxious to purchase any appliance for satisfactory work, cannot do better than let him guide them in the expenditure of his money. The articles which, to the length of 16 pages, the firm gives to purchasers of its catalogue, include "The

Camera at Home," by E. T. Holding; "Intensifying and Reducing," by J. McIntosh; "Bromide Printing and Developing," by J. Sterry; "Gum-bichromate," by J. C. S. Mummery; "Carbon Printing," by H. W. Bennett; "Law for Photographers," by E. B. V. Christian; and, lastly, "Hand Cameras: Their Selection and Use," by Jas. A. Sinclair. The last-named contribution, full enough to be a safe guide and brief enough to be quickly assimilated, is as effective a means of deciding which hand camera to purchase as any we can recommend. In hand cameras, as in other matters, we could recommend those in need of advice to no one better qualified than Mr. Sinclair, whose policy of specialising in the supply of a really satisfactory article deserves every commendation.

MESSRS. THOMAS ILLINGWORTH & Co., LTD., of Willesden Junction, London, N.W., have issued a little booklet, entitled "A Free Guide to Photographic Printing," which contains much useful information in a comparatively small space. In addition to instructions for printing in various processes, the causes of many of the difficulties most frequently met with, and their remedies, are dealt with in a clear and concise manner, and the booklet should prove extremely useful to those engaged in photographic work, whether amateur or professional. Messrs. Illingworth state that they will be pleased to send a copy of this "Guide," which also contains their price list, to all applicants, and also to supply copies to dealers for distribution.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, APRIL 19.

West London Photographic Society, "Photo-Micrography." J. R. and G. R. Lynch.  
Sutton Photographic Club. Photography Prize Slides.

SATURDAY, APRIL 20.

Aberdeen Photo Art Club. Outing to Kinaldie.  
North Middlesex Photographic Society. Outing to Monkwood.  
Chelsea and District Photographic Society. Outing to Woolwich.  
Borough Polytechnic Photographic Society. Outing to Wimbledon.  
Hull Photographic Society. Outing to Sheffield. Annual Meeting of the Y.P.U.

MONDAY, APRIL 22.

Catford and Forest Hill Photographic Society. "Figure Studies." E. T. Holding.  
Leeds Photographic Society. "Wells—Its Cathedral and Neighbourhood." A. E. Hasse.  
Gravesend and District Photographic Society. Paper by J. T. Dalladay.  
Kidderminster Photographic Society. "Bird and Animal Photography." W. Weaver Baker.  
Southampton Camera Club. Lantern Slide Competition. Illustrate the following: "Sunshine and Shadow."  
Boswell Park and District Photographic Society. "Wellington S.C.P. Plates and Papers." Demonstrated. A. H. Dunning.

TUESDAY, APRIL 23.

Royal Photographic Society. Technical Meeting. "The Spectroscope, Chemical Metallurgical, Geological, and Astronomical Analysis." E. J. Wall and C. P. Butler.  
Wallington Camera Club. "Bromide Papers and Negatives." The Rotary Company.  
Rotherham Photographic Society. "Flower Photography." H. T. Malby.  
Sheffield Photographic Society. "Holland and the Hollanders." James W. Wright.  
Hackney Photographic Society. Lecture by H. W. Bennett.  
Keighley and District Photographic Association. "Platinotype." J. Skilbeck.  
Hove Camera Club. "Colour Photography." Dr. E. F. Grun.

WEDNESDAY, APRIL 24.

Croydon Camera Club. "New Shutter-Testing Apparatus." A. E. Salt. Lantern Evening.  
Leicester and Leicestershire Photographic Society. Ladies' Night.  
Hampstead Scientific Society. "Principles of Composition." W. E. Tindall, R.B.A.

THURSDAY, APRIL 25.

Bolton Amateur Photographic Society. "Theory and Practice of Self-Toning Papers." John J. Griffin & Sons.  
Handsworth Photographic Society. "Photographic Printing on Fabrics." J. A. Liverpool Amateur Photographic Association. "Etching." Fred. Burridge, R.E.  
London and Provincial Photographic Association. Queries and Answers.  
North London Photographic Society. "Gum Bichromate." Demonstrated. C. Wille.

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

The usual monthly meeting of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, the 12th inst.

Present: Messrs. A. Ellis, S. H. Fry, Martin Jacolette, H. E.

Hull, A. Mackie, H. J. Mendelssohn, T. Rowe (Eastbourne), E. Scamell, Lang Sims, H. C. Spink (Brighton), and R. Fellowes Willson. Mr. H. C. Spink, president, in the chair. The hon. secretary reported the results of his negotiations with the Fine Art and General Insurance Company, with regard to the special terms to be granted to members of the P.P.A. for insurance under the Workmen's Compensation Act, 1906. He also read the conditions contained in the policy to be issued. It was agreed that they seemed just and reasonable, and further agreed that the hon. solicitor should be asked his opinion on them. After discussing various points connected with the Act, the draft was read of the notice to members in connection with their liability under the Act and the particulars of the insurance scheme for insertion in the forthcoming "Handbook." This was approved and passed for publication.

The hon. secretary read draft of new matter for insertion in the "Handbook," extending the part devoted to information on legal and business matters to five extra pages.

Several letters from members were read and considered, and the hon. secretary was instructed thereon.

Mr. Alexander Mackie was re-elected hon. secretary, and Mr. Lang Sims hon. treasurer for the ensuing year.

#### ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held April 16, Mr. J. C. S. Mummery, president, in the chair. Mr. Arthur Marshall, A.R.I.B.A., delivered a lantern lecture, entitled "Some Dutch Pictures," in the course of which he gave a description of visits paid to Holland, and of a particularly enjoyable cruise on the canals of Friesland. Mr. Marshall illustrated his lecture with a number of excellent lantern slides, the negatives of which have inspired some of his exhibition pictures. His lecture was received with much appreciation by a crowded audience.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—At Wednesday's meeting of the organising committee the draft rules were finally agreed, and it was decided to hold the first meeting of the society on the evening of Wednesday, April 24. On that occasion the society will act on the principle of the "open door," and amateur photographers, from Kodakers to finished pictorialists, will be cordially welcomed. After the house-warming there will be a lecture by Mr. F. J. Mortimer, on his pet subject, "The Photography of the Sea," illustrated with slides from some of his best seascapes. Over thirty new members were elected by the committee at the same meeting, and candidates are still coming, apparently anxious to be in the original list of members, and to share in the election of the committee and officers on the 24th. The hon. secretary is Mr. John Nixon, of Ingleside Grove, Blackheath, and amongst the vice-presidents is the Mayor of Lewisham.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—Meeting held April 11, 1907, Mr. T. E. Freshwater in the chair. Mr. E. R. Human passed round two fine prints upon Mattos linen, which had been toned first with gold and afterwards platinum, a fine blue-black tone being the result.

Mr. E. Human then lectured upon and demonstrated carbon printing, approaching the subject from a beginner's point of view. He said that carbon, from its extreme simplicity and absence of chemicals, should be the very first process tried by the beginner.

Speaking of the safe edge, he recommended that a series of narrow masks should be cut for the various sized plates one used, and that these should be used between the glass of the printing-frame and the negative. By so using them exact contact could be obtained between tissue and negative, which would not be obtained if the masks were used between negative and tissue. His reason for using the masks was the large amount of time and trouble saved as against the usual method of using an opaque colour. If one only required a small part of a negative printing, a special mask was easily and quickly cut. The following he gave as a good sensitising bath:—

Potass bichromate	...	...	...	1/2 oz.
Water	...	...	...	10 oz.

Dissolve, and add three to four drops of liq. ammonia, .880.

For use, pour into a dish of larger size than the paper in use, to

the depth of 1 1/2 to 2 inches, insert tissue, remove any air bubbles, let soak for from 120 to 200 seconds, then, upon removal, lay downward upon a sheet of glass, zinc, or a pulp-board. Squeeze the back with a flat squeegee to remove any excess of solution, hang up to dry in the dark or a non-actinic light. Drying should be complete in four hours.

For printing any meter could be used. He himself preferred the Wynne's or the Akuret, but for beginners he said choose another negative of as nearly as possible the same density as the one to be used, and print a piece of P.O.P. to finished depth, not toning depth, by which time the tissue would be printed.

The reason for transfer was then somewhat fully explained, following being given as a formula for waxing the temporary support in the double transfer process:—

Yellow resin	...	...	...	36 grains
Yellow wax	...	...	...	12 grains
Ether	...	...	...	2 oz.

Melt the wax, add the resin, stir well, and add the ether. The mixture should be applied by pouring a small pool in the centre of the paper, and rubbing it evenly all over by the aid of a tuft of cotton wool.

Mr. Human then proceeded to demonstrate the development of prints by developing some ten to twelve half-plate prints on various colour tissues, every one of which turned out a success.

Mr. Smith asked if it was possible to finish the prints with a glossy surface. Mr. Human replied that all that was required to coat a sheet of clean glass with enamel collodion, patent plate glass being perhaps the best, and use the double transfer, when the print would retain a very high gloss.

Messrs. Rapson, Teape, and Hart also took part in the discussion. A vote of thanks, proposed from the chair, closing the proceedings.

## Commercial & Legal Intelligence

**HARD LABOUR FOR A CANVASSER.**—Albert Evans, 29, canvasser, pleaded guilty, at the Devon Sessions last week, to obtaining small sums by false pretences from Mary Ann Newcombe, at North Devon, and Louisa Balch and Alice E. Hartnoll, at Westleigh, in February last. Mr. Percival Clarke, prosecuting, said these cases were a sample of those which might have been brought against a prisoner. At the last Quarter Sessions he was sentenced to a month's hard labour for a similar offence. His case enlisted the sympathy of Mr. A. Mills, photographer, of Exeter, who got into communication with the prisoner through the chaplain of the gaol in view of that honest employment might be found for him when he came out of prison. Mr. Mills engaged him to canvass for photography on commission, but subsequently, owing to unsatisfactory results which he received, prosecutor cancelled the engagement, but afterwards found that he had continued to receive moneys on account of orders purported to have been taken on behalf of Mr. Mills. Prisoner, in a written statement, attributed his gradual downfall to bad company and drink. He had had an excellent education, it was his intention to avail himself of an opportunity to leave the country and make a fresh start after his present sentence was completed. The Court sentenced him to six months' hard labour.

**A CANVASSING CHARGE WITHDRAWN.**—George Samuel Webber, fine-art dealer, of 34, Portland Road, Hove, Brighton, surrendered to his bail, at West London, last week, to answer the remaining charge of obtaining money by false pretences.

Mr. Sefton Cohen, who appeared for the Director of Public Prosecutions, asked leave to withdraw the prosecution on the ground that there was no reason for supposing that the defendant carried on a fraudulent business. The accused, continued Mr. Cohen, traded under the name of the International Fine Art Company, of 112, Uxbridge Road, Shepherd's Bush, and at other addresses. He employed lecturers to solicit orders for the enlargement of cabinet and other photographs on the terms that no charge was to be made for enlargement so long as a customer agreed to purchase a frame for



ged photograph. Several complaints reached the police, and result three ladies came to the court and swore an information, which a warrant was issued for the arrest of the accused. A and was granted when the case came before the magistrate, and Director of Public Prosecutions thoroughly investigated the case. quires were made by Detective-Inspector Pollard and Detective-ant Burrell, and it was ascertained that an actual business was y carried on, that a staff was employed, that the rent of the ouses was paid, and the books showed that orders had been uted. In fact, all the ingredients which one would expect to find fraudulent business were absent. As regards the nature of the essage, the Director of Public Prosecutions wished it to be under- at that the withdrawal of the prosecution must not be taken to at that the methods followed by the defendant met with his oval; and, in view of the number of complaints made to the e, he suggested that this was eminently a case for investigation. H. Curtis Bennett, who appeared for the accused, hoped that ame publicity would be given to the withdrawal of the charge as extended to the arrest of the accused. Great damage had done to the defendant personally and to his business by this ution, and he (Mr. Bennett) could not but think that the ant would never have been granted if two of the ladies who e the information had not made a serious omission from the mation. It was the defendant's practice to go from one place uther—both in London and the country—so as to exhaust all possibilities of his business, and it was very unfortunate that that mate method of business had been used against him as tending pport the allegation of the police that he "had committed ar frauds all over the country." Mr. Bennett concluded by ing out that the accused suffered eight days' incarceration under and at Brixton Prison.

Garrett: I can say nothing more than that I grant the jury their application. The accused is discharged.

OTOGRAPHS OF PLAYS.—Mr. Justice Kekewich, in the Chancery ion last week, had before him a motion in the action of the r Street Studios and Adart (Limited) v. Vincent and Bancroft, injunction to restrain the defendants, the publishers of "The tre" magazine and "Book of the Play," from publishing illus- ons of photographs of any play not photographed by the plain- and for publishing illustrations of the play, "Mr. Sheridan," air magazine.

P. Ogden Lawrence, K.C., and Mr. Harold Simmons appeared e plaintiffs; and Mr. Ashton Cross for the defendants.

appeared that by an agreement between the photographers and ublishers, dated September, 1906, it was provided that in the f the photographers not being able to furnish for any issue e "Book of the Play" a photograph of a successful play then ing in London, the publishers were to be at liberty to buy for cation in the open market any photographs of a play that could ured by them. By a second agreement, dated January 7, 1907 h Mr. Justice Kekewich said was meant to vary that provision), ublishers undertook not to publish any play not photographed e photographers unless the latter could not supply a successful

One of the defendants, Mr. Bancroft, alleged that the plain- romise to supply them with photographs of "John Glayde's ar," at the St. James's Theatre, for the April number of the ine, but Mr. Hamburger, the managing director of the iff company, stated in the witness box that that was not true. laintiffs, he said, had photographs of "Toddles" and of "The ger Sex," both of which were successful plays, and which they have supplied.

Justice Kekewich said he had come to the conclusion that the ants had not proved that the plaintiffs were not in a position nish photographs of a successful play, and pointed out that ens had been furnished of successful plays. It appeared, there- o him that the defendants' case failed, and he would, therefore, the circumstances, grant the injunction asked for.

OUGHBOROUGH BANKRUPTCY.—Mr. John Grange, photographer abaconist, Loughborough, appeared for his public examination Leicester Bankruptcy Court on April 12, before Mr. Registrar . The statement of affairs filed by the debtor disclosed lia- amounting to £141 2s. 11d., and assets estimated to produce

£112 5s. 3d. Debtor said that four years ago he and a man named Harris started as photographers in a small way. They did not actually take photographs, but secured orders for enlargements of existing photographs, got them done elsewhere, and realised a profit. From Worksop they went to Alfreton, and from Alfreton to Loughborough. There debtor opened a tobacconist's shop, thinking he could probably make a profit out of it. He did not know at the time he opened the shop that two other tobacconists previously in the shop had failed to make it pay. The examination was closed.

ILFORD, LTD.—The directors of this company have declared an interim dividend at the rate of 4 per cent. per annum for the half-year ending April 30, 1907.

## News and Notes.

A LIST OF GERMAN TRADE NAMES.—Our Dresden contemporary, "Die Photographische Industrie," deserves the thanks of the photographic trade for compiling a list of the trade or fancy names, which, in the German market, are bestowed upon the apparatus and materials of photographic utility. The list is a re-issue bringing a former publication up to date.

TRAVEL EXHIBITION, 1907.—Now that the facilities for travelling by various methods, both at home and abroad, are so great and the difficulties practically nil, the above exhibition, which will be held in the Royal Horticultural Hall, Westminster, under the auspices of the "Health Resort," from May 18 to June 8, will probably appeal to a very large number of our readers, and the response to both the loan and photographic sections doubtless correspondingly numerous. With regard to the former, the committee solicit the loan of old prints, engravings, photographs, models, curios, etc., depicting travel in any form, and all communications with regard to these should be addressed to the Organising Manager, Exhibition Offices, 75, Chancery Lane, London, W.C. The photographic section is under the management of Mr. F. J. Mortimer, editor of the "Photographic News," and consists of two classes, in each of which prizes of two guineas, one guinea, and 10s. 6d. will be given for the best pictures of any method or incident of travelling, whether by water, road, rail, air, etc., Class A being for pictures taken in the British Dominions, and Class B for those taken in foreign countries. Special prizes of one guinea and 10s. 6d. will also be awarded in each class to competitors under twenty years of age. Entry forms for the competition, which closes April 30, may be obtained on application to the editor, "Photographic News," 9, Cecil Court, Charing Cross Road, London, W. The envelope should be marked "Travel Exhibition, Photographic Competition."

A BOOK illustrative of the trades and industries of Brandenburg has been issued by Herr Friedrich Schroeder, of Brandenburg. A large proportion of the negatives, particularly of the interiors and the badly-lighted workshops, were made by the flashlight apparatus of Herr Schroeder, which is now being sold by the large English dealers.

HULL PHOTOGRAPHIC SOCIETY.—The officers for the ensuing year are: President, Mr. W. H. Willatt; secretary, Mr. T. J. Webster, 96, Witham Road, Hull; editor and librarian, Mr. W. Gilleard, 18, De Grey Street, Hull; members of council, Messrs. W. S. Parrish, J. T. Dyson, W. Dalton, D. L. Cockcroft, J. W. Atkinson, and J. W. Bolton.

"ARGO" PAPERS.—Messrs. A. E. Staley and Co. announce that they now hold a large stock of "Argo" gaslight, "Monox" bromide, and "Disco" P.O.P. papers of the Defender Photo Supply Company, which may be obtained from all the leading photographic dealers, or direct from the above firm, at 19, Thavies Inn, Holborn Circus, London, E.C.

THE EXHIBITION OF PHOTOGRAPHIC APPARATUS, organised by The Service Company, Ltd., was opened on the 15th inst., at their offices, 292 and 293, High Holborn, London, W.C., and will continue open till April 27. Among the firms represented are Messrs. Ross, Ltd., Newman and Guardia, Ltd., Voigtlander and Sohn, C. P. Goerz, Shew and Co., The Aerograph Company, Wrench and Son,

C. Zimmermann and Co., Houghtons, Ltd., Butcher and Sons, J. H. Dallmeyer, Ltd., The Thornton-Pickard Manufacturing Company, The Altrincham Rubber Company, Marion and Co., Ltd., W. Butler, Ashford, Ltd., Aston and Mander, Wellington and Ward, Ilford, Ltd., Rajar, Ltd., The Adhesive Dry Mounting Company, Ltd., Kodak, Ltd., J. Lizars, Watson and Son, and W. Tyler, Ltd. Many of the above-mentioned firms have arranged to give frequent demonstrations of their specialties, which should prove both interesting and instructive, and we feel sure that all visiting the exhibition will feel well repaid for so doing.

M. TANQUEREY AGAIN.—Quite a number of readers have sent us within the past few days the batch of circulars which M. Tanquerey, the doyen of free portrait swindlers, is evidently delivering broadcast in the London districts. There is nothing new in his "bona-fide" (!) offer of an enlarged portrait for nothing, yet the audacious fraud seems destined to enjoy perpetual youth. M. Tanquerey's genius for manufacturing testimonials is seen in the testimonial alleged to be from "Truth." "I am with Monsieur Tanquerey, and cheerfully say 'Hurrah,' pour l'Entente Cordiale, for no one values it more than I do. I wish Monsieur Tanquerey all the success he deserves." There is a subtle vein of humour in the last sentence, for no journal has more emphatically exposed Tanquerey as an impostor than our contemporary.

## Correspondence.

\**\* Correspondents should never write on both sides of the paper.*

*No notice is taken of communications unless the names and addresses of the writers are given.*

\**\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE VARIATION OF TIME OF DEVELOPMENT WITH TEMPERATURE.

To the Editors.

Gentlemen,—For some time past I have been in the habit of developing all exposures in a tank with rodinal, diluted 1 in 100, and using a Watkins' factor of 40. For my amusement and instruction I have also noted the temperature of the solution and the total time of development. Your issue of the 5th inst., and your answer to a correspondent in the current number have suggested to me to investigate the data that I have obtained.

The results interested me, and I am writing this in the hope that they may prove equally interesting to some of your readers, and may further induce others to give their ideas on the subject.

I find Colonel Houdaille's law confirmed between 12 deg. C. and 12 deg. C. nearly enough for all practical purposes, and append a table showing the results:—

t deg. C.	T mins.	T according to Houdaille, assuming time at 18 deg. C. to be correct and neglecting fractions.
24	30	29
22	33	33
20	37	37
18	41	41
16	45	45
14	50	49
12	55	54

The law that my results follow very closely is:  $T = -84 \log. t + 146$ , where T = total time of development in minutes, and t = temperature of solution in degrees Cent. Between 24 deg. C. and 12 deg. C. this is approximately a straight line.

I may mention that the developer has been accurately measured in a well calibrated flask, and that one brand of plate has been used throughout.—I am, Sirs, yours faithfully,

HARVEY COLLINGRIDGE, B.Sc., A.M.I.C.E.

55. Hornsey Rise Gardens, Crouch End, N.  
April 12, 1907.

To the Editors.

Gentlemen,—This question is an important one, and therefore possibly you will allow me a little space thereon, with particular reference to the query propounded to you by "Q. S." on page 2 of your last issue.

M. Houdaille's statement is said to have been founded on a development of over 3,000 plates, presumably many of them with a particular sector wheel which he devised. It is obviously the more worthy of some attention, although, as you justly point out, mathematically correct.

I used this method for roughly estimating the effect of temperature on the duration of development for over a year, and found at length that it gave me a much better guide to the actual duration required and that I obtained better results and more certain than when neglected the temperature factor altogether, as so many amateurs do.

The most useful paper on the subject was, I think, one read by Mr. W. B. Ferguson, K.C., M.A., before the R.P.S., and reported in the "Photographic Journal" for May, 1906. In this Mr. Ferguson referred to a previous paper by him and Mr. Howard, and he gave the following rule, which is practical: Take the shortest time of development (that for 17 deg. C = 65 deg. Fahr. was taken), and multiply by 1.05 (1.05)<sup>2</sup>, (1.05)<sup>3</sup>, and so on, for decrease in temperature by 1, 2, 3, and so on degrees. In a table given it is shown that the calculated time differed from the experimentally proven time by at the most 3.6 per cent.

Towards the end of his paper, after a series of mathematical calculations, he states that the simplest way to find the duration of development to give a determined density at varying temperatures is to subtract the log. of the temperature coefficient, which he found to be 0.01706, from the log. of the time taken to obtain the given density at a known temperature. To save time one may naturally calculate it for every two degrees, and the above factor becomes 0.0341. It is obviously not necessary to go beyond four places log.s.

Examining by this rule M. Houdaille's statement, it will at once be seen that there is a big error; assuming then that the total time of development was 300 secs. for 15 deg. C., we get

log. 300	=	2.4771
		.0341
2.4430	=	log of 277 secs. at 17 deg.
.0341		
2.4089	=	log. of 256 secs. at 19 deg.
.0341		
2.3748	=	log. of 237 secs. at 21 deg.
.0341		
2.3407	=	log. of 219 secs. at 23 deg.

In your reply Houdaille's time is stated to be 180 secs., which is a big error as compared with 219 obtained as above.

The trouble, however, lies in the fact that Mr. Ferguson used pyro-soda, whereas Houdaille used, I believe, hydroquinone, and the same factor may not apply.

Again, in the little pamphlet, entitled "Real Orthochromatism," issued by Messrs. Wratten and Wainwright, it is stated, "Suppose for the plate given, that you wish to develop a negative of an architectural subject, and that your developer is 60 deg. Fahr. in temperature. This temperature is not mentioned, but if it were 65 deg. you would develop for 5½ minutes; if it were 50 deg., for 7 minutes. At 60 deg. take a point in between and develop for 5¾ minutes." It is true that the developer recommended is a very weak metol-hydroquinone, but it is also stated that a pyro-soda of practically H. and composition requires the same time.

Examining this statement by Mr. Ferguson's second rule, then we get 4¾ minutes for 60 deg. and practically 4 minutes at 65 deg. assuming that I have made no mistakes in my calculations.

I have looked in vain for any further communications from Mr. Ferguson, dealing with other developers, but possibly he or Dr. M.



may help us now, and give us a simple rule which can be applied to anyone to various developers.—Yours faithfully,

PAUL M. CRANSTON.

#### PROFITS ON PICTURE POSTCARDS.

To the Editors.

Gentlemen,—I read "Another Postcard's" letter in your issue of the 5th inst. I conclude the writer does not publish his own postcards. If he does I am surprised at his taking negatives for others at 2s. each, even by the dozen. This is the style of thing that brings photography into disrepute. I note he says he has taken 200 or 300 negatives for local publishers or publishers in the neighbourhood. By this I gather he refers to local booksellers or stationers, some of whom print their own cards, after a style. It was not publishers of this type I referred to as competitors with the local photographer, but rather the firms who, if they get good negatives, can turn out first-class work. It pays these to pay for good work, or, if they cannot get it, to send their own man; but in either case I submit it ought not to be possible for them to secure a series, say, of dozen half-plates at the absurd price of 2s., or even 5s. each, and if they send their own man from any distance I question if they would cover the expense at that figure. As a rule, I believe they pay them better when possible to have the pick from good negatives already taken, and pay for the copyright, but, as I previously said, when a number is taken, even these sometimes demur at the Copyright Union's minimum fee of 10s. 6d.

It is very well for Mr. Corkett to advise photographers to specialise. I think he would find that such does not pay, except in large business centres. I hope that the number of editors is getting less who prefer cheap and nasty photographs to the good for illustrations. Though the first cost is higher, I believe they are finding the result is worth the difference.

PROFESSIONAL.

#### NEW METHOD OF MEASURING THE TIMES OF PHOTOGRAPHIC SHUTTERS.

To the Editors.

Gentlemen,—In your issues of December 17, 21, and 28 last there appears, under the above heading, the report of a paper read before the Optical Society on November 15, 1906, by Mr. J. De Graaff Hunter, of the National Physical Laboratory, where the work was undertaken to provide a test for measuring the speeds of photographic shutters.

In the discussion which followed the paper I notice that my name is introduced by one of the members, who said that he considered Mr. Hunter's machine a modification of the apparatus which I patented some few years ago. In his reply, Mr. Hunter said he did see my patent, but he considered it so different from his (Mr. Hunter's) that he made no reference to it. Continuing, he said that image was formed or used in my apparatus, as in that described to him; also that I do not measure periods shorter than the persistence of vision, and that his apparatus may be used with a camera, &c., for a photographic test.

My specification particularly and clearly states that the image is to be projected, seen, or photographed, and that for periods longer than the persistence of vision, estimates of the relative lengths of the dark and light portions of the slit can be made.

I am afraid that if Mr. Hunter has seen the specification of my patent it must have been in a very casual way, or he would not have been likely to have used the arguments reported. But after reading Mr. Hunter's paper through I feel convinced that he must have seen it, as I consider the methods he describes are my own, and his apparatus an infringement of my patent (No. 16,053, 1904), which is still in force. The only modification I can see in Mr. Hunter's machine is the mechanical trip to release the shutter, which is a doubtful improvement, and is more likely than not to introduce errors. It would be a most difficult and impracticable method to adopt when different kinds of shutters were being tested.

A reading of the paper conveys the impression that it is a method which is free for anyone to use indiscriminately, but in point of fact the use of the method without permission may lead the user or users to litigation.

I think your readers may wish to judge for themselves from the facts of the case.

After applying for my patent and knowing the difficulty which there had been in devising a satisfactory method of measuring the speeds of photographic shutters, I wrote to the National Physical Laboratory, calling their attention to the work I had been engaged on, and at the same time offered to visit the laboratory and explain my methods to them. In their reply, dated April 12, 1905, they said that the subject was of considerable interest to them, and accepted my offer to go to the laboratory. In due course my patent agent, Mr. Griffith Brewer, and myself went to the National Physical Laboratory, and explained to the principal and the staff the details of my work on this subject.

My next intimation on the subject was the above article by Mr. Hunter, and I most strongly protest against what I consider the appropriation of any honour or credit due to my work on this subject, for when explaining to the principal and staff the details of my work it was stipulated and conceded to me that due recognition should be given me as first user and inventor.

Even had Mr. Hunter modified his apparatus sufficiently so as to evade my patent claims, I could not have seen the justice of one Government department granting a protection and another department setting their heads together to break it up, nor do I consider that the National Physical Laboratory was ever instituted with any such competitive ideas in view. It is surely not unreasonable that under the above circumstances an explanation should be forthcoming.

A. KERSHAW,

Photographic Apparatus Manufacturer.

St. Columba Street, Leeds.

April 10, 1907.

To the Editors.

Gentlemen,—Mr. Abraham Kershaw, of Leeds, has drawn my attention to a point in connection with my paper, under the above title, which was published in your issues of December 14, 21, and 28.

To avoid misunderstanding it is desirable to point out that the fundamental principle on which the determination of shutter speeds depends is that of converting the measurement of time into one of distance. That is, if we cause a luminous object to move in some known manner, and find how far this object has moved while the shutter is open, we can deduce the time of the shutter. In order that only the motion which takes place while the shutter is open may be measured, it is only necessary to obscure the object by means of the shutter. The moving luminous object may be replaced by an illuminated surface, different portions of which are visible at different times through a slit moved over the surface. In any case, the measurement which has to be made is one of length, and the main difficulty of carrying this out is that it has to be done instantaneously.

Mr. Kershaw, in 1904, patented an apparatus for testing shutters in which a strip of light and a rotating disc with radial slits were used. By looking through a shutter and through the slits of the disc at the strip of light, and adjusting the speed of the disc so that the strip of light became wholly visible, Mr. Kershaw determined the length of time for which the shutter was open. He made use of the principle of persistence of impression on the retina to determine when the strip of light became wholly visible. Mr. Kershaw also states in his complete specification that "for estimating slower speeds than 1-10th of a second, estimates can be made of the dark and light portions of the slit," while, "if desired, instead of viewing the action with the eye, a photograph can be taken of it, or it could be projected direct on to a screen"; but he does not refer to these methods of working in his claim.

The method described in my paper also involves the use of a rotating disc with radial slits; but only a single slit is used in observations of any particular shutter speed. A mechanism is described whereby the shutter is always released when this slit occupies a definite position, with the result that the image seen is fixed in position, and its length can be measured, not merely estimated, by means of a device which is fully described.

My early experiments had shown me the necessity of this arrangement, and it is this that constitutes the main novelty of the paper.

I regret I did not refer in the paper itself more particularly to Mr. Kershaw's method, and thus render the difference clear, more especially as I mentioned the possibility of making results depend

on the persistence of vision, the method which Mr. Kershaw advocates.

In the discussion which followed my paper, Mr. Conrad Beck spoke of Mr. Kershaw's patented method, and I replied that it seemed so different from my own that I had made no reference to it. On further consideration, I think it is right to make this statement to make it clear that I had no wish to claim as mine any device which had previously been used by Mr. Kershaw.—I am, Gentlemen, yours truly,

J. DE GRAAFF HUNTER.

Bushy House, Teddington, Middlesex.

April 13, 1907.

#### RELIEF EFFECTS IN PHOTOGRAPHS.

To the Editors.

Gentlemen,—I read with interest in your issue of April 5th (page 250) your explanation as regards the false effect of modelling caused by photographing medals and coins upside-down, causing the light to fall from bottom of same towards the top, but the enclosed two pages of catalogues—taken from the two first to hand—proves that it is not always the "poor photographer" at fault.

In these cases, and I have noticed several, the printer, by simply reversing block (having nothing but the lighting of same to indicate top and bottom), has conveyed quite a reverse impression to what the frame is described, viz., *hollow oak*, this effect only being obtained by viewing page *upside down*.—Yours truly,

GORDON CHASE.

1 and 2, The Broadway, Tunbridge Wells.

April 15, 1907.

[The effect is very prominent in the examples sent by our correspondent, and we have no doubt others can be found in current lists of frames.—Eds. B. J.]

#### UNIFORMITY IN HALF-TONE NEGATIVE MAKING.

To the Editors.

Gentlemen,—I was much surprised on reading the report of Mr. E. C. Middleton's paper before the R.P.S., in the current issue of the *BRITISH JOURNAL*, to find myself accused of pilfering from the lecturer.

In answer to that charge, I must most emphatically state that until I read his paper I had not the slightest idea what Mr. Middleton's methods of operating consisted of. Although I have known him for many years, it has been chiefly by repute, and when I have met him the subject has not been discussed between us, and as for obtaining his ideas indirectly, if anyone except himself knew of his methods, it has not been my fortune to meet them.

With regard to his writings in 1875, this was long before my advent into photo-engraving, but I do remember reading an article by Mr. Middleton, in the *BRITISH JOURNAL* for February 22nd. 1895, which dealt with the various effects to be obtained with different shaped diaphragms, but, strange to say, a fortnight previously, an article had appeared in the *BRITISH JOURNAL* from the late Mr. W. K. Burton, then in Japan, which gave an account of the work being done there, and which practically gave all the same facts. Yet no one suggested that Mr. Middleton had copied from him.

As a matter of fact, my method, which I described in the "Process Year-Book" for 1906-7, has been evolved from a table which I published in 1904, and which I had had in use in various forms since 1895, which gave the same method, but illustrated it in a different way, and the fact of us both using the same figure to illustrate our ideas is merely a coincidence, as I only discovered during the autumn of last year that I could adapt my table to that figure; but I had often used the long wedge to illustrate to an operator or other interested person in a simple way, just what happened in the camera, but when once discovered it seemed to me so very obvious that I wondered that no one had ever published it before.

When next Mr. Middleton and I meet, I have no doubt that we can settle the question amicably enough, but as the statement was publicly made and published, I must ask you in common fairness to myself to give me a little space to speak in my own defence.—Yours faithfully,

E. A. BIEMANN.

63 and 64, Ludgate Hill, Birmingham.

April 15, 1907.

## Answers to Correspondents.

\* \* All matters intended for the text portion of this *JOURNAL*, including queries, must be addressed to "THE EDITORS, THE *BRITISH JOURNAL OF PHOTOGRAPHY*, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\* \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

H. Abba, 43, Holderness Road, Hull. *Photograph of the Rev. G. A. Parkinson, Photograph of a Group of the Rev. G. A. Parkinson, and Messrs. J. A. Meale and H. R. Holcombe.*

E. Ellis, Wellington, Milltown, Malbay, County Clare. *Photograph of R. C. R. L. Ellis.*

R. Brown, Church's Mansion, Nantwich. *Two Photographs:—Mr. R. Corbett and South Cheshire Hounds at Wistaston, Cheshire, and at Cholmondeley, Cheshire.*

W. Freeman, 132, Above Bar, Southampton. *Two Photographs of s.s. "Suevia" under own Steam and Towed to Dry Dock, Saturday, April 6, 1907. Stern Portion.*

W. McQueen, 7, Oldham Road, Royton, Lancashire. *Photograph of Henry Taylor, World's Amateur Champion Swimmer.*

#### DRAWING REGISTERED:—

G. Cross, 341, Lord Street, Southport. *Drawing of a Scheme for laying out the Lagoon, Southport.*

SECONDHAND APPARATUS.—(1) Where, and for how much, can I buy a "Royal Ruby"  $\frac{1}{2}$ -plate or 1-1 camera, fitted with "Ross" homocentric lens, secondhand? (2) Is there any chemical dictionary (English-Latin, as the chemist terms the chemicals) on the market? If so, kindly give an address and price.—HOMO.

(1) The City Sale and Exchange, Fleet Street, E.C., or Sands and Hunter, Bedford Street, W.C., are dealers in secondhand cameras, etc.; but it is doubtful if either can supply you with the new model of the "Royal Ruby," nor are you likely to get a great reduction of price on the lens. (2) The "British Pharmacopœia." We do not know a smaller work.

DARK VIGNETTES.—Would you be good enough to give me the address of those who supply the attachment for camera that enables one to make those dark vignettes?—ANXIOUS.

Kodak, Ltd., Clerkenwell Road; Marion and Co., 22-23, Soho Square, W.; in fact, any of the large dealers.

PROGRESS.—Mouldings, of Sichel and Co., 52, Bunhill Row, E.C., and Thomas Illingworth and Co., Willesden Junction, N.W. Glass: Hetley and Co., Soho Square, London, W.C. Prints: Spooner and Co., Strand, W.C.

G. B. (Dover).—The three prints are certainly very good in vigour and tone, and the process is evidently very simple and inexpensive. We would say, however, that there is at least one paper on the market which gives similar results on fixation only. It is difficult to say whether there is a commercial success in the paper without having tested it.

CANADIAN PHOTOGRAPHIC JOURNAL.—Can you put me in touch with a Canadian photographic journal, as I wish to advertise in the same?—OPERATOR.

"St. Louis and Canadian Photographer," 3,210 Locust Street, St. Louis, Mo., U.S.A.

CASKET LENSES.—(1) Can satisfactory results be obtained by the use of casket lenses equal to results by the use of lenses especially adapted to various requirements? Your advice will be much appreciated as to what make and price to purchase, and any other information you may be kind enough to give concerning these casket sets.—WIDE-ANGLE.

(1) Casket lenses can never possess the corrections of an anastigmat, but for work where the negatives are not to be enlarged



lenses will give most satisfactory results. The drawback is the fact that at the longer foci the rapidity is low. Must say that our own preference would be for an anastigmat of moderate aperture ( $f/8$ ) if price is a consideration—the single elements of which could be used separately. (2) Many of combinations formed by a casket set will cover a much larger area, but an actual test is the only guide.

**TONES.**—Can you kindly inform me how a "blue" print is converted into green—I mean an ordinary lantern slide is converted to blue by the iron process? How can this be turned into green colour?—E. Y. E. N.

There is no certain method. A strong solution of potassium ferrioxalate, containing a little acetate of lead, will turn them green (damp destroys the colour), but the best plan is to tone the uranium-ferricyanide bath until very dark and dense, and keep in a weak solution of ferric chloride. This bath gives as well as tones, hence only a brief immersion must given.

(Lausanne).—The two books are distinct works.

**TRANSFER CARBON PRINTING.**—Enclosed is a sample of mine. Since starting this process, about three months ago, I have got on all right until now. Prints refuse to leave the supports, with the result you see. The waxing is done as when they were proved all right. (1) Can alum bath be too strong? What is the correct proportion for fixing, also for solution in which the supports are soaked? (2) Should alum bath be used more than once?—R. D.

(3) No; the strength is very immaterial—5 per cent. is about usual. The final support is simply soaked in warm water, at 90 deg. to 100 deg., until it assumes a slimy feel. (2) It may be used many times until it becomes of a yellow tint. Your trouble may proceed from more than one cause. One is that the temporary support was imperfectly waxed. Another is that the final support was insufficiently softened, or was made too soft. I rather suspect that the last-named is the cause of the trouble in the present case. Just allow the final support to become slimy on the surface, and then squeegee on the picture, taking care to remove bubbles.

**MARKING.**—We beg to work the following on you: (1) Kindly send us the address of the makers of the machine for making plate-sunk mark of enclosed postcard. (2) Do you reckon the negative is masked with paper or painted round, and the name at the bottom cut through the paint. (3) The receipt of a good workman for blocking out backgrounds on negatives; if possible one that will wash off.—Cosm.

(4) No special machine is necessary, as an ordinary rolling mill suffices. Cut a plate of zinc or copper to the size of the negative desired; put on the bed of the rolling press as on that the print. Back up with two or three thicknesses of printer's sheet, and pass through the press. (2) The title is usually made by transferring a negative photograph of the wording which has been set up in type, afterwards masking out the rest of the negative with blocking mixture or the commercial "photopake." The ordinary black varnish, as sold by the dealers, is what is usually employed for the purpose, and we should advise you to get that instead of attempting to make for yourself. It is very inexpensive.

**ART.**—A leading music-hall artist has placed with us four hundred photographs, which he wishes us to copy and produce as cards for public sale. He assures us he has all rights for reproduction, but we wish to ask you if this is sufficient for us to place them on the market with our name on—i.e., The Honora Series. We may say for your information that the original photographs were taken by a very well-known firm. We do not do anything unfair as regards the copyright, hence our inquiry.—CARBONORA.

It is more likely than not that the copyright is not the artist's, but the photographer's. In the event of your making or using the postcards you would be liable to action for infringement. The artist should be asked to furnish proof of ownership of the copyright in the shape of a receipt for the sitting from the photographer's; but a better course would be to apply to the firm for confirmation of the artist's assertion.

**ONWARD.**—We doubt if you will be actually better off in the States than you are here. We certainly should not go to America for comfort. We advise you to read the accounts of professional photography in the States, such as we published in our issue of May 11 last year.

**RESIDUES.**—I have a quantity of old hypo fixing bath, and want to recover the silver in it. (1) Is it sulphate of copper used to throw it down, and (2) is it taken to the refiners in the wet state or baked dry?—OLD HYPO.

(1) Useless. The proper substance is "liver of sulphur" potassium sulphide, which precipitates the silver at once. The silver settles in a few minutes. (2) The precipitate can be drained of water or sent wet to the refiners or dried. It is a matter of convenience.

**CHEMISTRY.**—Two years ago I started business as a photographer on my own account. My knowledge of chemistry is practically nil. Can you refer me to some good book or books dealing with chemistry generally, and particularly in its relation to photography? Where can I get such, and what are prices—P. T. M. Better get "Chemistry for Photographers," by C. F. Townsend (Dawbarn and Ward, 1s.), for a start.

**MANXMAN.**—Pure resin, 1 oz.; oil of turpentine, 1 oz.; oil of lavender, 2 oz.

**PYRO DEVELOPER.**—Will you please give me the formula for a good all-round pyro-soda developer that will keep when made up in large quantities, and kept in glass-stoppered bottles. At present I make it up with soda sulphite and sulphuric acid as the preservative, but, in a short time, it discolours and loses strength.

The following, of Mr. B. J. Edwards, is a good formula:—

No. 1.	
Pyro .....	1 oz.
Metabisulphite of soda .....	1 oz.
Distilled water, to .....	80 ozs.
No. 2.	
Sulphite of soda (Boake's) .....	10 ozs.
Carbonate of soda .....	10 ozs.
Water (distilled), to .....	80 ozs.

For use, mix equal parts of No. 1 and No. 2. The mixed developer may be used full strength or diluted, according to the density required in the negative. For studio work it usually works best at about half strength. Development is complete at 65 deg. Fahr. in about five or six minutes. The addition of bromide increases contrast, but does not materially prolong the total time of development. There is no pyro stain.

**CIGARETTE.**—(1) Yes, quite for general purposes. (2) If you want to take very large groups a couple or three feet wider would be a little advantage, but for general work is quite unnecessary. (3) To X would be a good height, but for large groups it might be a foot or two higher, as then the light would be better diffused when the whole width of the studio was required to be fairly equally illuminated. (4) With that width of studio the front light will not be necessary. If you have that part glazed we should advise ground glass, which can be stopped off if not required. (5) We should say that clear glass should be used; it is cheaper, and, as you say, can be blinded off if the sun proves troublesome at times.

**ENLARGING QUERY.**—I have recently started enlarging, and find that when I enlarge from a retouched negative the retouching marks show, and when I enlarge from a copy negative the grain shows. I may say that the retouching is done by an extra good retoucher.—ENLARGER.

Of course, if the image is sharply focussed, anything that is sharp in the negative will appear sharp in the enlargement. You do not say if you employ diffused daylight, or artificial light with a condenser. If the latter, the retouching will show more sharp and crude than if the former were used. The effect may be greatly softened by making the enlargement slightly out of focus, or by using a lens possessing a good amount of spherical aberration, and used with a large aperture. We should have thought this was thoroughly understood by all enlargers.

**NEGATIVE PAPER.**—1. As I know that negative paper has been put on the market, I write to ask whether it could be used success-

fully for ordinary commercial photography (such as postcard work), or would the grain be too much in evidence. I do a great deal of work which renders backed plates a necessity, and the difference in cost is very great. 2. Also, do you know of any make of negative paper which is isochromatic? 3. Do you consider that the anti-halation sheets which are sold are as efficacious for preventing halation as a backed plate—that is to say, a plate bought already backed?—M. D.

Not grain, but slowness of the emulsion is the objection to commercial negative papers. For reproducing from other negatives they should be quite satisfactory, but we believe a glossy bromide paper, such as Wellington and Ward's "Enammo," is better still for such work. We know at least one maker of negatives for postcards whose work is done on negative paper. 2. None that we know of. 3. We consider the anti-halation plates about equal to the commercial backed plate, and both more subject to halation than a plate liberally backed at home.

**CINEMATOGRAPH LITERATURE.**—1. Is there any periodical (weekly or monthly) that deals entirely with the cinematograph; and, if so, where can I obtain the same? 2. Also, if there is any book (complete) later or better than "Animated Photography," by Cecil M. Hepworth.—A. W. ANDREWS.

1. There is the "Cinematograph Gazette," until recently published by Theodore Brown, 26, Drummond Road, Boscombe, but we do not know if it is still published. 2. The only other work is "Living Pictures," by H. V. Hopwood (2s. 6d.), but if your desire is for a book on practical manipulation, we doubt if the volume will be of further assistance to you than Mr. Hepworth's.

**E. J. M.**—We must confess that our own preference is to fight shy of all such compounds. We made tests on bromide papers finished with the aid of the preparation you name, and we were satisfied with the results, but we know nothing of its regular use in practice. We should say, if you can ensure the directions being carried out, it will be quite satisfactory for negatives, though not so suitable for batches of prints, since in this case it is not so easy to ensure equal action on each print.

**TYKE, C. H., and OTHERS.** In our next..

**HEINRICH AND POULSEN.**—We are sorry to say we are unable to trace any firm at present making the anti-halation sheets.

**E. F. SANDERS.**—We should certainly advise you not to think of installing an electric arc light in a room only 8 ft. 9 in. high. You will not get enough vertical height for the lamp to give you the top lighting necessary unless the sitters are invariably seated. You could not rely on reflection from the ceiling for your top lighting.

**STAINED NEGATIVE.**—I have an important negative upon which I had the misfortune to drop a spot of developer (I believe)—hydroquinone and metol, and not noticing it in time, found a yellow stain that absolutely will not print through. I tried the salt and re-fixing for silver stain with no effect. Would you kindly say if there is any other method, supposing it is developer stain? Though why it should stain after well washing and drying, when it does not in the development, I do not understand.—STAIN.

Hydroquinone stain, once it has been produced, is very difficult to remove. You might try the hypochlorite mixture, made by shaking up one ounce of bleaching powder with about six ounces of water containing  $\frac{1}{2}$  ounces carbonate of soda. Shake up and filter and use the solution on the plate. If this fails we can suggest only one other remedy, and that is to make a strong mixture of hypo and glycerine, spread on the negative, and allow the latter to remain for, say, some days, in the course of which time the stain may disappear.

**ANXIOUS INQUIRER.**—The photographs on the whole do you great credit, and are quite equal to the productions of a great many photographers catering for the lower middle classes. As to whether it would be to your advantage to take up photography as a business we cannot express an opinion, as you do not tell us what your prospects are in your present trade, but we would urge you to consider very carefully before making any change, for the reason that photography at the present time requires very good business management to make it pay. If you have busi-

ness talent there is money to be made out of it, quite apart from your technical proficiency.

**STAINED BROMIDE.**—I have a bromide enlargement on India P.S. mount, made about two years ago. The whites of enlargement are all right, but all deep shadows, and at the edges—about  $1\frac{1}{2}$  inches all round—show an oxidised silvery blue appearance. The maker of the picture says he cannot account for it; he carefully fixed and washed it after development, and did not use any iodine for reducing—so far as I can remember. The mount does not show the slightest colouration, and has evidently not been in a damp place. I trust my description is clear to you, and shall be glad to reply as to cause of the fault, and to suggest a remedy if there is one.—LIMERICK.

We have seen something of the kind in prints which have been exposed to products of combustion of gas or other vapours which act on the silver surface. It often takes place also in uranium-toned prints, but we take it in your case that toning has been done. It is possible that by bleaching the print and re-developing the stain would disappear.

**RELIEF PHOTOGRAPHS.**—Would you kindly tell me, through your valuable Journal, how to make a relief negative or positive, and what the relief to be about a 16th of an inch, or nearly PANTONIA.

The greatest relief is obtained with Namias' methods. A solution is prepared of—

Gelatine .....	20 parts.
Gum arabic .....	10 parts.
Water .....	100 parts.
Glacial acetate acid .....	1 part.

Soak the gelatine and gum in the acid water for an hour or two, and then dissolve in a water-bath. When dissolved, through linen and pour on to a levelled glass to the thickness of one-twelfth to one-eighth of an inch, and allow to thoroughly set and dry in a horizontal position. These plates will keep indefinitely. To sensitise them, immerse in a 2 per cent. solution of ammonium bichromate, rendered distinctly alkaline with ammonia. The sensitised plates will keep for ten days. The exposure is from fifteen to thirty minutes in direct sun, and the plates should be placed at the bottom of a light-tight box, so as to use parallel rays as far as possible. The exposure of the plate should be placed in a 2 per cent. solution of alum plus 2 per cent. glacial acetic acid. The plates should be soaked for some hours until perfect relief is obtained. If water is used instead of the acid alum, a coarse grain is imparted to the relief.

**CELLULOID MINIATURES.**—A stationer in my town having asked me to do him a number of the button photographs, I ask you to inform me in this week's "B.J." where I can obtain instructions for giving the prints the coating of celluloid.—TIMP.

The prints are dipped in alcohol and rolled in contact with the celluloid with a hot roller. Messrs. Fallowfield, who make the apparatus, issue a sixpenny book of directions.

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## SUMMARY.

to give the results of some preliminary experiments on sulphite soda, which show the remarkable differences which different doses of this substance exhibit in solution. (P. 306.)

What is your standpoint? An American professional puts in a strong claim for tasteful printing of photographers' stationery. (P. 307.)

Mr. C. H. Hewitt contributes some practical notes on the methods producing portraiture in which the drapery is subdued whilst the sitter's head is fully lighted. (P. 312.)

A series of portrait reproductions in a weekly newspaper suggest striking effects which photographers can get by suitable mounting. (P. 305.)

A correspondent further discusses the epidemic of blisters in bromide papers, which is an occasional inconvenience to bromide workers. (P. 321.)

A show-case idea, which may be of service to professional photographers, is mentioned on page 305.

An exhibition very completely representing the photographic trade as the "Tribune" Rendezvous on Monday next. (P. 317.)

An American worker speaks highly of the kallitype process for printing from winter landscape negatives. (P. 314.)

Messrs. Horace and Conrad Beck's recent paper before the R.P.S. commenced on page 309, and discusses the properties of the new Rostigmar lens in relation to the Petzval condition.

A foreign patent relating to formaldehyde suggests the possibility of a compound being placed on the market in tablet form. (P. 306.)

Belagney has recently given formulæ for the use of his acid developer. (P. 308.)

A method of pigment printing, based on Herschel's iron printing process, has been suggested by a French worker. (P. 306.)

## EX CATHEDRA.

**A Lesson in Contrast Mounting.**

Our lively and well-edited contemporary, the "Sketch," is just publishing a series of portrait studies which should be seen by our readers. The series is entitled, "Studies in Ebony and Silver," and each reproduction consists of a half-tone portrait of a lady of the stage surrounded by a solid black border. The striking effect, which fully bears out the title, is obtained by the delicate light tones which make up the whole of the enclosed half-tone portrait. Evidently the negatives were taken specially to secure a print with not a deep shadow anywhere in it—in fact, with all the tones at the upper part of the scale and only a few degrees lower than the highest light in the subject. The intense contrast afforded by the dense black border gives a particularly silvery appearance to these light tones, and the effect is heightened by a little wash-drawing which is done on the photograph and allowed to spread over on to the black border. Still more striking prints are, of course, obtainable when using actual photographs—namely, delicate matt bromides, such as those on the recently issued Barnet "Oyster Shell," mounted on the blackest and mattest of mounting papers. There is a good deal of difference in papers, and one can experiment with a good many of the commercial matt black papers which are purchased in the ordinary way before finding anything approaching a dead-black so closely as does Lindenmeyers' Matt Ruskin Special Black.

## Displaying Goods.

We are by no means in love with any suggestion which proclaims a photographer acting upon it as the borrower of methods from purely commercial businesses; nevertheless, almost any expedient which does actually succeed in giving to the photographer's show-case a character which the passer-by cannot overlook, is infinitely better than the monotony and convention which are conspicuously prevalent. We may, therefore, mention a show-case which we came across the other day in a London thoroughfare which at once fixed our attention, and that, as we stopped to observe, of the passers-by generally. The glass front of the case was covered on the inside with a matt black paper, save only for a circular space of about 8 in., which was left clear, and afforded a view of a portion of the interior. The inside walls of the case were likewise covered in black, with the result that the article displayed a box of cigarettes—was very prominently brought before the passer-by. One or two words of explanation served to fix the name of the brand in the observer's mind. With variations, the idea could be effectively used for photographs, and would be a good deal better than many of the miscellaneous assortments of prints which pass for show-case displays.

### The Evolution of Processes.

It is extremely interesting sometimes to trace the evolution of a process and the ramifications which a completed process may lead to. A statement may be made, or the details of an experiment recorded in a paper, and the value of it may lie unheeded for several years till it is directly or indirectly applied by another worker. A rather striking example of this is to be found in Mr. Howard Farmer's note, first published in 1893, that metallic silver would, when imbedded in bichromated gelatine, render the latter insoluble, without any light action. Mr. Manly's Ozobrome process is obviously a modification and practical application of Farmer's process, which previously had not been utilised. Another application is that described in a recent issue, in which a pigment tissue mixed with silver bromide is exposed to light, and then developed chemically so as to produce metallic silver, being finally treated with bichromate, so as to obtain insolubilisation of the gelatine in contact therewith.

\* \* \*

### Ozobrome without Bromide.

The latest modification, though we are not prepared to say advance, has been suggested by M. Coustet. He has harked back to Herschel's process of 1840 for producing his silver image—that is to say, he coats paper with a 20 to 30 per cent. solution of ammonio-citrate of iron, dries, exposes until a weak image is distinctly visible, then paints the print with a 1 per cent. solution of silver nitrate, and thoroughly washes. He has thus obtained a silver image practically without any vehicle. Carbon tissue is now immersed in a 1 per cent. solution of potassium bichromate plus 1 per cent. potassium ferricyanide, the silver print squeezed down to the wet tissue, and left for an hour. At the end of that time the carbon tissue is rendered insoluble, and may be treated in the usual way. It will be noted that there is no potassium bromide used, though from 0.5 to 1 per cent. may be added to the above bichromate bath to give greater contrasts.

\* \* \*

### Cheap Parisian Photography.

Paris, it appears, is not unlike other great centres of population in not being exempt from photographers whose work is done at a price which is so low as to be incompatible with honest trading or with adequate payment of labour. According to a correspondent of the "Photographisches Wochenblatt," there are a number of studios in the French capital where you may have a dozen carte photographs of yourself for 1½ fr. (1s. 3d.), or a dozen cabinets for 3 fr. (2s. 6d.). According to the writer, the work is of a very low order, mostly the production of improvers, but the public is induced to ascend in the elevator to the studio by the show-case, full of excellent portraits, which is displayed on the street level. The studios do a brisk business for a time, and then, when patronage falls off, one fine morning comes when M. le Locataire is discovered to have gone, leaving, most probably, one or two accounts which in the unavoidable hurry of departure he has been so unfortunate as to have forgotten to pay.

\* \* \*

### Tablet Formaldehyde.

This has been termed an age of tablets. Certainly the great convenience, both as regards economy of space and portability of this particular form of chemical, has led to its just appreciation. From a recent patent it appears likely that we may soon be able to add to our existing stock of photographic tablets, one of which, on solution in water, will give us a solution of formaldehyde, for it has been found that a mixture of an alkaline peroxide or per-acid with para-formaldehyde will, on solution, give off formaldehyde. Naturally, the original idea of the patent is to provide a convenient and portable disinfectant. If barium

peroxide and para-formaldehyde are mixed, there is so much heat generated that the solution boils, and steam and formic aldehyde are given off. With sodium peroxide the heat evolved is so great that the mixture may take fire, but the action with strontium peroxide is much less energetic, though in the two former cases, naturally, the use of plenty of water would distribute the heat evolved.

### Three Varieties of Perspective.

Dr. M. von Rohr has recently classified the perspective effects produced by vision through lenses in a somewhat novel fashion, and has thereby drawn attention to an effect that has probably seldom been noted. His first class is "Entocentric" perspective, in which the near parts of an object appear larger than the more distant ones. This is what is popularly styled "perspective," and it is always produced so long as a real point of sight in front of the object is employed. The photographic image is thus in "entocentric" perspective. The next class is "Telecentric" perspective. In this the point of sight is at an infinite distance, and the effect corresponds with what we commonly style an "orthographic projection" or "elevation" of the object. We do not usually style it perspective at all, but the effect can be very nearly produced with a telephoto lens, and can be observed in a microscope or telescope, or through a single lens if the eye is placed at the principal focus. Owing to the fact that this is the effect given with the microscope, it is often stated that the microscopic image shows no perspective or foreshortening. The third class is styled "Hypercentric" perspective by Dr. von Rohr, and in this the existence of a virtual station-point beyond the object is assumed. If we placed a ground glass between our eyes and a "solid" object, such as a wire cube, and observed upon the screen a shadow of the cube cast by a small source of light situated beyond the object we should see a "hypercentric" perspective representation. This may seem a very theoretical and unpractical system of perspective, but, as Dr. von Rohr points out, it actually exists when we observe a solid object through a single lens, or magnifier, with the eye behind the rear principal focus. It is very easily observed, but we do not remember seeing any previous reference to it. We may add that it is not due to aberration or distortion, but is a quite inevitable optical effect.

### SULPHITE OF SODA.

READERS interested in this matter will remember letters from various correspondents, some of whom supported our views that soda sulphite did not keep well when dissolved with carbonate of soda, while others expressed a contrary opinion, and gave formulæ and experiences that seemed to prove their contention. Mr. Edwards took the latter view, and very kindly sent us a sample of the sulphite that he is in the habit of using, which sample we have tested (without adding carbonate) against three others of well-known manufacture. The result of the test is that while Mr. Edwards's sample is only the third best on the list as regards initial strength, it is easily first for keeping qualities. The tests were preliminary ones, made with very weak solutions of 0.6 per cent., so as to get as quickly as possible a general idea of the manner in which the solutions deteriorated. The result was that in fourteen days Mr. Edwards's sample contained 33 per cent. of sulphite, while none of the other three had the smallest trace, and it still contained 1 per cent. at the end of twenty-two days. In another set of stronger solutions, all made of the same sulphite, and intended to test the effect of various preservatives, we found at the end of seven days that all contained the original maximum of sulphite, which is about



per cent. It is obvious that Mr. Edwards is using a white that keeps exceptionally well in circumstances that are fatal to other samples. Why it does so is not apparent. The highest priced sample we tried was destroyed in ten days, when the other still retained 54 per cent. of sulphite. Purity, therefore, does not seem to be necessarily advantageous, and it is, of course, possible that the presence of some impurity having a preservative effect may explain matters. These tests afford ample explanation of the discrepancies between Mr. Edwards's and our experiences. The following table shows the percentages of white contained in the solutions after various periods. Sample is Mr. Edwards's and A sample is the one we used in our previous experiments with pyro soda. C and D are expensive and presumably very pure samples:—

	A	B	C	D
Fresh .....	83	86	90	91
Three days .....	76	78	84	80
Four days .....	—	—	69.5	53.5
Nine days .....	11	54	37	0
Fourteen days .....	0	33	0	—
Twenty-two days .....	—	1	—	—

In notes published some weeks ago we contended that the proper place for the sulphite in a pyro-soda developer is the pyro bottle, not that containing the carbonate. The reason why other writers disputed this is apparent from the preceding paragraph, which shows how sulphites vary in keeping qualities, one sample keeping well in conditions fatal to others. All the samples of sulphite we have used contain carbonate in small quantities, and in noting

their changes it has become evident that some reaction takes place between the carbonate and the sulphite or the decomposition products of the sulphite. Experiments with solutions containing a large excess of carbonate also show evidence of reactions of a somewhat different nature. In the case of the latter solutions the rate of change has not yet been determined, the few results obtained being very erratic and inconclusive. For example, in one test no less than 75 per cent. of the sulphite was apparently destroyed within a few minutes of mixing. In other cases about 25 per cent. disappeared in times varying from a few minutes to a day or so. In several cases no effect was observed, while in one the carbonate seemed to act as a preservative. As yet the only points that have been determined are these:—(a) Reactions take place between the carbonate and sulphite which vary in their results according to the amount of carbonate present. (b) With an excess of carbonate the sulphite is apt to deteriorate with extraordinary rapidity in particular conditions that we have not yet been able to determine, and therefore cannot guard against. (c) If only a small amount of carbonate is present it changes into bicarbonate as the sulphite deteriorates, so that an accelerating agent is replaced by a feeble restrainer. (d) If an excess of carbonate is added to the sulphite caustic soda is ultimately found, which is a very likely cause of stain in the pyro-soda developer. These four facts seem to confirm our original observations founded on simple development tests, and they certainly tend to show that sulphite and carbonate are best kept separate. Details of further tests will be published later, together with the method of analysis, which has some points of interest.

## WHAT IS YOUR STANDPOINT?

"What men need is stand point, and there is nothing like a good talk for giving them that."—*Waldo Pondray Warren.*

your standpoint correct—logical? Do you apply it consistently along all lines in the conduct of your business? Are you careful in some things, careless in others? Do you gain or lose according to your care of the details that are for consistent standpoint—consistent business tact. As we see:—

Suppose you have an idea that your business permits conduct of philanthropic lines: that you can run it on a sort of voluntary institution basis, and contemplate with equanimity—even satisfaction—a state of affairs where all is outgo and nothing income, not even stopping to plug up the unnecessary leaks.

Suppose, again, that you have a very exalted notion of the value of your shop, but don't see that it is necessary to offer your superior goods in clean packages—*how long will it last?*

Suppose you stand pat on your knowledge that your work is good—better than good—and when you tell people about it you choose the very poorest, cheapest medium you can find—*will you make an impression?*

It often. People judge you by your dress as well as by your talk.

As a professional photographer, for instance, in his correspondence, is content with inferior stationery (or no stationery at all), how can he hope to impress those whom he must perforce reach by mail? It will not help matters much for him that his studio is full of excellent examples of his workmanship; the first impression he makes on his prospective clients is unfavourable he can hardly hope to have those clients view his work at first sight. People will judge him by the quality of his overtures, and if they are not up to the standard he sets in his own work, they will never be the wiser. It is a

mistaken economy that a first outlay for tasty stationery is a pure "expense" item—it is as much "mdse." as his chemicals and plates. It comes into the same category as raw material from which he fashions the output, since it largely incites the demand for that output. It comes under the head of necessities of the shop, just as do the rent and light bills, which he wouldn't dream of checking up against expense. It is even more necessary than either of these, since they can be—and will be—dispensed with if no business results. And good stationery—in keeping with his own standard of work—is consistent. It tells the world at large that his standpoint is up, not below par.

To do without this personal advertising medium is like buying a mine, and, after erecting a costly outfit of buildings and machinery, to sit by idly without digging into the ground for the metal. It is like exposing for a picture but never making a print from the negative. It is conducting a business along un-modern lines, for to-day the mails are fifty per cent. of the value of any business—because the cheapest in the long run.

And because the mails are the cheapest means of reaching the most people is just why the live photographer of to-day should take advantage of them in the way of good stationery medium, cards, announcements of exhibits, and invitations to his studio. Such advertising reaches nearer the recipient in that it has the personal note, which is lacking in a publication advertisement, although that form of reaching the public is necessary also, and in that it can be governed to suit exigencies. You can pick your people, have whom you want, and, if you make it exclusive, you will get the best—that is, the kind that pays best. You can make your studio the periodical rendezvous of a discriminating clientèle, and get results that will satisfy

your pride as an artist as well as pocket money; or you can make it a popular place where much business is the order of the day, with probably not so much satisfaction in doing good work, but equally remunerative. That is a choice your environment should dictate. But whatever it is, there should be kept in mind at all times the necessity of consistency—according to your standpoint.

There is no redundancy necessary in this form of advertisement. Only a consistent use of it and the mails, in keeping with your ideals, and it may be said without fear of contradiction that for its availability and usefulness there is no cheaper or better way to be had.

LOUIS F. FUCHS

\* The writer's remarks, with which we are in entire agreement, are quoted from our contemporary, the "St. Louis and Canadian Photographer."—Eds. "B. J."

## ACID AMIDOL DEVELOPERS.

WE have already recorded the fact that M. Balagny was awarded a medal by the Société Française for his method of developing transparencies with an acidified amidol developer. At a recent meeting of the above society he strongly recommended its use also for time exposures.

He pointed out that numerous formulæ had been proposed since his original one given first three years ago, but that they were all practically merely modifications of his, and that all of them had employed sodium bisulphite lye, notwithstanding the great outcry that had been raised that this would not keep. He had found, however, that a commercial solution had, without any particular precautions, kept for over twelve months and was as good at the end as the beginning.

His original formula was:

Amidol .....	6 gms.
Sodium sulphite (anhydrous) .....	12 gms.
Potassium bromide, 10 per cent. solution ...	30 ccs.
Sodium bisulphite lye .....	30 ccs.
Water .....	1,000 ccs.

This is specially useful for instantaneous work, and in special cases the bromide may be reduced to one-fifth of the above. As a rule, however, this formula is too energetic for time exposures.

MM. Lumière have given an excellent formula for this developer, but, like many others, it is far too energetic. This extreme energy is the reason why amidol is not used much by amateurs for negative work; and if it were possible to find a brake for it, amidol ought to replace all its predecessors as a developer. This brake, asserts M. Balagny, is to be found in an acid.

Tartaric, citric, and other acids were tried, but without success; they all of them decomposed the sulphite; finally, sodium bisulphite was thought of, and this was found far more satisfactory than reducing the quantity of sulphite, which was tried and found to be a failure.

For time exposures of all kinds, particularly those of subjects with heavy shadows, such as woodland scenes and interiors: the following method of making this developer is the best. In the first place, a stock solution of "bisulphite liquor" is made as follows:—In 125 ccs. of water dissolve 20 gms. of anhydrous

sodium sulphite, and add 75 ccs. of commercial solution sodium bisulphite. This solution contains exactly 1 gm. sulphite and 3.7 ccs. lye per 10 ccs. of solution. As soon as the solution is made, the suffocating odour of sulphurous acid disappears. It is not worth while to make more than 200 ccs. this.

For a time exposure the developer should be—

Amidol .....	3-6 gms.
Bisulphite liquor .....	48 ccs.
Ammonium bromide, 10 per cent. solution..	60 drops.
Water .....	1,000 ccs.

The negative should be flooded with this solution, and if the image has not appeared in from four to five minutes, 12 ccs. of the liquor should be added; further additions up to 90 ccs. all may be made if desired; in fact, one works exactly as though one were using pyro and carbonate of soda.

It will be seen that 3 to 6 gms. of amidol may be used; the reason of this is that if the dish is rocked the smaller quantity may be used, and this is the method preferred by the author, it gives great softness. If, on the other hand, the dish is rocked without rocking, then the larger quantity should be used. In certain cases and with certain plates, if insufficient amidol used mottling is caused.

For subjects with extreme contrasts, such as portraits outdoors in the sun, or harshly-lit interior portraits or woodland scenes, then the following should be used:—

Amidol .....	3 gms.
Bisulphite liquor.....	60 ccs.
Ammonium bromide, 10 per cent. solution..	120 drops.
Water .....	1,000 ccs.

The above quantity of bisulphite should be used to commence with, and the bromide may be even increased to 240 drops, according to the exposure.

The quantities of amidol and bromide may be varied at will, and for interior work small quantities can be used, and for outdoor work larger quantities.

The advantages of this developer are that there is nothing to calculate, and it is applicable to all classes of work.

MESSRS. L. GAUMONT AND Co. (formerly of 22 and 25, Cecil Court, Charing Cross Road) have removed to new and more commodious premises, at 5 and 6, Sherwood Street, Piccadilly Circus, London, W., where all communications should in future be addressed. The goods entrance is at 18, Denman Street, Shaftesbury Avenue.

CINEMATOGRAPE REALISM.—Realism in the making of cinematograph pictures led to a strange accident on the London and Brighton Railway, near Stoats Nest, last week. An enterprising firm of dealers in these wares were anxious to produce a trainwrecking scene, in which the wreck was to be averted by the intelligence of a railway dog. The firm's employees, properly made up to represent villains of the piece, were to lay a sleeper on the line, seize the signalman (impersonated by a man named William Zeitz, of Croydon), and bind him to the line near the sleeper. Then the faithful dog was to arrive, find his master bound, fetch the wife, who was to place

the signal at "danger," and the train would dramatically pull up safely. Everything worked like a charm—up to a certain point. The "villains" entered on the scene, laid the sleeper, and bound the man. Then the faithful dog arrived with his master's dinner, found him in bonds, and fetched the dutiful and loving wife. Unfortunately, the scheme went wrong at this point, and the train, instead of making its dramatic stop, charged the sleeper and knocked on to the bound man, who received a scalp wound and had several ribs broken. Inquiries show that the scene in which Zeitz received his fatal injuries was carried out in violation of the rules of the Brighton Railway Company, and it is stated that the officials of the company are so incensed at "the most unheard-of liberty" that they have suspended the engine-driver and his fireman. The party station-master took in the proceedings—how far they were sanctioned by him—has been the subject of inquiry.



# THE ISOSTIGMAR LENS AND THE PETZVAL CONDITION.

The following is a paper read before the Royal Photographic Society on March 12, under its full title of "The Isostigmat Lens: a new anastigmat lens that does not fulfil the Petzval condition." The report of the paper, which appeared in our issue of March 15, has shown the interest of the question raised by the Messrs. Beck as to the value of the Petzval condition as a guide to opticians. The remarkable properties of the new lens have been obtained whilst disregarding the Petzval condition.—Eps. "B.J."]

A description of a new type of photographic lens must be of necessity somewhat of the nature of the technical description of a logical specimen, and is not interesting unless some new principle involved in its design.

We hope to show, however, that the Isostigmat is something more than a new species of the genus anastigmat, and is a departure from the ordinary type, because it demonstrates that one of the hitherto accepted theories of geometric optics under certain circumstances is either wrong, or at any rate, only partially correct.

It has been asserted, and a proof has been advanced by Coddington, Petzval, and most later writers, that a certain condition, hitherto known as the Petzval condition, must be fulfilled in order to produce lenses which will give a flat field free from astigmatism. You will remember that this condition, which has been shown by Sir William Bragg to have been first discovered by Coddington, states that for lenses to be anastigmatic, and at the same time to give a flat field, it is necessary for the sum of the focal powers of its individual lenses multiplied by the reciprocals of their respective refractive indices, to

be equal to zero. That is  $\sum \frac{1}{\mu f} = 0$ , and it also shows that when this is not equal to 0, the amount that it is equal to, is the reciprocal of the radius of curvature of the field.

## Applications of the Petzval Condition.

Different methods of making this equation equal zero, and, thus producing anastigmat lenses, have been described in various patents, and it will be within your recollection that a paper was read at your Society by one of the present authors in June, 1904, describing the original and ingenious method by which the Petzval condition had been satisfied by Dr. Rudolf Steinheil, of Munich. We do not doubt

that the construction of a lens in which  $\sum \frac{1}{\mu f} = 0$  is one method of

producing anastigmat lenses, but the Isostigmat lens which we are going to bring to your notice this evening demonstrates that it is not the only method. This lens has been 'worked' out on certain lines, which do not take the Petzval condition into consideration, and another method of obtaining a satisfactory lens was arrived at. The work worked itself down to the gradual process of correcting along various lines which developed the somewhat unusual form of a 5-lens

inch. The radius of curvature of the image which is free from astigmatism should therefore be 25 inches. This would mean that at an angle of 35 degrees the image would be about .48 inches away from the plate, whereas, as a matter of fact, it is not so much as 1-50th, whilst the greatest distance of the image from a flat plane at any angle is less than .09 of an inch. In Fig. 2 the actual curvature of the image is shown in solid lines, while the dotted line represents the shape of the field according to the Petzval condition. You will see that the only want of flatness of field in this lens is the slightly convex zone between 18 and 26 degrees.

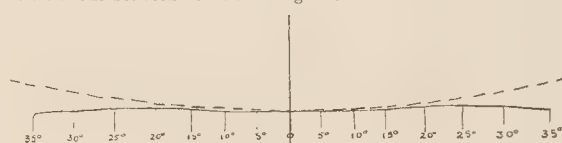


Fig. 2.

## A Possible Cause of the Inapplicability of the Petzval Condition.

Von Seidel has shown that the Petzval condition only holds good when the lens is correct for central spherical aberration and for coma, but these two corrections are certainly made to a very high degree of accuracy in the Isostigmat lens. Dennis Taylor has pointed out that when separated lenses of equal but opposite focal lengths are used, the resultant power being obtained by separation, the radius of curvature of the field may be made so large that the image is not very far from flat. But the length of the radius of curvature from the data given in his book does not appear to us to account satisfactorily for the degree of flatness of field found in practice in the Cooke lenses made on his method.

The proof of the Petzval condition given by Coddington is worked out by means of a formula, which is in the form of cosines of angles. In order to eliminate these unmanageable quantities they are expanded, all but the first two terms of the series being neglected. Again, in the terms which represent the inclination of the bundles of incident and emergent rays to the axis, approximations are also made, functions in terms of the second order being put into the first approximation. Previous writers have assumed that these approximations were sufficiently accurate, but it may be that the terms of a higher order than the second in the formulae have a very large effect on this particular condition, and may in some cases largely increase, and in other cases largely reduce, the resultant curvature of the image.

From a careful examination of the proof of the Petzval condition the above points appear to show the directions where error can arise. That the Petzval condition is not universally true is evident; how far it is true, and whether the actual condition that determines the whole problem is one that is capable of being simply expressed, is, in our opinion, somewhat doubtful, but as we have not the time at our disposal to work out this interesting question, we are anxious to bring the matter before the notice of English mathematicians.

It may be interesting for you to observe practically the absence of astigmatism in this lens by projecting upon the screen the image formed by it of a grating. The grating is placed in a collimator in such a way as to appear at an infinite distance, and an image is formed by the lens in the plane that would generally be occupied by the photographic plate. Instead of placing a ground glass to receive this image we project it on to a screen on an enlarged scale by means of an ordinary projecting lens. The Isostigmat lens is then swung round to various angles, and the portion that would be occupied by the photographic plate in the camera is automatically kept in focus upon the screen. In this way any errors of the lens are largely exaggerated in the image. As our lens testing bench is the most satisfactory method that we have of doing this we have brought one up here

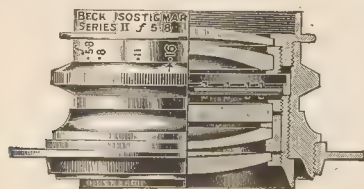


Fig. 1.

## Discrepancy Between Theory and Practice.

There seems to be some confusion amongst the various authors who have written on the Petzval condition as to whether the focal length should be the equivalent focal length of the individual lenses or whether it should not be what is sometimes called the pseudo focal length—that is to say, the focal length of the lenses neglecting their thickness. This makes a considerable difference in the result, but the Isostigmat lens more nearly fulfils the Petzval condition when individual lenses are treated as being infinitely thin, we will investigate it on these lines. In this lens thus treated, the expres-

sion  $\sum \frac{1}{\mu f}$  is not zero, but is about a quarter of the complete focal power of the whole lens—that is to say, in a 7½-inch lens  $\sum \frac{1}{\mu f} = 0.4$

for the purpose. By this means you have an ocular demonstration of the fact that the astigmatism is well corrected over the whole of the field of 70 degrees. This proves that the lens is anastigmatically corrected and that the field is practically flat. The question as to

the accuracy of our statements regarding the  $\frac{1}{\mu f}$  are not so readily

demonstrated, but any one who is interested in the subject can easily check these by working them out, the necessary data being given in our patent. For comparison with this we will now show you the same grating shown by a rectilinear lens under exactly similar conditions. You now notice that a considerable amount of astigmatism exists, the projecting lens having to be moved either backward or forward so as to focus the different lines sharply upon the screen; the best position for general sharpness being between the two foci.

In a subject of such complexity as the construction of lenses, it is not to be wondered at that a broad conclusion, such as the Petzval condition, is not universally true. A great deal more work requires to be done before geometrical optics will become as exact a science as pure mathematics, and whilst in no sense detracting from the gratitude which we feel for these investigators who have already laid down the groundwork of the fabric, it is advisable to approach any problems that may arise with an open and sceptical mind. It seems to us that there are other important conditions governing the problems of optical corrections which have not yet been discovered.

### Oblique Spherical Aberrations.

Another quality in our lens is the excellent correction of the oblique spherical aberrations. So much attention is bestowed upon the astigmatism of the marginal rays that it is sometimes forgotten that this is only one of the errors to be corrected. A lens may be free from astigmatism but may have considerable oblique spherical aberration, and may also have coma, or unsymmetrical oblique refraction. If these errors are large, they may neutralise to a considerable extent the advantages of an anastigmat lens. In order to demonstrate this matter more fully we have prepared the slide, Fig. 3\*, now shown, upon the screen. This consists of a series of very greatly magnified views of a minute disc of light as it appears on different portions of the plate. The disc of light has been carefully focussed on to the centre of the plate and then photographed by means of a microscope and camera. The disc of light as seen at a distance of 5 degrees from the centre of the plate is then photographed and placed by its side; the same is done at every five degrees up to 30 degrees, and then at 32½ degrees and 35 degrees, except in the case of lenses which do not admit such a large angle. The row of spots at the top are the very much enlarged view of these discs taken with an Isostigmat lens. The ten series below are discs magnified to exactly the same scale, photographed with various anastigmats made by ourselves and others, and include all the best known makes of lenses which have apertures of between  $f/5.6$  and  $f/8$ . We do not put any names against them, as we do not wish to make comparisons. Such comparisons, we consider, should be made by impartial observers, but we wish to draw your attention to the great differences that exist between different types of anastigmat lenses. The bottom series shown are taken by a rectilinear lens, and are put in for comparison with the others. All the diagrams are reduced to an exactly similar scale for the purpose of comparison.

### And Their Effect on Depth of Focus.

It is interesting to note, in looking at this diagram, that even in the centre of the plate there is very considerable difference in the size of the photograph of the disc of light, given by different makes of lenses. This is due to the fact that in some the central corrections are far from being completely satisfied. This is a matter of great importance in lenses which are to be used for telephotography. But perhaps the most important bearing on the practical value of a lens that is afforded by this comparative diagram is with reference to depth of focus. It is thoroughly well known that the depth of focus of a good lens in the centre of the field cannot be influenced by the

optician; it depends only on focal length and aperture; but the depth of focus at the edge of the field depends also upon the oblique corrections. Where the image of a point of light at the edge of the field is still a point, the full depth of focus is obtained over the whole field; but in some of the diagrams shown it is a considerable amount, and in such lenses the only chance of getting a sharp picture have the object almost exactly in focus, and the depth of focus at the edge of the field is reduced to a vanishing quantity when the oblique aberrations are badly corrected.

### A System of Lower-power Components.

The correction of a photographic lens is a difficult matter, because there are so many errors that must be simultaneously overcome, and it has always been our opinion that the principle of making use of individual lenses which have as long focus as possible, and therefore small errors, was one which had advantages over the method of using lenses of high power, and large initial errors neutralised by other

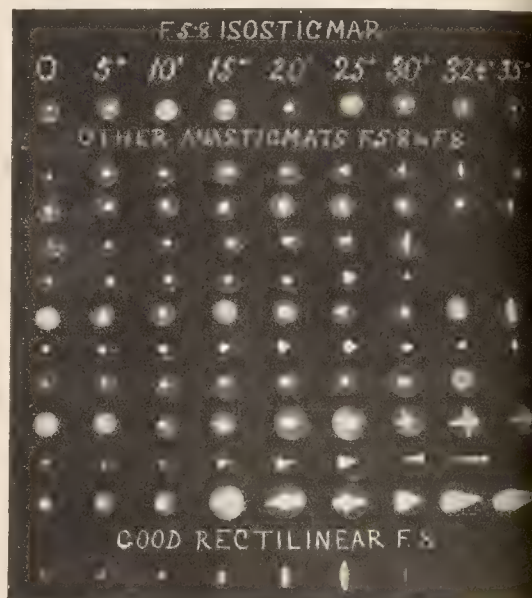


Fig. 3.

lenses of high power and opposite errors. Mr. Dennis Taylor, his Cooke lens, made use of this principle in the oblique correction. Dr. Steinheil, in his Unofocal lens, used comparatively low-power lenses, but to fulfil the Petzval condition with cemented combination requires very powerful individual lenses, with large initial error. In our departure from the Petzval condition we have been able to use lenses of very low power, and thus reduce the initial errors which have to be corrected. In fact, no individual component has shorter focal length than one-half of that of the complete objective.

It may now be of interest to describe some of the more important aberrations which have to be corrected to make a high-class lens.

### Two Orders of Aberrations.

If we first look at a simple uncorrected lens which brings parallel light to a focus, we find that it has considerable aberrations even when the object examined is upon the axis of the lens. Now these aberrations can be classified under two main headings, namely, those which occur near the focal point, and those which occur near the lens. We can make this matter clearer by means of a diagram, Fig. 4a. If we consider a lens of two or more refracting surfaces we know that the equivalent focus of the lens for a given ray should be measured from the point B, Fig. 4a, where this ray cuts the axis to the point A, which is the point where the plane AC cuts the axis C, being the point where the emergent ray continued backward

\* The various small photographs which comprise this diagram were covered with a mask with apertures and re-photographed. The edges of these apertures must not be confused with the images of the disc of light.



the line of the incident ray. That is to say, the equivalent focus of the ray in the top diagram, Fig. 4, is AB. Now, if we consider the second figure on the diagram, Fig. 4β, we see that for the two rays marked C, which are supposed to be very near the centre of the lens, the distance AB is the equivalent focus, whilst for the rays near the edge of the lens, the distance DH is the equivalent focus. This lens, therefore, there is an aberration HB at the focal point, and an aberration AD at the end nearest the lens. Now it is possible to make a combination of lenses, one of which is shown in Fig. 4γ, in which the error at the focal end is completely

corrected, but such a lens would not give correct images over a very large angle of field. In order to do this it is essential that the equivalent planes should be perfectly flat, which is what is known as the tangent condition; but for the lens openings which are used in photography, except for the very largest apertures, the difference between the sine and tangent condition is so small that, provided the lens is corrected for either one or the other, it may be considered as being aplanatic.

Therefore a perfect photographic lens must bring the whole bundle of light to an exact focus; the rays CC and EE, Fig. 4 (β), must all

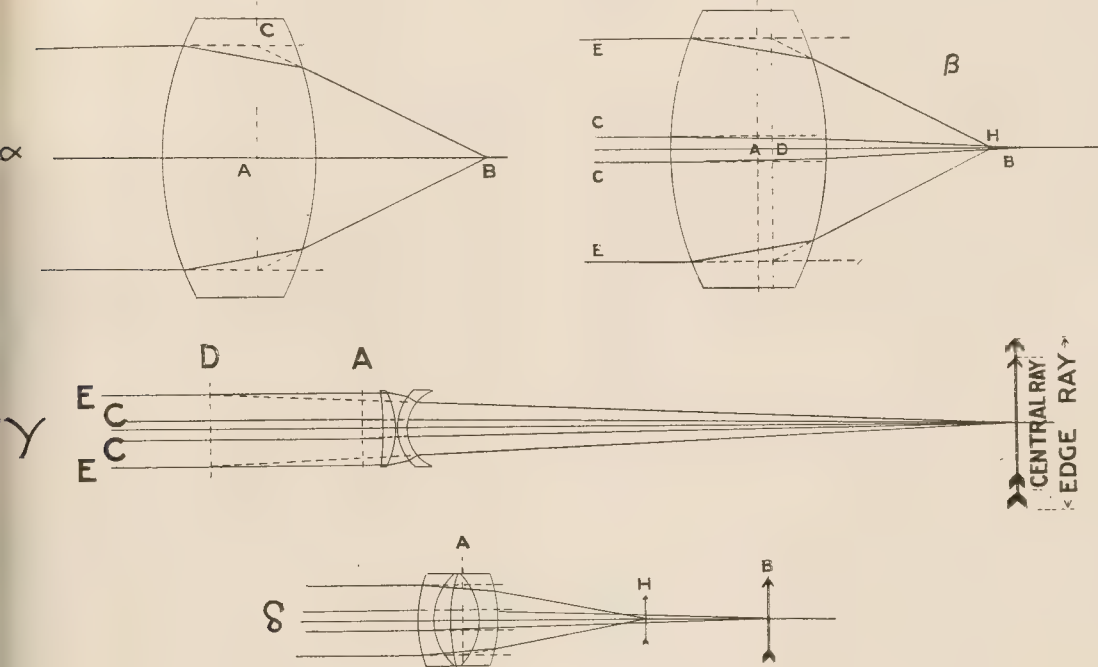


Fig. 4.

corrected, whilst the error at the lens end, or which we may call the error in the equivalent points is very great. On the other hand, it is possible to make a combination of lenses, such as shown in Fig. 4β, in which the error at the equivalent point is very small, whilst the error at the focal point is very great. In order for a lens to be perfectly aplanatic it is not only necessary for it to bring down every ray to the focal point, but also for the focus of the equivalent points of the individual rays to form a spherical surface, of which the centre is the focal point. A lens which does this fulfils the sine

condition, and the focal aberrations will be corrected. The equivalent planes A and D must also be superimposed and the equivalent plane will be corrected. The focal corrections in the centre of the field in a lens with so many surfaces as the Isostigmat can be made in many ways, allowing great scope for selecting the most suitable form to make the other corrections.

HORACE C. BECK.  
CONRAD BECK.

(To be continued.)

## PICTORIAL FOCUS IN PORTRAITURE.

In a recent issue appeared an inquiry regarding the method of producing portraits in which the head of the sitter is fully lighted, while the drapery is kept in quiet repose. The matter may well be considered in detail, and several methods of producing the effect, all of them quite practical, may be indicated. The main idea, of course, is to emphasise the face by subordinating all the rest of the picture, and the appreciation of the effect produced is an indication of the upward kind of middle-class professional portraiture. A portrait is primarily a picture of a face with characteristic or individualised expression, and though accessories in the shape of furniture, draperies, and so on are necessary, they must be kept in a position

of secondary importance, and not allowed to clamour for equal attention with the face. Attention is thus focussed on the important portion of the picture by reason of the greater contrasts, and in some cases also by reason of the sharper definition, though definition need not be further referred to in the present article. This relatively small area of supreme interest is often termed the "pictorial focus" of the picture, and should be present in all good work.

### Lighting to Obtain the Effect.

Undoubtedly the best method of obtaining the effect is by proper lighting of the subject. "As the sitter's lighted, so's the picture

drawn," and if the operator can see the effect he is aiming at he may be pretty sure the final print will show it also, granted good technique in the shape of proper exposure and development, suitable to the printing process decided upon. The customary flood of light over the whole of the subject naturally gives equal prominence to everything. We see at once, therefore, that the flood of light is just what must be avoided. Many workers when building or altering a studio insist on the side light going down to within a foot or so of the floor, "in order to get plenty of light on the feet." As a rule, too much light reaches the feet, even when the side light is much more than a foot from the floor. But assuming that the best must be made of the studio as it at present exists, the first step should be to cut down the area of top and side light by drawing down the opaque blinds until the open area is from 6 feet to 8 feet square, according to the nearness of the glass to the sitter. The smaller the studio the smaller may be the area of open skylight. The amount indicated will be sufficient for any half length, three-quarter, or full-length portrait. If this area of light-admitting roof is a little above, a little to the side, and a little in front of the sitter, it will be found that the highest light on the face will be in just the right position on the forehead, and that the head will be more brightly lighted than the rest of the figure. But this differentiation is insufficient for our purpose, and if the light is still further narrowed down the modelling of the face will usually become very forced, the shadows too solid, and high lights too brilliant. What is needed, therefore, is to throw a shadow over those parts of the subject which are to be kept in repose, and this is undoubtedly best accomplished by the use of secondary blinds, which may be placed nearer to the sitter. A large side screen (which for experimental purposes may be constructed from a background stretcher, mounted on the usual triangular castored stands, the background, of course, being detached), is placed between the light and the sitter. If the screen is 9ft. high it may be divided into three transverse sections, by means of tightly stretched wires, each wire carrying curtains made of some light material, preferably of a grey colour. Pink is often suggested, but the disadvantage of such a shade is that the visual and photographic effects are likely to be dissimilar, whereas with a neutral shade like grey one can see how the plate will be affected. The upper grey curtains may be so arranged as to allow the full light from the skylight to fall on the head and shoulders, the lower curtains being drawn to shade the figure. A further refinement would be to have two sets of curtains, one of paler grey than the other, so that where the local colour was dark—for example, a red or black dress—very little light might be cut off, while with light draperies a good deal more might be kept back. For head and shoulder portraits much may be done by the use of a simple opaque head screen, placed so as to throw a shadow on the bust, and yet to be just out of the picture.

### The Effect of Development.

Some workers prefer to get the effect by local development of the plate. Any average developing solution is employed, taking care that it is so compounded as to give full detail during the earlier stages of development. This developer is poured over the plate, and as soon as the whole of the image is well up the plate is washed under the tap, and development continued locally with a pledget of cotton wool, the developer being applied to those parts where emphasis is required. Of course, all things are possible to the person who, with skill and patience, desires to demonstrate some special method, but the objections to this development method from

the practical everyday standpoint, are that working in the dark room and on the partially developed negative it is exceedingly difficult and sometimes impossible, to estimate the progress of the local development, in relation to the general development. Thus an arm or hand may finally come to light, or too dark and dirty-looking. Further, such a method naturally demands the separate development of negatives, a much more expensive method of working—from the time point of view—than development in batches. On the whole, the development method is the one, which has least to recommend it.

### Local Reduction of the Negative.

Safer, on account of the operation being performed in full day light, is the method of locally reducing those portions of the negative which it is desired to keep quiet in tone. If the negative is of average printing quality the persulphate of ammonia reduced will be the one to employ, as the tendency is to reduce contrasts as well as to slightly reduce the whole of the deposits. Here, again, the amount of time required for the work must be considerable, if any thing like due consideration and care are given to it, and such work is better left undone if not done with care.

### Frictional Reduction.

The method by frictional reduction has this to recommend it, that any light patches, such as lighter portions of a dress, may receive more localised treatment, and so be much subdued. Either methylated spirit, applied with a piece of clean, dry wash-leather and considerable friction, or the Baskett's globe polish and terebenthine reducer, or dry powdered pumice may be used, according to the preference of the worker. The results depend more on him than on the special medium selected. Great care is needed to avoid irregular workings, and for general areas the larger the wash-leather, pad, or cloth used for applying the Baskett's mixture the better.

### Sunning Down the Print.

In one way this is the simplest of all the methods. The print is finished, printing in the usual way, and then shading the face and upper half, the margins are darkened down by exposure to light, turning the print round so that each edge in turn is subjected to light action. With platinum and carbon prints there is some danger of carrying the "sunning down" too far, or not far enough, though by means of a strip of P.O.P., held in the light at the same time, it is easy, with a little practice, to hit the mark. It should be noted that with some papers the colour of the image formed by light varies with the speed at which that image is produced, and that a tint formed through clear glass will often be of quite a different shade to the actual negative-printed image.

### Importance of the Background.

Finally, a word may be said as to the importance of the background in pictures of the kind referred to. It is of no use subduing the draperies and figure generally if the background attracts as much attention as the face. Generally speaking, there should be some gradation in that part which comes against the head, and the ground should be neither too dark nor too light. The degree of contrast between the face and the background will naturally determine the contrast required between the face and the rest of the figure. It must always be remembered that dirtiness or muddiness of the accessories and draperies is not what is wanted, and if tone relationship is palpably false this is the effect which will be produced.

C. H. HEWITT.

**THE LANTERN IN COLONIAL INSTRUCTION.**—As a result of a Committee on Visual Instruction, appointed by Mr. Chamberlain in 1902, to consider the possibility of providing illustrated lectures for use in the schools of the Empire, the Princess of Wales has secured within the past few weeks a fund of £4,000 for the furtherance of the scheme. A lantern lecture on the United Kingdom has been made the subject of a test experiment, and has been circulated in Ceylon, the Straits Settlements, and in Hong Kong, and as a result other colonies have been supplied with lectures on the United Kingdom. The Committee are now anxious to take up the other side of their scheme and to arrange lectures on the Colonies for use in the schools of the United Kingdom. They had desired to secure

a sum of at least £3,000 to cover, among other expenses, the cost of sending a highly-skilled photographer to visit the self-governing Colonies, India, and all and each of the Crown Colonies and Protectorates, in order to take views and illustrations such as the nature of the work demands. When prepared, the slides and lectures will be on sale to educational authorities and the public. The Princess of Wales has enabled them to go on with the work.

C. BALDWIN AND CO., LTD.—Capital £6,000, in £1 shares. Objects: To carry on the business of chemists, druggists, dentists, opticians, manufacturers of and dealers in salts, photographic materials, and optical, scientific, and other instruments, etc. No initial public issue. Registered office, 77, Walworth Road, S.E.



# WAYSIDE NOTES.

It is that a different spirit seems to prevail in America? We are told that the worship of the dollar is all prevalent there, that competition is keener and more ruthless than in this country, yet the feelings of the Americans, reported from time to time in the "B.J.," seem to denote that among the photographers a better feeling exists in this country. At the convention in New York of the photographers of that state, several of the leading men in the city demonstrated their methods to the visitors, in the same way, for instance, Mr. Langfrier might have a party of onlookers in his studio on the night of a court presentation, or the Messrs. Speaight demonstrated their methods of making their famous little child studies.

The American photographer believes that he learns something at these conventions, and he is not above admitting it to his public when he returns to his own town, as witness this advertisement, which is clipped from an American newspaper.

## PHOTOS FOR CHRISTMAS.

It is high time that those who contemplate having photographs taken for the holiday season, arrange for sittings, and thus avoid the rush that always prevails at this well-known studio for several weeks previous to Christmas.

J. R. Hallam has just returned from St. Louis, where he attended the National Convention of Photographers, at which he was one of the exhibitors. During the convention he came in touch with many new ideas in photography, which he will incorporate in his work during the coming season.

## HALLAM THE PHOTOGRAPHER,

48 N. Main St.,  
Bell 'Phone 21-R.  
Washington, Pa.

Appropos of American methods, photographers in the North of England are having an example of what is being done on the other side of the Atlantic in the form of the Aristotype exhibition, which is being held in various northern towns this spring. Large rooms are engaged in one of the leading hotels in each city visited, and they are fitted up in such a way as to make a visit to them a matter of genuine interest, and possibly of instruction, to the professional. The Aristotype demonstrators I have met seem to be thoroughly practical men—men who can give reasons for their product being better than its price in comparison with that of competitive work.

Among the specimens shown two features especially attracted my attention. One was the novel mounting scheme of a number of warm-toned prints, about 15 x 12 in size, prints which ninety-nine times out of a hundred would be put on white mounts. These were mounted on a board of such a deep buff colour as to be practically a yellowish-brown, and with a surface of a linen-like texture. Surrounding the prints there were, in some cases, one, and in others two, borders of a medium or dark brown. Attractive in itself, such a scheme gives an additional advantage from its novelty. Amateurs have for some time now been more daring in the matter of mounting than we professionals; possibly the Aristotype exhibitions will serve to show that ordinary professional work looks equally well when mounted on these lines.

The other feature that I thought noteworthy was what my informant called the "white panel." This consisted of a number of prints, partly in collodion chloride and partly in platinum, headed shoulders only, and with the busts vignettted in an irregular manner; for instance, in a profile, the part of the bust in line with the features would be from two to three times as long as that at the shoulder. The prints had the appearance of the negatives having been very carefully blocked; anyway, the background was a dead

white, and then a very sketchy background had been delicately worked in with the aerograph. The working was slight, practically only enough to balance the studied careless appearance of the uneven bust line. I know the "sketch" carbon, or "parfait," as it is sometimes termed, has been shown for some years, but in the prints in question the air-brushed background is so slight as to make them, to all intents and purposes, a novelty. They are, of course, mounted with the print trimmed flush with the mount. Studios in which the dark backgrounds have been run for some time would, I feel convinced, benefit by a change to this style.

Despite the fact that the committee of the P.P.A. report an evidence of increasing interest in the Association during the last year, the present state of that body is a reproach to the profession. Out of a number of something like 8,000 photographers in the United Kingdom only 524 show sufficient pride in their means of livelihood to join an association for promoting their common interests. Meeting, as I do, many photographers I frequently put the question, "Why are you not a member of the P.P.A.?" and the answer is, nineteen times out of twenty, either "What's the use?" or "What should I get out of it?"

There is, it will be seen, some difference in the two replies, and they fairly well indicate the class of man making them. To the first I point out that the public very largely forms its first impression by the estimate that a man sets on himself, and therefore if the photographer shows that he thinks sufficiently well of his profession to consider association with other members thereof desirable, such an association will, if well supported, in a very short time command the respect of the public, a respect in which he himself will share. If the accountants did not value their charter themselves, is it likely that the public would set the store they do by the term chartered accountant?

The other question, coming from a different type of man, calls for another reply, and I generally put it that the small subscription is really but a form of insurance. He may get involved in a copyright dispute, and, if he be in the right, the support of the Association will very likely secure an immediate settlement without recourse to litigation; while, if in the wrong, the advice that he will be given will prevent him incurring any expense in obtaining legal advice. I tell him that his fellow professionals, who are at the top of the tree, men who certainly do not stand to "get anything out of it," are sufficiently interested in the welfare of their profession to sit on a committee, discussing his troubles and giving him the benefit of their experience. And, finally, I tell him what the Hull photographers, led by the redoubtable T. C. Turner, did in the matter of the Oxo enlargement scheme. But it's weary talking to such men!

The other night at "The Playhouse," the charming little theatre that has been rebuilt on the site of the old Avenue Theatre, destroyed by the collapse of the S.E.R. Charing Cross Station roof, I chanced to overhear a remark which I thought would interest a good many photographers. A lady was looking at her programme, and said, "How artistic! I do like this cover; it's enough to make one say the piece is good without seeing it." The cover, as a matter of fact, was designed for the theatre itself, and had no particular reference to the play in question, since the title line at the bottom could obviously be changed for whatever play happened to be running.

The moral I mentally drew from the remark was that any piece of advertising, the manner of the receptionist, or the state of the reception-room, would probably affect that lady in the same way were she to go to a photographer. She would judge the photographer by his surroundings, and the idea that she was going to have a satisfactory photograph taken would be more than half way to ensuring that the final result would be such. And, I believe, there are many people in this world who are similarly influenced.

THE MAN ON THE ROAD.

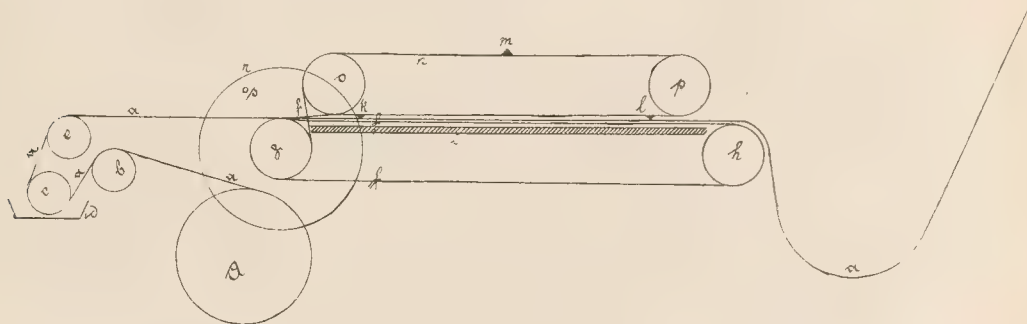
## AN EXPERIMENTAL COATING MACHINE.

For experimental purposes a machine that will coat evenly and well paper of the normal width of about 26 inches and in reasonable lengths is a great desideratum. The only machine now on the market is one constructed by Schippang, according to the designs of Herr Zink, of Gotha. This, however, as pointed out by Herr Th. Bentzen, in "Die Photographische Industrie," is only designed for five-metre lengths, in which length it is extremely difficult to ensure perfect regularity of movement. Also one frequently wishes to test a greater lengths. Another point is that with the repeated use of five-metre lengths there is always waste of paper and emulsion at the beginning and end of the lengths.

The above-mentioned machine is satisfactory for collodion paper, for which it is specially designed, but not for gelatine emulsions. Coating of small pieces of paper with gelatino-bromide and gelatino-bromide emulsions with coating frames is very unsatisfactory. Not

the roll *A* over the roller *b*, round the dipping or coating roller *c*, through the emulsion trough *d*, then over the roller *e* on to the setting table. One part of the setting table consists of a sheet of plate glass *i*, which is shown in the diagram slightly below its proper level, in order to make it quite clear. Over this sheet of glass runs an endless cloth (canvas), *f*, over the rollers *g* and *h*, whilst a second endless cloth *n* is stretched over the rollers *o* and *p*. These rollers *o* and *p* are regulated by adjustable screw arrangements, which are not shown in the sketch, so that the three triangular wooden rods, *k*, *l*, and *m*, which are glued to the cloth *n*, and are separated from one another by the length of the sheets of paper, press the paper against the cloth *f* and the glass plate underneath it. The rollers *g* and *h* are lengthened somewhat and provided with a groove in which a crossed leather belt is stretched.

If now the fly-wheel *r* is turned by the handle *s* by hand, the



only is it wasteful, both of paper and emulsion, but regularity of coating is difficult, and it does not pay the small user who wishes to coat his own paper.

Some years ago the author has had to calculate the cost of certain papers, and was forced to devise a machine which would do the required work in sufficient lengths. He constructed a machine which has proved to be perfectly satisfactory for experimental work, although unsuitable for large turnover. This last fact is accounted for by the fact that although the paper can be coated in the roll, yet it is not sufficiently long to be sold as such, but only in sheets, and also because the size marked during the preparation slightly alters in consequence of the extension of the cloth—a defect very difficult to avoid.

The accompanying diagram explains the construction of this experimental coating machine. The baryta paper *a* is drawn from

paper will travel forward, and can be taken up by rods, after it has left the machine, and these can be supported on two parallel bars and looped up to dry. If the room is too short the parallel bars can be bent round and thus a second track produced; this can be repeated as often as the width of the room will permit. In an ordinary room it is easy to coat and hang up 100 metres of paper.

Below the glass plate *i* an ice box can be easily placed for making gelatino-chloride papers; for collodio-chloride paper the room must naturally be heated.

As the necessary slow revolution of the fly-wheel is difficult to attain, particularly with those not used to it, it is advisable not to fit the fly-wheel direct on to the roller *g*, as shown in the sketch, but to arrange it further between *g* and *h*, and then to regulate the movement by pulleys and straps, so that a quick and regular revolution of the fly-wheel is converted into a slower movement.

## KALLITYPE FOR WINTER LANDSCAPES.

THE Kallitype process, the details of which have from time to time appeared in our columns, is the subject of warm encomiums in the current issue of the "Photo-Era," where it is particularly commended for the printing of negatives of winter landscapes. The following is the text of the communication:—

The progressive amateur who practises photography from pure love of it is usually a true artist at heart, and, as such, he will, sooner or later, chafe at the restrictions imposed upon him by the printing papers on the market—the necessity of employing different processes to obtain the best results from different negatives, or the monotony consequent upon using the same kind of paper continually, even if it were possible to obtain results otherwise satisfactory thereby.

To such workers as earnestly strive to produce real pictures, and are willing to devote a little labour and patience to that end, the kallitype process offers such advantages that it should lastingly appeal to them. Its preparation and manipulation are easily within

the ability of the ordinary careful amateur, and by variations in the quality and character of the paper used, the same negative may yield prints so different in texture, gradation, and tone, as to be a source of constant wonder and delight to the operator.

The process is not limited to a certain class of negatives either, as slight variations in the proportions of the sensitising solutions adapt the paper equally to negatives of thin and soft, or hard and contrasty variety, while the finished prints will compare, in artistic beauty, to platinum at its best. Added to these decided advantages is one more—the process is inexpensive.

### Papers for Kallitype.

The paper itself is the most important factor in the result obtained. The specially prepared photographic papers, such as Steinbach, yield soft tones, with a tendency to cold black. Whatman's water-colour paper, easily obtained in all surfaces, from smooth to very rough,



ers a wide range in results—the rougher the surface the greater the tendency toward broad, sketchy effects, and warmer tones. Beautiful results may be obtained by the use of architect's drawing-paper, known as "egg-shell"; it is heavy and strong, and yields rich brown tones. Ordinary ledger-papers, such as Weston's or Scotch linen, are very useful in this process, and are more used than any other kind. The soft Japanese papers yield prints which are the refinement of artistic elegance, but require more care in the preparation and drying, it being necessary to mount them with white dextrine, on strong, white paper, such as ledger or Bristol board, before the sensitising process, and allowing them to remain on this supporting printing and development; if the paper does not leave its mount during the latter process it may be removed easily by immersing in warm water.

#### Sizing with Arrowroot.

Japanese papers require negatives of rather strong contrasts to get the best results. It is absolutely necessary that the Steinbach or Whatman papers be "sized" to keep the sensitising solution on the surface. While the other papers mentioned above can be used without sizing, the prints are so much improved by the process that the little additional trouble is well spent.

Arrowroot is especially recommended, as it not only fills the pores of the paper, but it leaves a soft deposit which renders rich half-tones velvety-blacks. To prepare such size, rub eighty grains of arrowroot flour into a stiff paste with a little cold water. Add to this, stirring constantly, sixteen ounces of hot water, and bring the solution to a boil. Now add four ounces of alcohol, stirring constantly, in through muslin, and immerse the paper for about two minutes; then hang up to dry. Repeat this operation, hanging the paper from stronger ends, and, when thoroughly dry, it is ready for the sensitising solution. This is made up in four stock solutions, kept in glass bottles, in a dark, cool place.

#### The Sensitising Formula.

I know of no improvement over Mr. Henry Hall's formula, which is as follows:—

Solution A.—Distilled water, 5 ozs.; ferric oxalate, 1 oz. Reverse for 24 hours, and put away for 24 hours; then add 48 grs. selected arabic.

Solution B.—Distilled water, 8 ozs.; ferric oxalate and potassium, ½ oz.

Solution C.—Distilled water, 4 ozs.; oxalic acid, ½ oz. When this is dissolved, bring to a temperature of 75 or 80 degrees, and add 100 minims stronger ammonia water; then filter.

Solution D.—Distilled water, 4 ozs.; bichromate of potassium, 1 gr.

For normal negatives, use Solution A, 1 oz.; Solution B, ½ oz.; Solution C, 30 minims; Solution D, 4 drops. Of the above, take 12 and add 12 grs. nitrate of silver, stirring with a glass rod until dissolved.

For harsh, contrasty negatives, use of Solution A, 1 oz.; Solution B, 1 oz.; Solution C, 35 minims.

For soft, thin negatives, use of Solution A, 1 oz.; Solution B, ½ oz.; Solution C, 15 minims; Solution D, 8 drops.

In preparing solution for contrasty negatives, use 14 grs. of silver instead of 12. Apply to the paper by pouring a small pool of solution in the centre, and distributing with a two or three-inch camel's-hair brush bound in rubber, using no more than sufficient to cover the surface of the paper thoroughly. This operation is conducted by lamplight, and when the paper is surface-dry it is hung over a stove or placed in an oven, so that it may quickly become bone-dry. Print until outlines are fairly visible, and proceed with development.

#### Developers for Black Tones.

Developer Formula—Stock Solution.—Distilled water, 32 ozs.; acetate of soda, 4½ ozs. Of this take 8 ozs.; add tartaric acid, 12 grs.; Solution D, 20 minims.

If this does not yield tones sufficiently black, add 25 to 50 minims of 50 per cent. phosphoric acid. After thorough development, rinse, and clear for half an hour in a fresh bath composed of distilled water, 8 ozs.; sodium citrate, ½ oz.; citric acid, 20 grs. Wash thoroughly and finally fix for ten minutes in a bath composed of water, 16 ozs.; hypo, 7 drams; stronger ammonia, 90 minims. Wash thoroughly and dry. Of course, a good negative is the greatest help to a good print, and should be striven for in the first place.

In photographing landscapes covered with snow, my experience has led me to the invariable use of non-halation orthochromatic plates, with a normal yellow screen. This is because of the presence of so much blue tone in the shadows and broken parts of the snow surface, which, if not corrected, would fail to give sufficient contrast to the unbroken white of the snow. I generally use Stop 16, giving full exposure, followed by full development. If the high-lights are too dense I reduce them with persulphate of ammonia, which leaves the shadows practically untouched.

A rough-surface Whatman paper is very effective for this class of pictures, giving a wash-drawing effect, and breaking up what might be a too flat expanse of white. Rough papers also aid in securing diffusion and atmosphere. Irrespective of the paper used, I frequently employ one or more sheets of celluloid interposed between negative and paper. This produces sufficient diffusion, without forcing some portion of the picture too much out of focus, and suppresses detail which might be too insistent.

In making prints on Japanese papers, if considerable margin is allowed, and a mask used on the outside of the negative, instead of between it and the paper, a soft outline is obtained, and the finished print, especially if a warm tone is being produced, resembles in appearance an artist's proof of an etching or mezzotint-engraving. These papers should be dried between clean blotters and under pressure.

There is no greater pleasure connected with the art than to watch the development of a beautiful print on home-made paper and to realise the immense possibilities and control which lie under the hand of the worker.

JAMES S. ESCOTT.

## THE SPECTRUM AND THREE-COLOUR PHOTOGRAPHY.

(From "Das Atelier des Photographen.")

When a spectrum of small dispersion is observed, the impression is as though it consisted of only three colours. Reddish, green, and blue-violet take up very large portions, whilst yellow and blue-green are limited to narrow sections. The individual colours thus possess a very different extension, and the transition from red to violet, the so-called crimson, is completely wanting in the spectrum. This distribution of colours is shown in I. Fig. 1.

Obviously these facts are due to the physiology of our eyes. They are excited to the sensation of "crimson" by one set of rays, the numerous homogeneous rays cause the sensations red, green, blue.

Between the objective light vibrations and the colour sensations

of our visual apparatus there is, therefore, considerable incongruence, for if the colour sensations changed proportionately with the increase in wave-length, the spectrum must show a distribution of colours, as shown in II. Fig. 1.

From the physiological standpoint, therefore, one may also say, that white light contains no purplish red, and only small quantities of yellow and blue-green rays; it consists essentially of the components red, green, and blue.

In the world of colour round us, however, all colours play an equally important rôle, as yellow, for instance, occurs in nature as often as green and red, and since the colours of all substances can be traced back to absorption phenomena and are thus formed from white

light, so the material colours can only be composed of three components. In connection with this it should be noted that, as regards the two ends of the spectrum, the red to the line C and the violet on that side of G, are, on account of their weak luminosity, almost without action on the formation of body colours, that is to say, only that part of the spectrum lying between C and G, Fig. 1, need be taken into consideration. There is thus wanting the carmine red, similar to the extreme red of the spectrum, as well as the violet, and as the middle tones of the still remaining three fairly homogeneous spectral zones, we have then vermilion, yellowish-green, and ultramarine-blue. All body colours must therefore be composed of three components, and they may therefore be considered as primary or fundamental colours, whilst yellow, blue-green, and violet are compound colours, formed from red and green, blue and green, and red and blue.

From this will be seen an extremely clear connection between colour vision and the principle of three-colour photography; the property of colour vision can therefore be very simply imitated by this process, for we simply split up the colours of the original into

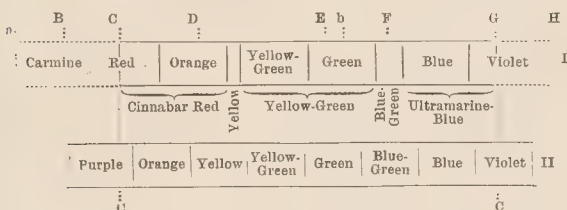


FIG. 1.

the above-mentioned three constituents and then combine pictures coloured in an analogous manner. One can thus, even by simple examination of the spectrum, determine with tolerable accuracy the three fundamental colours of three-colour photography, without the aid of more comprehensive theories or experiments. It is also clear that the photographic splitting up of the colours can only be based on the above-mentioned three spectrum zones, and that it is impossible to split up the original colours into more than three parts.

From the above-mentioned colour distribution in the spectrum Helmholtz ascertained the most probable colour sensations, which, following Young's theory, correspond to the three elementary nerve excitations. The choice of these physiological fundamental colours is, as is well known, to a great extent, arbitrary, for it is only necessary for them to comply with the condition that the triangle formed therefrom should include the whole of the spectral colours. By the aid of Fechner's law, however, it is possible to ascertain the fundamental colours which best correspond to these proportions from the connection between wave-lengths and colour sensation. This, however, is a problem by itself, with which one need not complicate the theory of three-colour photography.

If one considers white light composed of but three constituents, numerous phenomena peculiar to pigmentary colours can be explained. The colour of any substance depends on the sum of the reflected rays, thus on the absorption band, or the length and extension of the absorption bands. A substance appears green, for instance, if it almost exclusively reflects the green rays, if thus in its absorption spectrum the red and blue zones of the spectrum appear covered. It appears yellow to us when it reflects the green and red rays thus when it shows an absorption band over the spectrum blue. If, therefore, a substance is to appear red, green, or blue, it must, as shown in Fig. 2, absorb about two-thirds, that is, two spectral zones of the white light; if, on the other hand, it should appear yellow, blue-green, or violet, then the absorption is limited to about one-third of the white light.

This explains the brilliant appearance of yellow, blue-green, and crimson pigments in comparison with the dampened dull impression that all vermilion, green, and blue colours produce. The first-named colours are richer in light and more luminous, for they reflect more light rays than the latter, which beside them appear dull and blackish.

When pigments are mixed the compound colour is the effect of

the rays reflected after superposition of the absorption bands. Vermilion-red, green, and blue colours give, therefore, when mixed one with the other, only blackish colours, for by the combination of their two absorption bands, almost the whole of the spectrum is covered. As a matter of fact, a very dirty yellow—actually brown—can be formed from vermilion and green, and from blue and green very dirty blue-green.

On the other hand, blue-green, crimson, and yellow pigments are particularly suitable for mixing, for when mixed they always leave still one spectral zone uncovered. These colours are, therefore, as is well known, the only ones possible for three-colour printing.

These facts would be quite different had we a simple constant connection between the wave-length of light and colour sensation, and if in the spectrum there were a brilliant violet and crimson—that is, if the spectrum was as shown in II. Fig. 1. Then the photo-

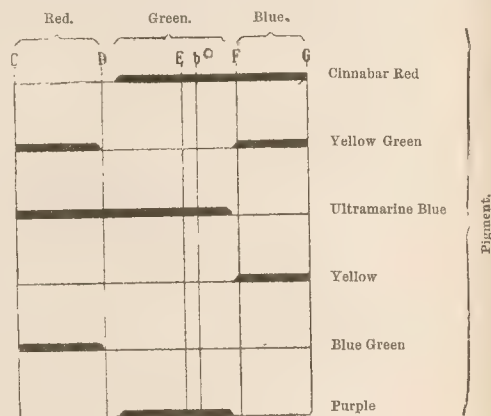


FIG. 2.

graphic splitting up of the colours could be based on an infinite number of equal colour triads and the splitting up into four fundamental colours would be possible, and all pigments of any colour would be equally suitable for mixing with another.

The physiological nature of our eyes necessitates, however, an incongruence between wave-length and colour sensation, through which the theoretical basis of three-colour photography is considerably limited, and the practical execution rendered much more difficult.

A. VON HÜBL.

"THE BOOK OF PHOTOGRAPHY, PRACTICAL AND APPLIED," is the latest of the serial works to be published by Cassell and Co. It is edited by Paul N. Hasluck, and will be completed in 32 weekly parts, the first of which will appear on April 26. The price of each 3d. net.

H. RHEINLANDER AND Co., LTD.—Capital £500, in £1 shares. Objects: To carry on the business of photographers, photo-processors and general engravers, art designers, printers, advertising agents, publishers, picture dealers, and cleaners, advertisement contractors etc. No initial public issue. Registered without articles of association.

THE NEW CAB REGULATIONS.—The Home Secretary has sent the following reply to a letter from Messrs. Speaight (Ltd.), of New Bond Street, who complained that ladies arriving at their studio by cab accompanied by a nurse and child in arms, were caused considerable annoyance by the cabman's insisting upon charging as "an extra person" the baby brought to be photographed:—"Whitehall, April 12. Sir,—With reference to your further letter of the 9th inst., I regard to your suggestion that children in arms should be allowed to travel in cabs free of charge, I am directed by the Secretary of State to say that the provision to which you refer has not been adopted in the new Public Carriage Order.—I am, Sir, your obedient servant, W. P. BYRNE."



## PRINTING PHOTOGRAPH AND BORDER NEGATIVE IN ONE OPERATION.

ORDER negatives usually have the design in "line" on thin paper celluloid, and these are suitable for this method.

Cut out the centre of design, usually opaque, with a sharp knife make a clean edge, then get a mask of thin card or metal with an aperture of the exact proportion of that in the design and a little larger, say  $\frac{1}{16}$  in., if a narrow white line is desired round the photograph in the finished result, and the same degree smaller if a black line is required.

Now take the portrait or other photograph on a plate at least as large as the border design, and preferably in the position corresponding to the aperture in the mask.

Having developed, fixed, and washed this in the usual way, immerse it for a few minutes in formalin or chrome alum, rinse and dry.

When quite dry, place the prepared mask on the film of negative so that the required part shows through the aperture, then cut away through the film all round.

Now soak the negative in hydrochloric acid 1 part, water 7 parts, for a little while, and then rub the edge with the finger to see if the mask will come off easily. If not, give it a little longer and try again.

The film should peel off in one piece leaving the required part with a clean edge on the plate. Care should be taken not to rub the plate.

The plate is then rinsed and dried, when the border design can be attached with its aperture corresponding with the negative left on the plate and the two printed together.

The designs being in "line," it does not matter if they are over or under exposed according to the density of the negative, but the borders may be adapted by extra masks or coats of tissue paper or matt varnish.

It should be noted that it is almost impossible to get the edges of the aperture of design and the bit of negative to correspond exactly, it is better to have one smaller than the other so as to print a round.

D. B.

## Exhibitions.

### PHOTOGRAPHS BY MRS. CALEB KEENE.

I confess that we were a little surprised to find a temple dedicated to art in the upper floors of a great house at the Hyde Park Corner of Piccadilly, and it was not without a little trepidation that we threaded a way through passages where an open door here and there showed signs of secret domesticity in the shape of gleaming brasses and snowy coverlets. Can it be possible, we asked, that Mrs. Caleb Keene receives, as did the ladies of the eighteenth century, her sleeping apartments? A timely hint from an attendant turned us steps into a small gallery, lighted from the top, adorned with classic capitals (without shafts) and lined with the regulation brown paper. This is the "Art Gallery" of the Lyceum Club, 28, Piccadilly.

Here Mrs. Caleb Keene exhibits close upon a hundred examples of photographic art. The collection consists very largely of South African views, and studies of the tag-rag-and-bobtail of the sons which seem to be attracted to the neighbourhood of Cape Town. These character studies are perhaps the happiest of Mrs. Keene's efforts. They are all well caught, and some of the subjects that deal with children are quite charming. These little pictures, whether they be of Zulu, Malay, Dutch, or other extraction, are in every case spontaneous and engaging. The picture of a girl holding a baby, held in a shawl, at her back, is one of the favourites. Simple in its design and pleasant in subject. Another, a little girl playing with a toy waggon, is equally engaging. "Boys Round a Camp Fire" something more is attempted. The effect of the artificial lighting makes a very attractive subject group happily posed. "Motherhood" will be recognised by those who to the last Royal Exhibition, where it won no little honour. It presents a mother feeding an infant in the natural way, as she sits beside a bed. It shares the honours here with "Cape Huguenots," white-capped women in an interior. This is a very strongly lit picture, and well composed. We should like to see more of such

obviously pictorial work by Mrs. Keene, for we are disposed to think that she shows to the best advantage in work of that class. Her enlargements from hand-camera work are not always so well studied in their tone-values. "Combing Flax" is, in this respect of values, perhaps the best thing in her show; though the figure of the woman is rather more central than good arrangement required. On the other hand, it must be admitted that the old man who sits at a table reading from a ponderous volume is unconvincing in its tone-values; neither figure nor accessories appear to be what the original negative properly exposed must have given.

In landscape work, this defect is unfortunately of pretty regular occurrence. Not that her work is any different on this account from that of many another pictorial worker whose name stands high. It simply shows that when good photographers attempt to push their work into the domain of good art, they frequently push it to where it drops between and becomes neither. Mrs. Keene's skies are deficient in light, and her ground and other horizontal planes sometimes look as though they were overshadowed by a mighty canopy. Her best landscape, to our mind—and for it we have nothing but praise—is a mountainous view where a winding road stretches down to the foreground, and upon it are stalking three or four natives. Zulus perhaps, who may be going to the mines, but would do very well for native warriors in the picturesque dignity of their figures. This appears to be a more straightforward work technically than most of the enlargements. Another good landscape, capable of great things, with a more natural treatment of the light, is called "From the Slopes of Table Mountain." It has a fine Corot-like design, showing a distant view of a gleaming town in a hollow seen from between near trees densely massed upon the one side and thinly disposed upon the other.

Of a few portraits, the best is that of Sir David Gill, which is excellent in its easy pose and fine character.

We should say that Mrs. Keene's technique rises to its highest in her extremely interesting collection of botanical studies, made from plant life in South Africa; but embracing many varieties common to this country. We were pleased to learn that governmental help has been accorded to the author of these studies, and that they are being officially put to the educational purposes for which they are truly fit, and for which they were intended.

"THE TRIBUNE" PHOTOGRAPHIC EXHIBITION.—Monday next will see the opening of "The Tribune" photographic exhibition, which is to be held in connection with "The Tribune" amateur photographic competition, particulars of which were announced in our columns for April 12. The popularity of the competition is demonstrated by the large number of entries received, and the judges, Messrs. A. Horsley Hinton, Stephen Reid, Carl Hentschel, George E. Brown, J. H. Lunn, and the Editor of "The Tribune," were able to select a number for awards. The winning photographs will occupy a prominent place in the exhibition, and the prizes will be distributed by Sir J. Benjamin Stone, on Friday, May 3. Other leading features of the exhibition will be pictures lent by Sir Benjamin Stone, a large collection of amateur work, and exhibits by many leading photographic firms, including the most modern designs of cameras and accessories. Demonstrations of the latest processes, etc., will be given at frequent intervals, and expert advisers will be in constant attendance. The exhibition should prove of considerable interest and value to all interested in photography, both amateur and professional, and we anticipate a large number of visitors for it. The exhibition will be opened at 12 noon, on Monday, April 29, and will continue for one week only. Admission will be free daily, from 12 to 8 p.m., at "The Tribune" Rendezvous, Bouverie Street, London, E.C.

The following is a list of the exhibiting firms:—

Adams and Co.	The Leto Photo Materials, Ltd.
Adhesive Dry Mounting Co.	J. Lizars.
Benetfink and Co., Ltd.	Mattos, Ltd.
Birmingham Photographic Co.	Newman and Guardia
Butcher and Sons, Ltd.	The Paget Prize Plate Co.
W. Butler ("Swincam").	The Rotary Photographic Co.
J. H. Dallmeyer, Ltd.	Sanders and Crowhurst.
Elliott and Sons.	Service Photographic Co.
A. W. Gamage, Ltd.	Spier and Pond.
The Glazeit Factory.	Standard Patents Co.
C. P. Goetz.	London Stereoscopic Co.
John J. Griffin and Sons, Ltd.	Taylor, Taylor, and Hobson.
Houghtons Ltd.	Chas. Tyler and England Bros.
Ilford, Ltd.	Watson and Sons.
Thomas Illingworth and Co.	Wellington and Ward.
Johnson and Co., Ltd.	Charles Zimmermann and Co.
"Kodak" Co., Ltd.	Carl Zeiss.

## Patent News.

The following applications for Patents were made between April 8 and April 13:—

- CHANGING BOXES.**—No. 8,132. Improvements in and relating to change boxes for photographic and other like purposes. Sidney Herbert Bath, Holly Cottage, West Street, Carshalton, Surrey.
- FILMS.**—No. 8,174. Improvements in photographic film rolls. Edward Crawford Davidson, 18, Southampton Buildings, London.
- SHUTTERS.**—No. 8,175. Improvements in or relating to devices for operating the shutters of photographic cameras. Alfred Greeff and Robert William Greeff, 70, Chancery Lane, London.
- CAMERA ATTACHMENT.**—No. 8,192. Extension or attachment to cameras for taking larger photographs than the camera is constructed for. William John Reavell, 5, Southdean Gardens, Wimbledon, Surrey.
- PLATES.**—No. 8,440. Improvements in photographic plates. James Booker Blakemore Wellington, 53, Chancery Lane, London.
- COLOUR PHOTOGRAPHY.**—No. 8,601. Improvements in screens for colour photography. Frank Wordsworth Donisthorpe, Hohenfels, Combe Down, Bath.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**MAGAZINE CAMERA INDICATOR.**—No. 16,933. 1906. An indicator is provided on magazine and like cameras to tell the operator whether the plate in position has been exposed. A conveniently shaped aperture, which may be glazed or protected with transparent celluloid, is provided in the side or upper surface of the instrument. Behind or below this aperture is a sliding or pivoted plate, coloured or printed in such manner that when one portion is seen through the aperture the operator knows that the exposed plate is still in position facing the lens, and when the other portion appears it informs the user of the instrument that the plate has been renewed.

The sliding or pivoted plate is connected by levers, or otherwise with the trigger of the shutter or exposing trigger, and with the lever of the apparatus for renewing the plates; or it may be connected with the spring mechanism for easing the fall of the plates after exposure, the exact form and arrangement of the mechanism depending on the form of the camera to which the invention is applied.

When the exposing trigger has been operated the indicator is left in such a position that the operator can see at a glance by the colour appearing in the aperture that an exposed plate is in position; when the lever of the changing apparatus has been operated the indicator is reversed so as to inform the operator that a fresh plate is in position. William Leigh Lawrence, 1, Partridge Road, Roath, Cardiff.

**PRINT WASHERS.**—No. 7,057. 1906. This invention relates to apparatus in which the prints are kept from being exposed to the air while under treatment, while at the same time allowing the water in which the prints are soaking to be completely changed periodically. The apparatus also provides for keeping the water surrounding the prints free from agitation. A tank or receptacle is made in which the plates, prints, or films are placed in the usual racks or suspended by clips. The tank is about twice the height of the plates or articles to be washed.

The water is run continuously into a funnel tube, called the inlet tube, at one end of the receptacle, which may consist of a semi-circular tube fastened on the outside of the tank, and reaching to or near the bottom, or a circular funnel tube fastened inside the tank. At the bottom of the inlet tube a series of holes are made, to admit water to the tank. If required, a simple overflow tube can be used inside this inlet tube to prevent overflowing. The inlet tube conducts the water into an intermediate chamber formed by a partition across the receptacle, the partition being perforated with small holes at the upper portion. The water issues from the funnel tube through the perforations in its bottom,

and rises in the intermediate chamber, and overflows through the perforations in the partition plate into the main tank or receptacle gradually covering the plates. In the intermediate chamber is further provided a bent syphon tube, the inlet leg of which is fastened through the bottom of the partition forming the intermediate chamber, the outer leg passing through the side of the tank just below the semi-circular inlet tube.

When the water reaches the top of the bent syphon tube automatically and rapidly empties off the lower portion of the water in the main tank or receptacle, which tank is provided with a false bottom perforated with holes, and just covers the inlet leg of the syphon tube.

This syphon tube has a hole pierced in the inlet leg a little above the top of the non-perforated portion of the partition forming the intermediate chamber, and over this hole is fastened a metal cone, the lower edge of which is a little above the partition which forms the intermediate chamber. When the surface of the water reaches the bottom of the cone of metal, air is admitted, which passes through the hole under the cone, at once into the syphon tube, and so cuts off quickly the action of the syphon. This metal cone is so arranged at such a height that the prints in the tank are left covered with water, and the process is continued automatically.

By this means the water which is in contact with the prints and the like is kept free from agitation, whilst the tank is filled and the incoming water does not mix with it, and is automatically completely changed periodically without the prints being exposed to the air or subject to any violent agitation when the water is changed. This bent syphon tube can either be entirely within the tank or can have the inlet leg inside and the outlet leg outside, or can be entirely outside the tank. In the latter case, however, the inlet leg of the syphon tube must be attached to the outside of the tank at that level at which it is required to cut off the action of the syphon and the hole then bored through side of tank and inlet leg of syphon tube, and a semi-conical piece of metal fastened over this hole, inside the tank. Edgar Mar Chapman, Cairnsmore, Manor Road, Scarborough.

**CINEMATOGRAH CAMERA ATTACHMENT.**—No. 9,987. 1906. The invention relates to an attachment to a camera by which a series of pictures can be taken in consecutive order upon a photographic plate or film, and to apparatus and mechanism suitable for showing the result of such work, either projected upon a screen viewed through a lens. The plate to be exposed is moved backwards and forwards in a sinuous path, so that a series of photographs may be taken upon the surface of such plate.

A frame is made, which may be in the form of a box of suitable dimensions and size for attaching temporarily or permanently to the back of a camera in the position usually occupied by the dark slide. Connected with the front portion of the before-mentioned attachment is a shutter. By preference a flat shutter has been found to act well for the purpose. The shutter may be of the disc pattern, with a portion of the same removed such portion corresponding with the period or length of exposure the opening being regulated according to the light and the subject. Placed in a horizontal frame within the attachment is a suitable plate holder. On the back of this, or in any other suitable position, are a number of projections or studs, forming a rack spaced out in such a manner that each projection or stud corresponds with the position intended for a picture on the negative plate. A toothed wheel, pin, disc, or crank is made to revolve at a uniform and predetermined rate of speed. The teeth of such wheel, or the projections from such pin disc while revolving engage in the projections or studs upon the back of the plate holder and cause an intermittent, regular, and positive movement of the latter. The first horizontal movement of the plate holder, which may be from right to left, is of such description that when the plate holder has arrived at the beginning of the stroke it descends bodily in such a manner as to allow the revolving teeth or studs on wheel disc to engage in a higher row of pins, or projections, in order that a fresh vertical position may be given to the row of pictures upon the negative plate. The continuation of the revolutions by the before-mentioned disc or pinion carries the plate along on a horizontal plane, alternately from left to right and from right to left, until the whole,



greater part, of the plate has been covered with pictures. It is, of course, understood that the same motion that causes the revolution of the wheel or pin disc will, by means of gearing or other mode of transmission, revolve a shutter, so as to cut off the light from the lens to the negative plate, during the horizontal or vertical movement of such plate.

The second portion of the invention consists of a suitable means of holding and exhibiting the positive (by preference made of paper) taken from the negative produced as before-mentioned. Essentially the arrangement is in the form of a holder, into which the paper or glass positive can be easily fitted. A clockwork or manual means of transmitting power for working the plate and shutter, as before described, may be combined with a lighting arrangement for throwing sufficient light upon the picture, either by means of a condenser or otherwise and a suitable lens, magnifying glass, or the like, for increasing the size of the picture, as seen on the positive paper or plate. It is understood that should the apparatus be used in daylight probably no artificial light will be required. James Preston Cribb, 127, Chichester Road, North End, Portsmouth.

The following complete specification is open to inspection before acceptance:—

LOUR PHOTOGRAPHY.—No. 7,217. 1907. Process for the production of coloured photographs. Smith and Merckens.

### New Trade Names.

CRYPLAN.—No. 290,504. Photographic lenses included in Class 8. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C., opticians and lens makers. February 16, 1907.

DESIGN, an eagle with outspread wings, perched on piece of stone.—No. 290,637. Photographic mounts and albums included in Class 39. Fordham and Company, Ltd., Victoria Works, Victoria Road, Walthamstow, Essex, photographic mount and album manufacturers. February 21, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### The Swing-Front.

A little known feature of the swing-front (says Mr. C. Welborne per, in "The Photographic News,") enables us to effect a very useful adjustment that is quite impossible with the swing-back. Suppose the view to include a near foreground object represented at the top of the focussing screen and a very distant object, the image of which falls in the centre of the focussing screen. The usual remedy is to stop down, but another one sometimes employed is to use the swing-back and tilt the screen backwards until both images fall on the surface. You thus obtain sharp focus with a large aperture, but at the expense of distorting the apparent perspective of the view. The swing-front, however, offers another method of securing a similar effect without disturbing the perspective. Assume that the lens is free from distortion (or rectilinear), and that it has a flat field, or will produce a flat image of a flat object; and also assume that it is being used for the purpose of representing a very distant flat object. If the image is flat, it is manifest that the distance between the lens and lens is greater at the margins than in the centre, or, in other words, that the focal length of the lens is greater for oblique than for direct light. It is easily obvious that this must be so if a flat image is to be produced. Suppose now we swing the lens so that it points to the near object. This will now be represented by direct light, and by the shortest focal length of the lens, whilst the distant object is represented by oblique light and a greater focal length. The image of the near object will therefore move forwards towards the lens, and that of the distant object backwards from the lens, as the latter is swinging from one position to the other. The two images thus move in opposite directions. The one that was previously in front of the plate moves backwards, and the other that was behind the plate moves forward; hence, at one particular angle of swing both will be on, or very nearly on, the plate, and both will be in focus.

### Applying Passe-Partout Binding Strips.

A simple and time-saving method (says a writer in "The Amateur Photographer") is to first cut your four strips exactly the size of the edges of the glass, then take each in turn and fold and crease it the full length of the strip, either into one-half or one-third of the width, according to the width of border desired. Then open the creased paper to a right angle and run a wet small mounting brush along the portion to be stuck to the glass. Then, keeping the strip still in a right angle shape, slide the wet portion to its position upon the glass. To do this, it is necessary to have the sheet of glass upon a thick book, or something smaller than itself, so that the edges of the glass are clear all round. Do each edge in turn, not forgetting to cut the corners off two of the strips to give the appearance of a mitre-joint. Now turn the glass face down upon the table, with the dry edges of the binding standing upright, and all that remains is to drop into position, face down of course, the picture and backboard, wet the edges of the binding, and press down.

### Sensitising Carbon Tissue.

Mr. A. H. Hall (writing in "Photography" on the above subject) says: "Briefly the means adopted are as follows: A 10 per cent. solution of either potassium or ammonium bichromate is made up, using hot water, and when cold the solution is filtered. To each ounce of it an ounce and a half of pure acetone is added. In the case of potassium bichromate a quantity of crystals will be thrown down, but this will make no difference. A piece of tissue is then taken and pinned by its four corners to a stout piece of cardboard, a little of the solution is poured into the middle of the tissue, and is spread quickly and evenly over the whole surface with a broad camel-hair brush. The brushing is continued, backwards and forwards, and up and down, until there is a tendency for the brush to stick. The tissue is then put into a cupboard away from the light, and it will be found dry and fit for printing in about fifteen minutes. Besides ensuring the complete solubility of the tissue, the method has several other advantages. No preparations are necessary until it is certain that a suitable day has been obtained for printing. A dozen pieces can be sensitised in a very short time and at a very small cost.

## New Apparatus, &c.

The Goerz-Anschutz Folding Camera (New Model). Made by C. P. Goerz, 4 and 5, Holborn Circus, London, E.C.

In introducing a new model of its well-known folding camera, the firm of Goerz has fully sustained its position of originator of cameras of this particular type, and has demonstrated its talent for giving practical shape to the extreme requirements of hand-camera users. In its general build the camera in no wise differs from the original pattern, but the improvements are at once evident when the shutter is examined. The most notable innovation in this latter important part of the apparatus is the self-capping blind, a feature which makes for speed of working, there being no necessity to replace the shutter of a roll-holder, charging box, or film pack, when winding the "focal-plane" for the next exposure. The shutter, too, has a quick-action wind, which, likewise contributes to the swift repetition of exposure after exposure, again an important point when a series of negatives are required of a function of short duration. This is not the only new feature of the shutter. The mechanism now provides for "time" and "bulb," as well as for instantaneous exposures, the lever-indicator for obtaining any one of which adjustments moving with sufficient stiffness to prevent any change being made accidentally. The "time" and "bulb" exposures should be made at the lowest tension of the shutter-spring, and therefore the makers introduce a movement whereby the tension is automatically relaxed on the shutter being set to either the "T" or "B" mark.

For exposures by pneumatic release, a time valve is provided which in like manner gives automatically times of  $\frac{1}{2}$ ,  $\frac{2}{3}$ , 1, 2, 3, 4, 5, and 8 seconds, thus supplementing the exposures given by the shutter at "instantaneous," which can be as short as 1-15th of a second.

To these conveniences should be added the further facility of the increase in the exposure (i.e., by widening the slit) after the shutter has been wound, an alteration which is done in a moment and may often be a great convenience on occasions when the light

suddenly decreases after the arrangements have been made for exposure. It should be said, too, that all these adjustments are made from the same side of the camera, and that the right-hand one when the camera is held in its normal position.

One other new feature is the lens attached to the finder-sight, which enables the camera to be brought close to the eye, as it needs to be brought by most people for the position of greatest rigidity, and yet permits of the image being sharply seen in the finder. With all these additions, each of which is not merely an alteration made for the sake of calling attention to it, but it is actually a gain in practice, the Goetz-Anschutz should continue to merit the endless high opinions which have been entertained of it in the past.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, APRIL 26.

Loughton Photographic Society. "Rambles Round Loughton with Camera and Cycle." W. Vincent.

SATURDAY, APRIL 27.

Woodford Photographic Society. Outing to North Weald and Toothill.  
Bowes Park and District Photographic Society. Outing to Hampstead Heath.

MONDAY, APRIL 29.

Preston Camera Club. "Lowestoft and the Broads."  
Stafford Photographic Society. Annual General Meeting.

TUESDAY, APRIL 30.

Royal Photographic Society. "With a Hand Camera to the Niagara Falls."  
H. O. Klein, F.R.P.S.  
Hackney Photographic Society. "Theory and Practice of Time Development."  
Messrs. Kodak, Ltd.  
Leith Amateur Photographic Association. "What Can be Done with a Hand Camera."

WEDNESDAY, MAY 1.

Borough Polytechnic Photographic Society. First Print Competition.  
Edinburgh Photographic Society. "Night Photography." Robert Dykes.  
Everton Camera Club. "Retouching Bromides, &c." Demonstrated. The President.  
North Middlesex Photographic Society. Lantern Slide and Print Competition.  
United Stereoscopic Society. "The Rise and Development of the U.S.S." A. T. Mole.  
Central Technical College Photographic Society. "Emulsion Making." Wm. Cullen.  
Croydon Camera Club. "Odds and Ends and Home-made Apparatus."

THURSDAY, MAY 2.

Workshop Photographic Society. "The Photographic Lens."  
Tunbridge Wells Amateur Photographic Association. Open Night.  
Handsworth Photographic Society. "Making Enlargements." A. A. Major.  
London and Provincial Photographic Association. "Gum Bichromate." H. Stewart.  
North London Photographic Society. "A Dive into Belgium." W. L. F. Wastell.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held April 23, Mr. J. C. S. Mummery, president, in the chair. The second of the two lecture demonstrations by Messrs. C. P. Butler and E. J. Wall was devoted (as announced) to the applications of the spectroscope. A number of lantern slides were used to illustrate the application of high dispersion spectrographic photography to the determination of the elements in the sun and the stars. Reference was also made to the use of the spectroscope in mineralogy, metallurgy, geology, and even botany. The employment of a spectrographic camera for the determination of the colour-sensitiveness of orthochromatic plates was also illustrated, and a series of projections on the screen were made to demonstrate the action of filters in cutting out, more or less perfectly, the different rays of the spectrum. The difference was shown between a yellow filter, which cut out the blue rays but allowed most of the ultra-violet to pass, and one which entirely cut out the blue end of the spectrum.

Mr. Wall exhibited an inexpensive spectrographic camera which he had devised for his own use. He employed a diffraction grating replica, which he mounted in the camera in such a way that he could, by turning it on its mounting, get any part of the spectrum on the plate, or obtain second-, third-, or fourth-order spectra at will. With the exception of the grating replica, the whole apparatus cost only about £1, and was capable of doing all the work which anyone interested in applying spectrographic methods to the testing of

photographic materials could require. After a brief discussion the meeting closed with a vote of thanks to the lecturers.

CROYDON CAMERA CLUB.—Mr. W. H. Smith last week gave "Useful Hints, Photographic and Otherwise." The "hints" included novelty in the shape of "photographic tiles," to which we shall return later.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—On Monday in last week April 15, Mr. F. C. Tilney, R.B.A., lectured on "The Romantic Landscape." The lecturer's remarks dealt chiefly with the painters of the Romanticist school of the 18th and early 19th centuries, examples of the works of Claude, Turner, Wilson, Roberts, and others being shown on the screen. The materials employed by these painters had much similarity—a foreground with figures, middle distance of water, crags, and trees, stone pines and dark cypresses, a ruined temple or castle crowning a near height, and a far-reaching mystical distance of mountain and plain, bathed in soft luminous light. The lecturer showed the important part played in these romantic landscapes by their peculiarities of lighting. The brilliant illumination had an exhilarating effect on the mind of the beholder, while the deep shadows inspired awe and mystery, the magnificent effect of luminous distance marking these landscapes with a quality which, in the present day, has not been equalled. In the concluding portion of his lecture Mr. Tilney gave some sage advice to photographers. He thought that they should always consider their own individual taste in the work. There is too much imitation among them. One may strike an original note. Then others feel it incumbent upon them to take it up and try to improve upon it. Thus a sort of fashion is set in a particular class of subject, but such repetition will very soon pall on one, so the lecturer advised all photographers to strive themselves after originality instead of following in any beaten track. He thought photography could be artistic, but photographers should be imbued with honesty of purpose. The lecturer stated that, as a rule, artists appreciated most the old-fashioned, straightforward photography, and said that the impressionistic "cotton-wool jelly" class of photograph did not go down with artists, being appreciated only by the producers themselves and the few who cultivated that class of work; but if a certain effect, no matter how produced, gave most pleasure to the photographer, he was justified in applying those means to produce the effect aimed at. Mr. Tilney advised photographers to visit the picture galleries and study the works exhibited, and the effects produced by the various forms of lighting and grouping, the work of artists giving a truer insight into the which is really artistic in picture making. At the conclusion of his lecture a cordial vote of thanks was accorded Mr. Tilney, who suitably responded.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the meeting held on April 18, Mr. A. Haddon in the chair, Mr. T. E. Freshwater exhibited a very fine series of lantern slides, some being from engravings and some from drawings, but what largely interested the members present was the cases where the slides were shown in duplicate—the one plain and the other coloured—the comparison fully bringing out the advantage of the judicious use of good colouring. Mr. Freshwater also showed some coloured slides which were paintings on glass pure and simple, without any photographic or other base, these, he said, took the artist from four to six days to paint, and sold from fifty shillings upwards. They were exceptionally brilliant and beautiful. Mr. Teape, in proposing a vote of thanks, said that the beautiful colour effects were undoubtedly obtained by the proper use of the greys. Mr. Freshwater remarked that the plain glass had nothing to deteriorate the colour put on, whilst the photographic slide had the black basis, which always more or less deteriorated the colours, however carefully handled.

ILLUSIOGRAPH, LTD.—Capital £600, in 1s. shares. Objects: To acquire from W. K. L. Dickson the benefit of certain inventions relating to illusory entertainments, to adopt an agreement with the said vendor, and to carry on the business of providers of public entertainments, organisers of exhibitions and lectures in connection with animated photography or otherwise, dealers in lanterns, lamps, and philosophical instruments, etc. No initial public issue. Registered without articles of association. Registered office, 41 Holborn Viaduct, E.C.



# Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
\* We do not undertake responsibility for the opinions expressed by our correspondents.

## A NEW METHOD OF MEASURING THE TIME OF PHOTOGRAPHIC SHUTTERS.

To the Editors.

Gentlemen,—Mr. A. Kershaw's letter, published in your issue of April 19, calls for some explanation from me. I regret the misunderstanding which has arisen, and would assure Mr. Kershaw—as Mr. Hunter has already done in his letter to you—that there was no such on the part of anyone to claim as novel any method or device which had already been used by him. Mr. Hunter has expressed his regret in that letter that his paper contained no reference to Mr. Kershaw. I am ready to express mine that in reading through manuscript I did not observe the omission. As Mr. Hunter has explained, the two methods are essentially different, their similarity exists only in the use of a rotating disc with slits, but this is a device which has been employed in optical experiments since the time of Fizeau for the measurement of small time intervals. Mr. Kershaw, in an ingenious way, makes use of the persistence of vision. Mr. Hunter measures—not estimates—the length of a luminous line through the moving slit. As to Mr. Kershaw's visit to the laboratory, Mr. Hunter was not on the staff at the time—he was pointed in December, 1905—and knew nothing of the visit until a few weeks ago. Unless my memory is incorrect, Mr. Kershaw did show me his apparatus; he described the principle depending on the persistence of vision, and I thought it very ingenious. When Mr. Hunter explained his method to me I did not connect it in any way with Mr. Kershaw's. Mr. Hunter's attention was called outside the laboratory to the fact that Mr. Kershaw was employing a rotating disc with slits, but, knowing nothing of Mr. Kershaw's visit, merely referred in his discussion with me to the method as one distinct from his own, without, I think, mentioning names, and I do not, after a lapse of some eighteen months or more, recognise it as Mr. Kershaw's. Had I done so I should, of course, have asked Mr. Hunter to refer to it in his paper.—Yours, etc.,

R. T. GLAZEBROOK.

## PAYMENT AT THE TIME OF SITTING.

To the Editors.

Gentlemen,—In your journal of the 12th inst. you refer to the bad practices that are being followed by Australian photographers in their methods of advertising, and the ridiculous prices at which they offer a 12 x 10 photograph, including a dozen prints; but there is no need to go far abroad to point out absurd advertising practices. Could anything be worse than the enclosed advertisement, intended to attract the attention, not of the hard-working labouring classes, such as the Australian photographers cater for, but the blue-blooded aristocracy of this old country, who are invited, through the medium of an expensive advertisement in an exclusive paper, to come and be photographed where "no tiresome sitting fees are to be paid in advance"?

Any photographer practising in the West-End of London must be fully aware that not one-half of the womenfolk who come into smart studios would think of giving any order after proofs were submitted and fees were charged in advance. This experience must be general, and I should like to know whether the "Morning Post" advertiser has had any "tiresome" experience in this direction.—Yours faithfully,

A. R.

## BLISTERS ON BROMIDES.

To the Editors.

Gentlemen,—I note in your editorial that you purpose shortly "presenting a course of procedure which has proved effective in preventing blisters." Is that really necessary?

An experience of over twenty years convinces me that the course of procedure usually adopted, in its simplest form, with bromides, scarcely be improved upon.

I do not propose to re-write my letter of the 5th, though apparently it was merely glanced at by the critics. As indicated there, any

specific treatment or special bath proves nothing, because bromide paper does not invariably blister.

The excuse of "faulty manipulation," which I notice you put forward, is, of course, the usual "office" explanation of the manufacturer. We all know the value of that and what it means. It is, to put it plainly, mere "piffle." One has to use similar remarks occasionally "to give verisimilitude to an otherwise bald and unconvincing narrative." I have the highest respect for the manufacturer, but there is often a lot of difference between the official explanation and what goes on in the factory.

Now, I remember the first and early days of bromide paper, about the year 1882. I was in the first rush for the sample sheets put up and sold by the well-known Greenwich firm. I believe I was the first exhibitor of bromide prints at a public exhibition (1883). Anyway, I have, with no doubt many others, been working bromide paper from that period to the present. For many years the standard developer was ferrous-oxalate, followed by an acetic acid bath; blisters occasionally appeared in those days, as they do now. I used to make large batches of enlargements, and might do two or three hundred without a blister, then probably—without apparent cause or reason—a few would appear to be—as now—a great annoyance. Later, the metol-hydroquinone developer has been a favourite bath, and deservedly so. For several years past my output has exceeded one hundred enlargements and prints per week. As I have said, we may go on week after week and no trouble, then an epidemic of blisters, not on consecutive sheets, so that one would for the occasion use a different developer, and thus endeavour to meet the vagaries of the paper in use, but in a manner to suggest that the paper is a mixed lot—i.e., not all of one batch, and not of the same degree of excellence.

You say that "a slight dragging touch from the corner of another print" may cause a blister. On the other hand, it may do no such thing, and it certainly will not, if the paper and gelatine coating is in the condition it ought to be, and usually is. If there is nothing wrong with the gelatine you may subject the paper to much rough handling without fear of blisters. I have just developed, fixed, and washed a piece of bromide paper, which was first folded up like a letter, and it comes out at the finish almost without a mark. Obviously if the gelatine coating has got damp in places, or decomposed, or if the faulty manipulation of the manufacturer has resulted in the presence on the market of a paper with an inherent tendency to frill and blister, well, in such cases failures inevitably result.

Any prescription which you might devise would be in the nature of the wholesale physicking of a big staff of workpeople as a safeguard against some possible epidemic, when every able-bodied man, woman, and child is periodically dosed in order that, may be, the ailment will pass by the ill-fed, ill-clothed, and weakly members of the community.

The simple explanation is probably that occasionally an emulsion is spread upon paper when its proper destination is the receptacle for residues.

Bromide paper is made every day in very large quantities, which will not blister, or does not. The small percentage which may, and does, with all the accompanying annoyance, should never be allowed to leave the factory.

In estimating photographic reactions the vehicle, gelatine, is not usually considered; we look upon it as a vehicle simply. The old troubles with dry plates—troubles which, one might almost say, the present generation knows nothing of—were got rid of by the exercise of greater care in the selection and treatment of the gelatine used, and, of course, the surface to which it was applied. And so it is with bromide paper. Accidental errors in manipulation and temperatures no doubt cause the trouble to a large extent. Gelatine in a moist condition decomposes very quickly, putrefaction sets in at certain temperatures at a very rapid rate, and some of this partially decomposed stuff gets used, mainly, no doubt, through inadvertence.

There is in development, as every experienced photographer knows, a sufficient margin of safety to cover the varied methods and environment of numberless photographers, and the greater majority of these are reasonably particular in their choice of chemicals and in their endeavour to ensure a proper workable temperature, and the results are invariably good, provided the material is also of normal quality.

—I am, etc.,

J. PRIKE.

Nottingham

## THE MISUSE OF CHEMICAL EQUATIONS.

To the Editors.

Gentlemen,—I was very pleased to see your editorial note in the Journal drawing attention to the misuse of chemical equations. As you say, the employment of formulæ to represent a chemical reaction is of no value unless it has been proved correct by analysis. I have found in my practice as a chemist that this misuse of formulae is not confined to writers of photographic matters, but is characteristic of a certain class of writers on all subjects in which the science of chemistry plays a part. I find that, as a rule, the more superficial a person's knowledge of chemistry is the more ready is he to flourish with chemical symbols, and I think this rule is well instanced in the equation quoted by you in your note, where the silver is represented as consisting of six nascent atoms. I say this, of course, without prejudice, as I have no idea by whom the original article was written, but seeing that these incorrect formulæ are likely to mislead students I hope your note will have the effect of deterring other writers from expressing their theories of chemical reactions in symbols.—Yours very truly,

ANTHONY J. PRESTON.

37, Grove Lane Camberwell, S.E.

April 23, 1907.

## Commercial &amp; Legal Intelligence.

**ALLEGED POSTCARD FRAUDS.**—A sequel to a case which was reported last year in our issue of April 13, cropped up in the Lynton Police Court last week, when Joshua Wm. Humphreys, of Payne's Yard, Blandford, photographer, should have surrendered to his bail for sentence in regard to a charge preferred against him six weeks previously by Rose Phillips, of Gosport Street, of obtaining money by false pretences, but did not appear. The case was in reference to a deal in postcards, defendant having taken orders and money from prosecutor and Mr. W. F. Aldin, of Pennington, but never executed these orders. It appeared defendant had since executed Mrs. Phillips' order, but had not sent her a balance of 6s due on this particular "deal." In a letter he had sent, he promised to pay shortly, and also execute Mr. Aldin's order (1,000 picture postcards for 50s., payment for which was made by cheque, which defendant had cashed).

Mr. Aldin was in the Court, and asked for a warrant for Humphreys' apprehension on this new second charge.

The Mayor having read the letter, said defendant seemed to have miscalculated the date upon which he had to come up to receive judgment, but Superintendent Wakeford said the man had been duly warned by the Dorset police.

After a good deal of explanation as to the circumstances surrounding the case, Mr. Aldin's application for a warrant was granted, and further proceedings in regard to the first charge against the accused were ordered to stand adjourned pending the decision in this second case, which will come before the county magistrates.

**A CHISWICK BANKRUPTCY.**—At the offices of the Official Receiver for the Brentford district, on Thursday last, the statutory meeting of the creditors interested under the failure *re* Carl Stackemann, photographer, 4, Heathfield Terrace, Chiswick, trading as The Photographic Tourists' Association, was held. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £790, of which £511 1s. 3d. was due to unsecured creditors. To partly secured creditors £76 11s. 5d., the value of the securities being returned at £25, thus leaving a balance of £109 7s. 3d. to rank as a debt, and making the total liabilities expected to rank against the estate for dividend amount to £620 8s. 6d. The total assets were returned at £193 9s. 7d., from which £68 0s. 1d. have to be deducted for the claims of preferential creditors payable in full, leaving the net assets at £36 9s. 6d. thus showing a deficiency of £584 19s. It appeared from the statements made by the debtor to the Official Receiver that he commenced business about thirty years ago, having no capital of his own at the time. He had always personally superintended his business, and had kept the usual books of account. His profits have amounted to about £6 per week. He alleged his failure to have been caused through robbery by assistants and loss of a lawsuit, also to illness in his family. Eventually the estate was left in the hands of the Official Receiver for summary administration in the usual manner.

## Answers to Correspondents.

\**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

\**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 2A, Wellington Street, Strand, London, W.C.*

\**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, &c. Two unmounted copies of each photograph must be sent with fee.*

## PHOTOGRAPHS REGISTERED:—

F. Marshall, 10, Bridge Street, Blaydon-on-Tyne. *Photograph of the H. F. N. Clavering.*

E. J. Moorhouse, 102A, King Street, Egremont, Cheshire. *Photograph of Lay of Foundation Stone of Presbyterian Church, Corner of Manor Road and Bank Road, Egremont, Cheshire.*

J. Burton & Sons, 3, Haymarket, Leicester. *Seven Photographs of E. Oppenheim.*

W. Norcliffe, 34, King Street, Ulverston, Lancashire. *Photograph of a Royal Mail Van.*

H. Abba, 48, Holderness Road, Hull. *Photograph of the Hull Queen's B Staff.*

J. Holloway, 32, Cambray, Cheltenham. *Photograph of Dr. Bagot Ferguson.*

J. B.—(1) We have not yet had the opportunity of testing one. From the charts which have been published we should say would be equal. (3) If you mean as originators, we say no.

**AMATEUR.**—Many thanks for the specimen you send. The idea very old, and the results are not, as a rule, satisfactory practical work on account of the paper grain being so prominent. In using real negative paper this is reduced to a minimum.

**COPYRIGHT.**—Will you kindly tell me how long the copyright lasts in an engraving from a painting? The engraving was published in 1871. I have had one brought in to be copied, and am wondering if it is safe to copy it.—B.

Engravings enjoy protection for 28 years from the date of first publication, which should be stated on the print.

**COPYRIGHT.**—Our football team engaged a photographer to photograph them before playing a match one day last year. The photographer did not turn up, so we sent a trap for another, who photographed them and supplied them with the photograph ½-plate, mounted. Two months after he had completed his order for ½-plate we asked him if he would do us two dozen of the same group on postcards. This he refused to do, so we got another photographer to copy and print the postcards. The photographer that took the group now threatens proceedings the party selling the postcards does not stop the sale and has him the negative. What had we better do?—FOOTBALL.

Nothing. The photographer has not the faintest right in the negatives. He was paid for his work and the copyright is vested in those who paid him. You may refer him to an article in the "British Journal Almanac" for 1906, where this question is fully dealt with.

**BROMIDE PRINTING.**—I am trying to work a quick-printing machine but up to now have failed to obtain good results. I find it necessary to use a quick bromide card, with which I have had experience; hitherto I have been working gaslight cards, with every satisfaction. With a quick exposure of, say, one second I get a poor, flat picture, which takes some three or four minutes to develop with amidol and brush development. In my experiments I have used a good, clean, and plucky negative, such gives a good brilliant black, with a gaslight card. We have been printing and developing about 300 cards in from three at a half to four hours, one filling the frames, one exposing, &c.



developing, and a boy at the fixing bath. My desire is to get through more in less time. Prices are coming down, and it shoves one to get through work quickly in order to compete with others who are doing a matt bromide at 1d. retail. I develop some little distance from the gas, with a double thickness of azed yellow calico. I shall be glad if you can suggest a likely use for my failures.—BROMIDE POSTCARDS.

We should say you are fogging your paper with too strong a developer. Try the following, which should develop fully in one to two minutes:—

Metal	80 ozs.
Soda sulphite	6 ozs.
Hydroquinone	150 grs
Potass. carbonate	2 ozs.
Potass. bromide	50 grs.
Water	80 ozs.

FOR STUDIO.—I am putting in a window in order to convert a building into a workable studio. The window is about 10 ft. square, but unfortunately it faces the south, the only side of the building available. Would you kindly inform me what would be the best sort of glass (for the said window) to obstruct the direct rays of the sun, and at the same time let in the maximum light? I am having the frame made to take glass panes of any size, so that the glass would require to be of good weight, and as little colour as possible.—M. C. G.

We cannot suggest anything better than ground glass, except in form of flexible gelatine decoration, which is sold by Reinemann & Co., New Zealand Avenue, Barbican, E.C. It is obtainable in various very slight patterns, as well as, we believe, quite plain and is applied simply by moistening with water.

DEVELOPER.—(1) Some of my negatives recently have been stained with pyro-soda developer, perhaps through insufficient of the latter from a solution a little old (the sulphite, I mean), stocked in a bottle alone. The difficulty has arisen when specially making a developer with dry pyro, carbonate of soda, and sulphite separate. The point more particularly is that the stain has apparently been removed after passing through alum and citric acid, but has returned after washing and drying, making the negative very hard, and the detail in the whites almost unrecognisable. Why the return of the stain after washing? (2) I was interested in your remarks about the pyro-soda developer. It has been my habit to mix the sulphite with pyro, and keep soda carbonate separate, and add latter according to exposure given and class of negatives required. This keeps well and works well for portraits in studio, according to your formula. I should be glad if you would recommend the proportions which would be likely to give the result for very short exposures. (3) My experience with the Kodak formula for films—

Sulphite soda	6 ozs.
Pyro acid	$\frac{1}{2}$ oz.
Water	32 ozs.

that it does not keep in a useable condition for one month, which is inconvenient, because in the county we are not developing films for customers very frequently, and it causes a great deal of waste. Would more sulphite improve it without reducing power of development? One wants a really quick developer for hand camera exposure.—BROMIDE POSTCARDS.

(4) Yours is a common experience. Acid baths often discolour staining material without removing it, and then the colour is liable to return. Acid is most effective in the fixing bath.  $\frac{1}{2}$  oz. of potash metabisulphite in each pint of fixing bath, does not wash between developing and fixing. The stain is due to your sulphite solution, which will not keep without a preservative. Add one ounce rectified spirit to each pint of solution. This will help to keep it. (2) We are glad your experience of our formula is so favourable. We use the same formula for shutter exposures. For extremely short exposures we should use the same formula diluted, and increase time of development. We have had other complaints with regard to the formula you mention. Bad keeping and great staining qualities seem to be characteristic of it. The formula, however, generally differs from one you give, as sulphuric acid is usually included. For rapid development, try our formula, with only half the amount of meta-

bisulphite, or use the one given on page 303. In latter case you will be safe with the brand of sulphite mentioned, but with certain other brands the solution will not keep well. If you wish to further shorten the time you had better use metol hydroquinone.

CHINESE CLIMATE.—I should be pleased if you could tell me what is the best process to withstand the Chinese climate.—W. D. W.

We regret that we do not know what particular form of training, physical or otherwise, that it is necessary to undergo to enable anyone to withstand the Chinese climate. If our correspondent refers to a photographic process, will he kindly specify whether he refers to negative or positive.

COPYRIGHT.—At Christmas I photographed several views of this town in the snow and sold them for postcards. A postcard dealer bought some from me at twopence each, and has now had them reproduced in a book, "of two views in each book." If I have mine copyrighted, can I prevent him from selling the same without my permission, as mine are the original negatives?—COPYRIGHT.

You can register the copyrights now and prevent further sales by the dealer, but you cannot take action for sales made before registration.

E. P.—The print is dipped in alcohol, squeezed on to the celluloid, and fixed by hot pressure. Messrs. Fallowfield, 146, Charing Cross Road, issue a booklet giving directions and descriptions of the apparatus.

DEVELOPING RAPID EXPOSURES.—I have several times lately been called upon to take very rapid snapshots of rapidly-moving objects (such as horses galloping, etc.), necessitating an exposure of from 1-500th to 1-1000th of a second, and although the results I obtained were very good, I am not at all sure that they might not be improved on by developing the plates in some different manner. I should be very much obliged if you would tell me what is the best developer to use for plates which have had such brief exposures as the above, and what is the most practical and effective method of getting the most out of such rapid snapshots? The plates I have already developed were developed with a pyro-metol developer ("Royal Standard" formula), diluted with four times its bulk of water, and the plates were rocked in a dish during the whole of the development. I believe what is known as stand development is usually adopted by those who are experienced in rapid snapshot work.—ROCKER.

We know of nothing appreciably better than the weak pyrometol you have been using. A tank method, using, say, rodinal 1 oz., water 200 oz., is, perhaps, a little preferable on the score of detail and softness, but the difference is small.

HARRY H. T.—We are obliged to you; but there is no need for us to refer to the matter.

WORRIED.—We advise you to address a letter to the police in the neighbourhood asking them to pay a call.

P. D. P.—There is little to choose between A and B. We have not had an opportunity of testing C.

HALF-TONES.—Would you give me the names of any firms who supply half-tones mounted on plush frames, trinket-boxes, and similar articles. The articles I mean have, I believe, a good sale at all the pleasure resorts. The print is mounted in optical contact with glass, and the glass then, in its turn, mounted on the base. The effect is very similar to "opalines."—F. R.

Messrs. Moores, De Saulles and Co., Stourbridge, supply the frames, boxes, etc. If you require half-tone prints from your own negatives you will require to get them from a photo-engraving firm such as Hood and Co., Middlesbrough, Hamel and Co., Nottingham, or the London Studio. Consult our advertisement pages.

COLOUR-WATER.—1. Your retouching is good enough to secure you a situation in a second-class firm—it is not up to the highest requirements. Your modelling is weak, the "touch" merely a smoothing one, and you remove lines and shadows unduly. 2. In wording an advertisement for THE JOURNAL, state your full qualifications, but we advise that you do not make a special claim upon your school of art and exhibition experience. Photographers want only those skilled in photographic finishing—the two methods are widely different—but you might mention that you possess a general knowledge of art. Your colour work is

also second-class, and we think you should strive after better flesh tints and strengthen your shadows considerably. Flesh, dress, and background are all too monotonous in tone, and require variety and warmth in the shadows and half-tones to liven them up.

**MAKING BACKGROUNDS.**—Can you inform me if there is any book published giving instructions on distemper or flatted oil background painting? Any information assisting in that way will be esteemed.—**ALFRED T. HONEY.**

There is no book published on the painting of backgrounds. If, however, you refer to page 82 of our issue of February 1 last, and page 155 of that of March 1, you will find articles on the subject which will probably be of service to you.

**SALARY QUERY.**—I shall be greatly obliged if you will kindly inform me what salary I may expect to receive in a good-class photography business as receptionist, assistant retoucher, spotter, etc. having just served an apprenticeship of three years as such to a high-class photographer. My age is 21.—**V. L. C.**

This is a difficult query to reply to, as so much depends upon personal ability and business tact, and something on the status of the house to which you have been apprenticed. The salaries of experienced receptionists and retouchers vary from about 15s. to 30s. a week. You would scarcely be classed as an experienced hand at present, we should think.

**WHITE BACKGROUNDS.**—I should feel obliged if you could tell me how to obtain white background effects in my studio. As you will see from enclosed sketch, the studio is 22ft. long by 8ft. wide, with 9 ft. side light 5ft. high, starting 4ft. from floor, with only 2½ft. top light 9ft. long. I vignette all my pictures, but find that background then prints a dirty grey or brown tone in platinotype; and what is the best material and colour to use for obtaining white effects? Do you recommend a slower plate for this?—**WHITE BACKGROUND.**

We scarcely understand your query. Surely you do not desire an absolutely white background behind the head and bust of the sitter, as the margins of the picture should be kept white by the vignetting mask. Colour for white background is white distemper—otherwise, ordinary whitewash—or you may cover a screen with white paper. If you desire a pure white behind the sitter's head and bust, we expect you will have to block out the background in the negative with water colour or black varnish.

**STUDIO QUERIES.**—I am seeking your aid again, through the medium of your valuable paper. I am building a new studio. I enclose two sketches of studios, and I should like to know which you think would be best—the ⅔-span or ½-span. Also, I had thought of dark blue blinds similar to pattern on spring rollers for top light, and on wires for side light. I have Bolas' book on "Studio Construction," but I think there should be some fresh ideas since that was written. Anyhow, I should be pleased to know what you think about these two matters.—**TYKE.**

Both designs are good, and it is quite a matter of taste which is the best. On the whole, perhaps, we should prefer the one shown in sketch No. 1. But, as we have just said, one is practically as good as the other. We should, however, advise you to have the studio somewhat longer—say three or four feet. You will then be able to use lenses of longer focus, and so obtain better perspective in the pictures. The book is a very good one, but after all more depends upon the man who works it than the form of the studio. The sample of material sent will do very well for the top blinds, but for the sides we should prefer a softer one, such as an "art serge," of a similar colour.

**LENS QUERY.**—Will you kindly inform me what make of portrait lens would be suitable for artificial light work? Studio is 14ft. long. I want it principally for taking postcards 5½ x 3½, groups on same, also midgets, if possible. Camera I am using measures 6½ inches from front of lens panel to focussing screen (outside measurement). I do not want to pay a lot for a secondhand one. I should not mind about £3 or less, if you think I can get one good enough.—**F. B.**

The most suitable lens to use with artificial light would be the ordinary portrait lens, but we do not know of one that would take groups (full length) of the postcard size, which is nearly that of the cabinet picture, in so short a studio as yours. A portrait

lens of ten inches focus requires a distance of about 14ft. bet. camera and sitter for a full-length figure, and your camera, of course, would not do for that. One of the anastigmat types of shorter focus would cover the size of the picture you require, but the perspective will not be so good as with a longer lens, and the price would be higher than you mention if it were a large aperture. You had better get price lists from the different makers or dealers, and from them select what will suit your requirements and purse best.

**FADED WRITING.**—Would you kindly answer the following? I have a portrait painted with writing, in ink on back, which is very much faded. Can I do anything to restore or colour ink, so I can have the same?—**I. N. K.**

If the writing was done with the ordinary iron-gallic ink, colour may often be restored by carefully moistening it with an infusion of galls, or with a solution of ferro-cyanide of potassium, slightly acidified with hydrochloric acid. V. ink fades it generally goes to a yellow colour, which, because of its non-actinic character, often can be copied well by photography without further treatment. Have you tried copying it as it is?

**FADED GLASS POSITIVE.**—I notice the query of "Positive" in last week's journal. I have two old glass portrait positives. One is quite spoilt, owing, I suppose, to damp, and I am afraid the other is also going. What can I do to preserve it? It is valuable to me as it is the only portrait I have of a near relative, and although I have had it copied, and also an enlargement from it, the original is of them are satisfactory.—**C. H.**

Without seeing the pictures we cannot give an opinion. If the pictures had been varnished they would not have faded. But, even if anything can be done with them now, as, in all probability, if the film is wetted, it will leave the glass; or if it is varnished the collodion would possibly dissolve when the varnish was applied. The only suggestion we can offer is that you get good copies of them before they decay further.

**PRO.**—We regret that we do not know exactly what is meant by the "Cadett filter," but if we are correct in our assumption that this refers either to the "Absolutus" or "Gilvus" filters, which were specially made for Cadett plates, we can only say that we know of no plate which will work satisfactorily with the form as this absorbed too much of the green. This is obviously the reason why unsatisfactory results are obtained with the plates named. The Cadett spectrum plate was exceptionally sensitive to green, and to compensate for this the filter was made so as to reduce this extra sensitiveness to the average level of other colours. If the filter is a "Gilvus," then a Wratten's panchromatic plate can be used instead of the Cadett spectrum, with very similar results.

**J. HARRIS and Others.**—In our next.

**W. W. L.**—If the subjects are good and the negatives in good condition you may dispose of them through our advertisement columns. We know of no other means.

**R. H. B.**—You must not say "Photographer to the King," but you can state the facts of the case you refer to.

**J. S. D.**—"St. Louis and Canadian Photographer," 3,210, Locust Street, St. Louis, Mo.

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## The British Journal of Photography

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t are being talked of in colour photography. (P. 36.)

cautions in the use of liquid colour filters. (P. 35.)

## EX CATHEDRA.

**The Royal Academy—** The much abused—opens its doors again  
for its annual show on Monday next.  
We are unable, before that day arrives, to do more than  
announce the fact and in a few words to give a rapid  
impression of the show. Next week we shall deal more  
fully with the subject and treat particularly of the most  
notable portraits that grace the crowded walls. Alas, for  
artists! Those walls might be crowded five times over and  
then look little less pleasing, so great is the competition  
amongst painters in these days. But "The President and  
Council regret" that this is impossible. The cumulative  
effect of these thousands upon thousands of regrets is  
awful to contemplate, and must certainly be enough to  
blight the remainder of life for the President and Council.  
Taken as a whole, our first glance at the exhibition fills  
us with hopes that upon closer acquaintance we shall find  
it one above the average. People like to rail against the  
Academy; but it undoubtedly harbours the best work of  
the country.

**Sargent and Others.** John S. Sargent, R.A., our Reynolds  
and Gainsborough rolled into one—our  
leading Society painter—adds to his reputation this year  
by painting more for the man in the street and no less than  
usual for the artist. We mean that his work is less of  
an artistic shorthand difficult to read by the uninitiated.  
It is more akin to typewriting (pardon us, Sargent!) inas-  
much as it is rapid, sure, and intelligible to the meanest  
capacity. One work of his, Lady Sassoon, is not to be  
forgotten for its consummate skill and perfect realisation,  
to say nothing of its charming subject. The new Associate,  
Geo. Henry, has not made a splash, but has done better,  
perhaps, by adding more solid and sincere works to that  
long line which has led him to fame after years of obstinate  
Academy rejection. Frank Dicksee, R.A., A. S. Cope, A.,  
and others of similar standing, do their same fine  
things year by year; but next week we shall speak of those  
younger developments of portraiture which aim first at  
being arresting. Portrait painting, like professional  
photography, is a business.

**Canvassing Frauds in Cornwall.** Information reaches us of the visits to  
the country districts of Cornwall of a  
man who, with the aid of a canvasser, is  
steadily working the old method of offering for nothing an  
enlargement from any photograph which is placed at his  
disposal. This gift to the purchaser being said to be the  
means of advertising a new studio being opened in the  
neighbourhood. A few days afterwards the persons who  
have placed their photographs with the canvasser are  
informed that a frame must be purchased, and are per-  
suaded or threatened into paying a high price for a frame

and a rubbishy enlargement, which together are not worth a fraction of the price paid for the former alone. This particular form of fraud has been so often exposed in the newspapers that those who have not heard of it must live in the very remote districts such as those which appear in course of exploitation at the present time by the party complained of by our correspondent who asks for the remedy for such incursions on a photographer's circle of customers. The best we can suggest is that used with success by Mr. T. C. Turner in Hull, namely, the circularisation of the householders with a short statement of the nature of the business. The local press, also, will usually aid in enlightening its readers as to the character of the business. In one case which we have in mind the local photographer accompanied the canvassers on their rounds and explained the nature of the business to his townsfolk.

#### Measures in the Dark Room.

The frequent use of orthochromatic plates, often calling for a faint illumination of the dark room, it is more than ordinarily necessary to have measures which are easily distinguishable in the dull non-actinic light. The need of specially clear lettering on the measures has been experienced less than some means of showing plainly where the measure is and of avoiding knocking it over when the hand is suddenly stretched out to rinse a plate or place it in the hypo bath. In every respect except this of visibility we have always had every reason to be satisfied with the ordinary clear glass measure, and it may perhaps interest some of our readers who have not heard of the simple expedient—we must have mentioned it several times—to point out that a coat of white enamel paint round the base of the measure and round its rim, on the outside, of course, serve as well as anything which can be devised to separate the graduate from the gloom of its surroundings. We have often had reason to feel the comfort of this addition to our glass measures when temporarily denied the use of them in a strange dark room.

#### AMERICAN NEWSPAPERS AND COPYRIGHT IN PHOTOGRAPHS.

We publish on another page a portion of the report presented to a Convention of the American Newspaper Publishers' Association, a careful reading of which will show the feeling which exists among producers of illustrated journals in America with regard to copyright in photographs. The Association has been active in the political sphere respecting the alterations in copyright law, and there can be no doubt that the provisions which are contained in the last paragraphs are what it would wish to see become the law of the United States. The motives of the document are sufficiently evident; nevertheless, we propose to discuss, as briefly as possible, the grievances which are alleged by American publishers to exist under the present legislation, and, secondly, the nature of the proposals which the publishers offer as an equitable remedy for the existing state of things.

We are told that, in the eyes of publishers, injustice is done at present in three ways:—(1) In giving the same degree of protection to a chance snapshot as to a work of artistic or literary genius. (2) In making every copy of a newspaper which contains an infringement of a photograph subject to the penalty of not less than one dollar. (3) By failing to recognise that newspaper reproductions are not such as can be substituted for sales of originals, and that, instead of reducing sales, they tend to advertise the originals and increase their sale.

Let us say at once that we are entirely in accord with the second of these statements. In the case of a newspaper of even moderate circulation the penalty of even the

smallest sum per copy mounts up to a total enormous greater than should be paid to a photographer for infringement. The British law, it will be remembered, states a maximum penalty per copy—namely, ten pounds—but no minimum; yet it was always held until long ago that a coin of the realm must be paid for infringing copy. This custom was quashed by the Court of Appeal in 1901 in connection with the case of *Hilheimer v. Faulkner*, reported in our columns of May of that year. And there is no reason to suppose that photographers in America would not be satisfied with above reasonable arrangement prevailing here.

In regard to the other two matters which are regarded as injustices, the Association must know that its conditions will not hold water for two minutes. It is, we are told, to grant the same degree of protection to a "mechanical" photograph as to literary or artistic compositions. Let us grant that some drawings and paintings are superior as works of art to some photographs. Let us grant that all photographs are wholly bad as art. What has that to do with it? The important matter is that they are bad enough for publishers to want to get their newspapers with them because the public has its heart on photographs as records of events in preference to the work of the artist which may be, and often is, entirely imaginative. A photographer may have been the ends of the earth and have carried his life in his hand to obtain photographs, and because they are art, forsooth, they are to have a lesser privilege of protection than the drawings which Mr. Flake White, draughtsman, sits at home and commits to paper. A photographer such as Mr. Kearton may have spent months in getting half-a-dozen photographs of natural history subjects. Not art, perhaps, but surely entitled to what protection the law of a land grants to methods of graphic description. We cannot now enter upon the question in what way and to what extent a photograph may be differentiated from other forms of art in respect to copyright protection, but it is obvious that the former description of picture is misrepresented in the terms of the report.

Lastly, the report alleges that the sale of photographs is not adversely affected by newspaper reproduction. That such should be the fact in America we cannot believe for a moment. It has certainly not been so in England where the view publishing trade has steadily declined contemporaneously with the rise of illustrated journals and finally received its death-blow at the hands of the picture postcard. The facts, we say, are against the argument that reproduction, either in the crude manner of the daily papers or in the excellent art printing of weeklies, does any good to the sales of the original photographs. In the case of a large proportion of the photographs which appear in newspapers the subjects are of ephemeral interest, have been taken specially with a view to newspaper reproduction, and are of no other value to the photographer other than through the fees for reproduction which he may obtain. The newspaper owner discerns injustice in this payment for work done.

The proposals first put forward by the newspaper proprietors in the desire to remedy these injustices was "the reproduction of a photograph in any newspaper without the process of stereotyping shall not be construed as infringement of the copyright." Stereotyping being a universal process in the States for newspaper production and one which the Americans have applied with great success to the finest half-tone work, this suggestion amounts to the cool request for permission to take every photograph and pay for none.

This proposition when originally made naturally aroused universal indignation, and the report therefore states that it was put forward to "bring matters to a focus."



nittee of the Association has abandoned it in favour of amendments, of which the first is that notice of right must appear very distinctly on the face of the photograph in order to give it protection against newspaper reproduction. In the two other amendments it is properly suggested that there shall be reduction in assessment of damages in the case of newspaper infringement, as well as the exception of newspapers from criminal prosecution for infringement of copyright. While they assent to the two latter claims of the newspapers, the corollary from the "marking" rule, that a photograph may be reproduced by anyone into whose possession it comes unmarked with the word "Copyright," obviously gives the power to the reproducers to do whatsoever they like. A photograph must necessarily bear this marking where near its edge, otherwise it would be useless for reproduction, and therefore there is the opportunity for the reproducer to exculpate himself by trimming off the marked portion and to represent himself, when charged with infringement, as the victim of circumstances. A

certain degree of marking has been required in the United States hitherto, and has proved to the infringers a loophole for escape. Hence we attach very little importance to the committee's recommendation of more prominent marking. It looks to us as though the publishers were unable to find a recommendation which would advantage them and yet be free from the appearance of self-interest, and that therefore they fall back on the "marking" system, which has served them very well in the past.

To sum up, the report of the American Newspaper Publishers' Association is interesting from the fact that the present support of the marking of copies coincides with that of a body in the United Kingdom which has prepared certain recommendations for the alteration of the law of copyright. The newspaper people can hardly be expected to further a provision which will safeguard photographers, and it is therefore easy to come to the unkind conclusion that the British body is actuated by similar motives in recommending that the marking system be applied to photographs.

## PROFESSIONAL MATTERS IN AMERICA.

proceedings of the Professional Photographers' Society of New York, the preliminary report of which appeared in our issue of April 19, have been distinguished (according to the later report which reach us from the "Photographer") by the tireless industry of the tactful "photographer of men," Mr. Pirie Macdonald, who, as president of the society, has thrown himself so utterly into the work of organising the Convention that the Americans have opened the eyes even of the Americans—to whom conclusions come naturally—to what may be done by a body under the impulse of a thoroughly enthusiastic leader. To quote our contemporary:—"Pirie Macdonald (born to be a minister: choosy to be a detective, and forced to become a photographer, as he tells the story—to be taken with a large grain of salt), for the last year has been devoting himself day and night to the interests of the society which made him, for a second term, its guiding head. Thoroughly imbued with the idea that to do a thing well you must do it yourself, he has left nothing to his assistants on the board but a few details for which he himself has no time, and even these details were so carefully mapped out that nothing could go amiss. His head that worked out studio demonstrations, and no one but Macdonald knows how it was to persuade some of these big men to consent to his presence. He it was that figured out the usefulness of getting assistants to tell their studio secrets for a reward. The Labour Union, with its total to date since July 1, 1906, of at least sixty employees placed, is his work alone. Macdonald it was that brought out over one hundred and seventy pictures from over one hundred and seventy individual photographers, members of the society. Yes, the credit for one of the most successful state meetings ever held anywhere belongs solely to Macdonald." The regret of the conventioners was the indisposition of Mr. Macdonald, which was such as to compel his absence from the meetings. Much of the business of the convention has no place in our columns, inasmuch as its interest was local, but we may quote the resolutions adopted by the Rochester section of the society in regard to photographs of schools, a class of subject which has been undertaken at such "cut" prices that it became unprofitable. The Rochester photographers in the society, therefore, decided to stand by the following resolutions:—

### I.

Resolved that the members of the P. P. S. of R. will quote lower prices to the committee of the various schools and colleges

than the price set for the class in which their respective names appear.

### II.

Resolved that definite written contracts be entered into between the members of this Society and the school or class committees, and that a full list of the names of class, together with \$1.00 for each name, be deposited with the member, before prices take effect.

### III.

Resolved that no further reductions of any kind whatsoever be made, and no concessions or inducements or promises of any description, either directly or indirectly, be made to Committee or any member of Committee.

### IV.

Resolved that at no time shall sample pictures be given committees to be taken out of the studio for comparison, or any other reason.

### V.

Resolved that any irregularities shall be reported immediately to President of the Society, who shall at once appoint a committee of three members to investigate and report within three (3) days.

### VI.

Resolved that this agreement shall remain in force and binding for one year, from January 1, 1907.

### VII.

Resolved that the prices herein agreed upon shall not be quoted to classes of less than ten (10) members.

### VIII.

Any member signing this agreement, and after investigation it is found that he has in any way broken it, shall forfeit his membership in the P. P. S. of R. under Art. III., Sec. 6, of Constitution, and have his certificate revoked.

In addition to the utmost confidence and friendship that has been established, we have worked out, after much careful consideration, what is known as the Certificate Plan, the object of which is to elevate our profession in the eyes of the public.

Certificates for the year 1907 have been issued, and are now displayed in our street show cases.

To obtain their certificates members submitted prints of their own work not bearing their name, to three judges, also photographers. The pictures were judged on their merits in lighting and posing, and general effect, the last including mounting and finishing; and certificates were issued to all who obtained at least (75 per cent.) seventy-five per cent. of the total marks given. In considering the question of granting a certificate the grade of work was also an element. The man who charges moderate prices for his work would not, of course,

be expected to produce the grade of work of the higher-priced men. The aim is to certify to honest and creditable work and to give assurance of reliable treatment to customers. Our daily papers have made it plain to the public that we do not wish to control prices in any way, but that our membership is composed of reliable photographers in whom they can place confidence.

It is the sense of your members "Up-State" that we are decidedly "in it," and all are willing to do our share towards bettering the condition of professional photographers.

In its election of officers, the society exhibited a remarkable independence. It elected an entirely new set of men, and its action is applauded by those conscious of the dangers to such a

body which may be created by the usual policy of recognizing the good service of a man in one position by electing him another for which he is probably not fitted.

The new officers are:—

President—A. F. Bradley, New York City.

First Vice-President—J. D. Schroder, Troy.

Second Vice-President—C. H. Smith, Rochester.

Secretary—L. Minor Sherow, Ossining.

Treasurer—Al. Lloyd, Amsterdam.

We are compelled to hold over the reports of the "Suggest competition and of other features of the Convention until week.

## PHOTOGRAPHIC COPYRIGHT IN AMERICA.

[In view of the rumours that attempts are to be made to bring a Bill for the modification of Copyright Law before Parliament an interest should be discovered in the attitude which newspaper owners in America have taken towards photographers, as well as in arguments they have used. The following report is part of one presented to a convention of the American Newspaper Publishers Association, and is reprinted by our contemporary, "The Master Printer and Newspaper Owner."—Eds. "B.J."]

The committee quoted Section 4,965 of the Revised Statutes, as amended by the Act of March 2, 1892, and said:

"The effect of this law is to impose as a penalty upon a newspaper infringing the copyright of a photograph the forfeiture of one dollar for every sheet of the same found in its possession, either printing, printed, copied, published, imported, or exposed for sale; with a minimum penalty of \$100 and a maximum penalty of \$5,000 for the infringement of copyright of a photograph made from any object not a work of fine arts, and a minimum penalty of \$250 and a maximum of \$10,000 for infringements affecting photographs of works of fine arts.

"Existing law makes the wilful unauthorised representation for profit of a copyrighted dramatic or musical composition a misdemeanor punishable by imprisonment, and provides the remedy by injunction in such cases. No other infringements are misdemeanours under existing law.

"The proposed new law separates wilful and unwitting infringers of photographic copyright. It declares every wilful infringement of copyright for profit to be a punishable misdemeanor. On the other hand, the unwitting infringer of photographic copyright is no longer to be threatened with any arbitrary penalty, though the equitable remedies against him are enlarged. An injunction lies restraining his infringements. He is liable to pay the copyright proprietor actual damages and profits, or in lieu thereof such damages as to the court shall appear to be just, not to exceed in any case \$5,000.

"Under existing law there is a forfeiture by the infringer of \$1 for every sheet 'found in his possession'; under the proposed law there is suggested as the basis of an estimate of damages \$1 for every copy, not merely found in the infringer's possession, but made or sold by him or his agents. Under the existing law there is an arbitrary minimum of penalty of \$100 or \$250, according to the character of the photograph; under the proposed law the recovery is no longer of a penalty, but of liquidated damages, and the arbitrary minimum of recovery is eliminated.

"The wilful infringer for profit of photographic copyright may be punished much more severely than under existing law; the unintentional infringer inflicting no actual provable damages, and newspaper infringers are usually of this kind, may, in the discretion of the court, be required to pay the smallest of merely nominal damages."

After quoting the language of the Senate and House Bills, which are identical, the report said:—

"The first draft of the Copyright Bill was, in a few particulars, less favourable to the infringing newspaper than the Bills under consideration. For instance, Senate Bill 6,330, gave to the copyright proprietor, in lieu of actual damages and profits, 'such damages as to the court shall appear just, to be assessed upon the following basis, but such damages shall in no case exceed the sum of \$5,000, nor be less than the sum of \$250.' The latter Bills, instead of directing damages to be assessed on the basis of \$1 for every in-

fringing copy, broaden the discretionary power of the court providing merely that, in assessing such damages the court may in its discretion allow the amounts as hereinafter stated, and eliminate entirely the \$250 arbitrary minimum of damages.

"In making these changes the joint congressional committee responded in part to the representations made to it by the copy committee. This committee had, in the name of the publishers' association, represented that injustice is done (1) by giving to the mechanical maker of a kodak snapshot the same protection then given to the author of a literary, artistic, or musical composition; (2) by treating the imperfect reproduction or imitation in a newspaper of a copyrighted photograph as causing every copy of the offending issue to become, in the eyes of the law, an infringing damage-producing copy of such photograph, subject to the penalty of not less than \$1 for every such copy and to other punishment; and (3) by failing to recognise that newspaper reprints of photographs are not such reproductions as can be substituted in sales for originals, and that instead of inflicting injury by reducing sales they often tend to advertise and to increase the sales of the original photographs.

"The committee had earnestly protested against the proposed changes in the law affecting the copyright of photographs, especially against amendments, 'which in effect increase the already excessive penalties for the infringement, unintentional or wilful, of photographic copyright.' And the committee had proposed, in order to bring matters to a focus, that, if any alterations in the photographic copyright law were made, an amendment should be adopted as follows: 'Provided, however, that the reproduction of a photograph in any newspaper by the process known as stereotyping shall not be construed as an infringement of the copyright of such photograph.'

"This amendment raised the broad question whether the newspaper reproduction of a photograph should be viewed as a damaging, punishable infringement of copyright. While the congressional joint committee was unwilling to take the radical position that a photograph should not be protected by the copyright law against any reproduction, even by inferior processes, it was willing to accept that such infringements were not to be justly classed as precisely the same footing with photographic infringing copies of photographs and were not to be justly punished by the infliction of an arbitrary minimum penalty indiscriminately applied. In recognition of this fact, the joint congressional committee eliminated the arbitrary minimum penalty, and left the matter of equitable damages in each case to the discretion of the court, so that if justice suggested it an assessment of even one cent damages might be made.

"Newspaper reproduction, whether authorised or unauthorised, has no tendency to reduce sales of the original photographs; rather to increase them. The injury, if any, done to the copyright proprietor is the unjust withholding from him of the small sum customarily paid by the newspapers for consent to use a copyrighted pho-



This injury is not increased or diminished in accordance with the number of copies issued by the offending newspaper.

The damages in the two cases are on an entirely different basis, the measure of damages which is appropriate in one should not, in the nature of a suggestion to the court in the exercise of its discretion, be applied to the other. For this reason there should, in the committee's opinion, be added to Sec. 19 (b) Fourth of the Copyright Bill, an amendment providing in substance that the measure of damages, here suggested, shall not be applied in the case of damages for infringements by newspapers through the reproduction or imitation in their columns of copyrighted photographs.

The American newspapers using in regular course of business large numbers of illustrations every day, and for this purpose crudely tracing or hastily modifying and adapting many photographs, frightened as well as copyrighted, are especially liable to be guilty of unintentional infringements. It is urged that, in justice to the newspapers, notice of the fact of copyright in the case of a photograph should be made even more conspicuous than the existing law provides, and that such notice, to be effective, should extend to authorised reproductions of copyrighted photographs in newspapers elsewhere.

The Copyright Bills, however, reduce instead of enlarging the legal requirements of this notice, classing photographs in this connection with works of art upon which the copyright notice is as an objectionable disfigurement. The existing law requires the copyright (date) by A. B. shall be inscribed 'upon some visible part of the photograph, or of the substance on which the same

shall be mounted.' The proposed law requires, in the case of a photograph, only the letter C within a circle, accompanied by the initials, monogram, mark, or symbol of the copyright proprietor, 'provided that on some accessible portion of such copies or of the margin back . . . or of the substance on which such copies shall be mounted, his name shall appear.'

"To cause the newspaper reproduction of a photograph to be classed as an infringement, and to reduce to a minimum unintentional infringements, the fullest warning of the fact of copyright should be given to the newspapers. If a photograph is to be protected against such reproduction, it should be classed among works of art, upon the margin, or back, or mount, of which a simplified notice of copyright may be hidden, but should bear the copyright warning conspicuously on the photographic print itself, and upon every authorised reproduction of it."

The committee think that the provision of the new law punishing infringement with fine or imprisonment, or both, is too severe. It is recommended that for the present the amendments already suggested be urged (1) requiring notice of copyright to appear distinctly on the face of the photograph, to give protection against newspaper reproduction, and also to appear on every authorised reproduction of a copyright photograph; (2) excepting newspaper reproductions of photographs for the measure of damages (\$— for every infringing copy up to 5,000), suggested in the assessment of damages for other infringements of photographic copyright; and (3) either excepting infringements of photographic copyright by newspaper reproduction from criminal prosecution under Section 21. Senate Bill (Section 22, House Bill), or eliminating that section altogether.

## NOTES ON INTENSIFIERS AND REDUCERS.

Upon Mr. A. J. Garwood, read before the Edinburgh Photographic Society, many useful hints were communicated as the result of the author's own experience in the use of the modern intensifier. In default of space for the full text of the paper we extract the points brought forward by Mr. Garwood:—

Bleaching agent usually employed in mercurial processes is bichloride of mercury. I notice that most of the published recipes for this give a saturated solution of the salt for the purpose. In my opinion, is open to the objection that there is always a risk of undissolved particles of the salt being carried over and on the plate, and if these are not immediately removed, spots, more or less opaque, at others transparent, will occur. Personally, I use the following formula, which is one I can with every confidence recommend—viz., bromide of potassium, 100 grains; bichloride of mercury, 100 grains; water, pure, 10 ounces. The mixture should be used to assist solution, and it should then be filtered. The result is a clear, colourless liquid, which will keep for years, and with occasional filtration, be used over and over again.

### The Piper-Carnegie Chromium Process.

This process does away with what I have often heard fellow-workers express their great dislike to—namely, the poisonous nature of the solutions used in mercurial intensification. I thought it worth while to take the matter up, especially as the process is said to offer certain other advantages over most of the mercurial processes, one of these being its close analogy to the mercury-ferrous process, in what I may term its cumulative action.

I started experimenting at once, but for a long time was quite unsuccessful, for, although I got the intensification all right, I could not get the films on the plates. It seemed, in fact, to be a perfect process, no matter what redeveloper or what modification of the author's formula I tried. After working away for some five months in this manner some lucky chance, for quite another purpose, led me to get some amidol. I had up to this time never used this reagent, but on trying it for the intensification experiments, I was successful, and have not had a single failure by frilling of the film. Apparently the same thing must have troubled the author in a subsequent article they state that, for the redeveloper they recommend amidol in preference to any other. As

to the permanency of the results, I can only say that negatives intensified by the method in December, 1904, certainly showed no signs of fading or other change. The operations are exceedingly simple, and, from my own experience of the process, I think it entitled to a very high place among intensification methods.

### The Persulphate Reducer.

I look upon persulphate as one of the most useful salts that have been introduced to the photographic public of late years, but unfortunately its action is inclined to be erratic.

There is no doubt that the best time to use it is immediately after the final washing of the negative, and before it has been allowed to dry. Failing this, the negative must be thoroughly soaked in water, for, above all things, it is necessary that the negative be thoroughly and uniformly wet before this reducer is applied. In treating old negatives it is advisable to give them a thorough cleaning in an ammonia bath, followed by a prolonged soaking in water. As a matter of fact, this treatment will do no harm, whether the negatives be old or new. The negative should be carefully examined for fog and any traces of it removed, for it is one of the peculiarities of this reducer that it has a great tendency to leave fog alone, and to this fact is due, in my opinion, some of its apparently irregular action. I have used this reducer ever since its introduction, and perhaps a few further hints may not be out of place.

It is far better to err on the side of a weak bath than on a strong one, and in this connection I find that different makes of the salt are by no means uniform, and that what would be a weak bath with one would be a fairly strong one with another. The tabloids of Burroughs, Wellcome, and Co., I have found both uniform and convenient, and for a long time I have used nothing else. For general work I use one tabloid to an ounce and a half or two ounces of water. If this is found too weak the bath is easily strengthened by the addition of another tabloid, or even a portion of one. Care should be taken that the salt is completely dissolved before applying the solution to the plate, as if any undissolved particles settle on it they invariably cause very ugly star-like markings on the plate, which are practically impossible to get rid of. This precaution applies, of course, to any make of the salt.

The careful addition of a few drops of sulphuric acid to the bath undoubtedly has the effect of making it more regular in its action. This reducer acts slowly at first, but soon quickens. The dish should

be gently rocked, and the action carefully watched. When on looking through the plate it appears to be sufficiently reduced it should be quickly placed in a 10 per cent. solution of soda sulphite, which at once stops further action. The plate should not be removed from the sulphite solution too soon, five minutes being the minimum. As in the case of the previous reducer, it is, of course, advisable not to go too far, as the process can be repeated if necessary; but should one go just a little too far the application of one of the intensification methods will frequently restore the negative. Some workers recommend that, in addition to the sulphite bath, the plate, after a few minutes' washing, be placed in a clean hypo bath for five minutes or so. The final washing in either case must be thorough.

#### Sanzol Reducer.

Another reducer, a comparatively recent introduction, the makers of which claim for it a similar selective action on the high-lights of a negative to that possessed by ammonium persulphate, is known by the name of sanzol. It is a heavyish yellow powder, which dissolves fairly well in water. The dose, as recommended by the makers, is two grains of the salt to an ounce of water, to which is added fourteen

drops of pure nitric acid. The solution is poured over the plate the dish well rocked until the plate is sufficiently reduced, which should be placed in a bath consisting of fourteen drops of 88° ammonia to the ounce of water, in order to clear it. Allow remain in this bath for three minutes, and then give a final wash fifteen minutes in running water. My experience of this ammonia is that it causes frilling of the plate, and that it is better to use it altogether, or, at any rate, not to apply it until some of the ammonia has been washed out of the plate. The results I have been able to obtain with this reducer are certainly encouraging, and as my experience so far has only been with plates, I look forward to further experiment with it in connection with bromide and gaslight plates for treatment of which it is also recommended by the maker. It appears to me to show much the same tendency to neglect localities as does ammonium persulphate.

As in the previous case, I strongly advise the thorough rocking of the plate before applying this reducer, and I also recommend the use of a soft camel-hair mop instead of rocking the plate. A sediment or scum settles on the plate, which is much easier to remove with a mop.

## THE ISOSTIGMAR LENS AND THE PETZVAL CONDITION

[The following is the conclusion of the paper by Messrs Horace C. and Conrad Beck before the Royal Photographic Society. Next week we hope to publish the interesting discussion promoted by Messrs. Beck's contention as to the invalidity of the Petzval condition in determining the quality of a flat-field anastigmat.]

LET us now consider what happens to these corrections when the central focal errors have been corrected, but the equivalent planes are not superimposed, as shown in Fig. 4. It is well known that the size of the image depends upon the equivalent focal length of a lens, and if we were to examine the whole image of an object, and not only its exact centre, we should find that, although the rays parallel to the axis which pass through any part of the lens meet at a point on the axis, a bundle of oblique rays do not meet at any one point, because the equivalent focal length of the rays passing through the centre of the lens is AB, and the equivalent focal length of the rays passing through the edge of the lens is DB, and the edge rays having a longer focal length will produce a larger picture than the centre rays, as indicated by the two arrows at B. To make this clearer, let

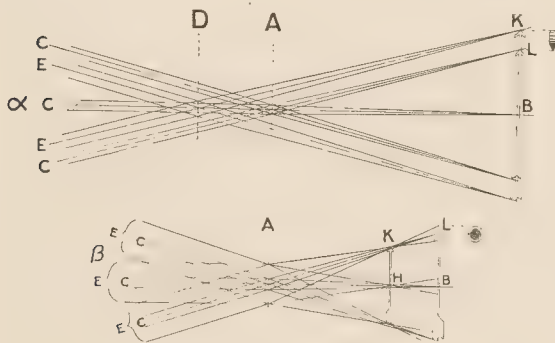


Fig. 5.

us look at Fig. 5a. For simplicity the lenses are omitted, but the lines A and D represent the positions of the equivalent points for the central and edge rays respectively. This shows the way in which the same lens system forms an image. The bundles of oblique rays (E, Fig. 5a) which come from the edge of the lens will form a picture of an infinitely distant object at a point K, whilst those coming through the centre of the lens (C, Fig. 5a) will form an image at the point L, the rays between the centre and the edge filling up the intermediate positions in the image. Now if we place a ground glass at the image point KL, a comet-shape appearance, as shown by the side of the diagram, will be seen. This is known as coma, or unsymmetrical oblique spherical aberration, and is due to the fact

that the equivalent planes for the different rays do not coincide. Again, if we take the case where the equivalent planes coincide, the oblique focal corrections are not made, the oblique rays (Fig. 5b) going through the edge of the lens come to the point K, while those going through the centre of the lens C (Fig. 5c) come to the point L, but the angular size of the image will be constant, and if we examine the image on a ground glass at the point we shall find that it appears as a spot with a misty circular surround. This is called symmetrical oblique spherical aberration.

We will now demonstrate practically upon the screen the effect of a lens in which the equivalent points corresponding to different zones of the lens are widely separated. This is the lens system that is illustrated in Fig. 4d and in Fig. 5b.

Our object consists of three small points of light, one of which is exactly in the optic axis, and it will be observed that the image of this point is well defined and circular, the other two points, which are equi-distant on either side, show as two comet-shaped images, proving that the light that is passing obliquely through the lens is not brought to one point.

We will now insert a small prism over the central portion of the lens, and will adjust it so as to throw the central light to a position on the screen than the marginal light. This shows that the marginal rays have considerably more magnifying power than the central ones, for, although the two images of the object on the optic axis are above one another, the images of the object on either side of the axis do not occupy similar positions.

A second method of demonstrating this is by swinging the lens. It is well known that if a lens be swung on its back equivalent plane the image will remain stationary. With this lens, if we swing it on the equivalent plane of the central rays, you will observe that the image formed by these rays will remain stationary, whilst the other image moves rapidly.

#### Colour Corrections of Opaque Rays.

Now, in correcting a photographic lens it is very important to get these two errors as small as possible, but, provided both have been corrected, we still find that the same thing may occur with reference to the colour-corrections. The red and blue rays meet at the same point on the axis, that is, the focus correction must be made, and the equivalent planes for the red, blue, and green rays must be in the same place, or the size of the images formed by the different coloured light will be different.

Take the case first when the equivalent planes for the two colours are in different positions. As before the size of any object upon the plate will depend upon the equivalent focal length. In this case



magnification for the red rays is considerably more than that of the blue, and therefore the red light from a point of white light at an angle will come to the point K (Fig. 6a), while the blue light will come to the point L, and if we place a screen at KL we see a spectrum of colours as shown on the side of the diagram. Again, if we take the case in which the principal planes for the two colours are superposed, but the focal plane of the blue light is at M, Fig. 6b, while the focal plane of the red light is at N, the red light comes to K, and the blue light to L. The image examined at the

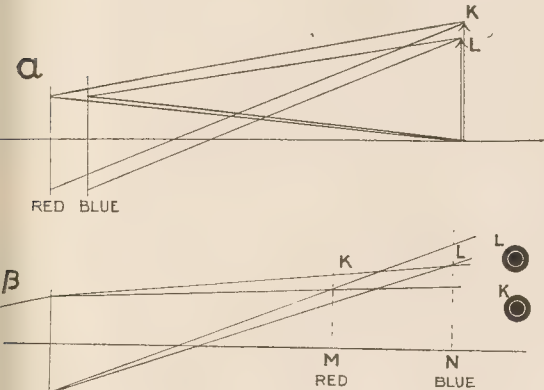


Fig. 6.

point L shows a brilliant central spot with a large fringe of red round it. This latter error in the oblique colour correction, Fig. 6b, will generally be approximately corrected, provided the axial colour correction and the spherical aberration are correct, but the former case of the unequal magnifications of the blue and the red images is a separate matter requiring a special construction for its elimination. It is met with in an exaggerated form in some combinations of lenses separated by large intervals.

We have here a lens which shows the error in a marked manner in the screen. It, in practice, has the effect of showing a black dot on a bright field, as a dark band fringed with red on one side and blue on the other.

**Distortion.**

There is also the possibility that the equivalent points may not be in the same position for the central that they are in for the oblique rays. In this case the size of the image produced by the rays going through the lens at a great angle is different to that produced by those coming at a small angle. This gives the well-known defect of distortion, and it depends as to whether the size of the image produced by the oblique rays is greater or less than that produced by the axial rays, as to whether the distortion of what is known as incushioned or barrel-shaped. The aberration called astigmatism is produced, as you are doubtless aware, by the fact that a bundle

of rays impinging upon a spherical surface in a direction that is not towards the centre of the surface will have presented to it a different curvature in different meridians. The rays in the plane which also cuts the centre of curvature will meet a differently curved surface to those which are in the plane at right angles, and therefore, in Fig. 7, whilst the light in the plane of paper is focussed

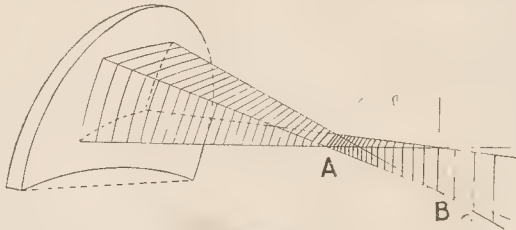


Fig. 7.

to the point A, the light at right angles to it is focussed to the point B, and consequently a vertical line instead of a point will be formed at B, whilst a horizontal line will be formed at A. It is in connection with the overcoming of this special defect, and at the same time keeping the image formed by the lens upon a flat field, that the so-called Petzval condition has been advanced, as being the only method by which such a correction could be made.

It will be seen, therefore, that the chief oblique errors which have to be corrected are astigmatism, symmetrical and unsymmetrical spherical aberration, regular chromatic aberration, unequal magnifications of different coloured images, and distortion. We are glad to say that in the design of this lens all these errors have been largely eliminated, in fact, as you will see from this slide, the definition is practically equal over the whole of the angle of view. This photograph is taken of two of our test charts placed side by side and photographed by a 4½-inch lens upon a 1/1 plate. The strip of the 1/1 plate is then cut off and is slid through the lantern. It was taken with full aperture *f*/5.8, and the size of the quarter-plate which it is supposed to cover, is marked on the slide, and also the various angles which different parts of the picture represent.

**The Commercial Form of the New Lens.**

We are at present putting this lens upon the market in two series, one at *f*/5.8 and the other at *f*/7.7. They are adapted for all classes of work, and for landscapes or long focus portraiture they have the advantage that the half combinations can be used as single lenses, which, with moderate stops, give good results on the size plate for which the complete lens is intended. These half combinations are of very convenient foci, the front and back of a 7½-inch complete lens having a focus of 11 inches and 15½ inches respectively. In this way each lens is a three-focus lens.

We should like to take this opportunity of expressing our thanks to Mr. Victor J. Poole, one of the members of our staff, for his able assistance in the working out of this lens.

HORACE C. BECK.  
CONRAD BECK.

COURT PHOTOGRAPHER.—Mr. Rose had a curious prisoner before him at the Tower Bridge Police Court last week. This was Alfred Ward, a bookseller's assistant, of Tenda Road, Bermondsey, who was charged with being disorderly at Southwark Park Road. Before being brought into court the prisoner requested to see the "court photographer," as he thought it absolutely necessary to have his photograph taken before and after being in the dock.

THE KING AND PHOTOGRAPHERS.—It is not often that the King attracts himself to the attentions of the snapshotter, but on Thursday His Majesty did so with a good grace at the Sicilian town of Taormina. The Archbishop there is an enthusiastic amateur, and had the privilege of photographing King Edward, the Queen, and Princess Alexandra, who had motored over to see the cathedral. Queen Alexandra retaliated, and took away a likeness of his Eminence.

BLACKMAIL BY PHOTOGRAPH.—"I am madly in love with you. But you are poor; you are rich." Thus wrote Joseph Morris, alias Marshall, in the month of nineteen, to the daughter of a prominent merchant in

Bristol. He stated further that he had taken a photograph of her which, if published, would make her ridiculous, and that a reply should be sent to a certain address. A "dummy" answer was sent, and when Morris went to receive it he was arrested. At the local police court on Saturday he was sentenced to six months' hard labour in default of finding sureties for his good behaviour.

IRISH INTERNATIONAL EXHIBITION, 1907.—An international exhibition is to be held in Dublin during the present year, and for this purpose spacious buildings are in course of erection in Herbert Park. Photography will be included in the fine arts section, which will consist of a collection of modern art of (1) Ireland, (2) Great Britain, and (3) other countries. The exhibits will be divided into 19 sections, in which the arts, industries, and manufactures—not only of Ireland, but of all other nations, are to receive a place. Promises of substantial support from many foreign countries have been received, and from particulars to hand the exhibition, which is announced to be opened in May, seems to be assured.

## Exhibitions.

### THE CLEVELAND GUILD.

THROUGH the agency of the multitudinous photographic societies throughout the country, photographers, both professional and amateur, have both the technical and social aspects of things well attended to. Well-organised society demonstrations and papers, on the right soil, create a desire for emulation to a degree not possible to the mere reader of handbooks and journals. Yet the sister arts of printing, lithography, and similar crafts (with exceptions in three or four of the largest cities) are not so favoured. True, there are the trade unions for the various operators, and federations of employers, but these exist almost exclusively for the maintenance of wages and prices, and do not interest themselves so much as they might in the science and technique of their craft.

In the unique constitution of that young and vigorous body, the Cleveland Guild of Printers, we find much that the major body of professional photographers and their employees might well imitate. This especially applies to the "principle" of the Guild, which is that—

"The Guild affirms the principle that the production of good work should be the life purpose of every man, and that such purpose should be diligently pursued by the members of the Guild to the best of their ability."

The object of this new Guild is not solely that of producing good work, but also a feeling of good fellowship among all its members, both employers and employed; and this latter object has been achieved to an extent scarcely to be hoped by the one or two keen enthusiasts responsible for its inception.

To mark the close of the first session, the Cleveland Guild held an exhibition in the Co-operative Hall, Middlesbrough, last Friday and Saturday. Among the interesting things there shown was the competitive work of the various members of the Guild in the departments of design, photo-engraving, bookbinding, fine letterpress and lithographic printing. The respective judges were Mr. R. G. Hatton, Armstrong College, Newcastle; Mr. A. J. Newton, L.C.C. School of Photo Engraving, Bolt Court; Messrs. W. Hale (Stockton), and Baker Hudson (Middlesbrough; and Mr. A. J. Appleyard (Middlesbrough).

Fine examples of old and rare bookwork were shown, the Middlesbrough Corporation having lent a large and valuable collection, besides which there were lent some fine volumes from the private collections of one or two local bibliophiles.

The influence which photography now has in the graphic arts, even in local work, was markedly shown in the many fine specimens the printers had displayed at their stalls, the more notable being those of Messrs. Appleyard (Middlesbrough) and Mr. John Harrison (Stockton). Messrs. Penrose and Co. (London) showed three-colour appliances and examples of their "Nickello" moulds, and half-tone stereotypes formed a strong centre of interest to many of the master printers.

Among the exhibits were a number by Messrs. Hood and Co., Ltd., the well-known photo-engravers and printers, of St. Bride Works, Middlesbrough. These included actual half-tone blocks as prepared for postcard printing, and examples of line zinc blocks in the various stages of manufacture. The exhibit also included an interesting collection of rough and finished sketches for reproduction in colour.

The exhibition was opened by the Mayor of Middlesbrough (supported by the chief magistrate of the neighbouring borough of Stockton), who wished that the present might be the forerunner of many similarly successful exhibitions

**PROCESS INSTRUCTION IN MANCHESTER.**—Two courses of instruction are just commencing in the photographic and printing department of the Manchester Municipal School of Technology. The first is a course of eight lectures by the principal of the department, Mr. Charles W. Gamble, on "Photographic Colour Processes." The lectures will be fully illustrated by means of practical demonstrations and by examples of the processes and methods described. The second is a course of eight lessons in intaglio photo-mechanical methods by Mr. R. B. Fishenden. The fee for the first is 2s. 6d.; for the second, 5s.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between April and April 20:—

**CAMERAS.**—No. 8,678. Improved camera. Henry Wood, 13, Linhope Street, St. Marylebone, London.

**SPECTROGRAPHIC APPARATUS.**—No. 8,723. Apparatus for producing on photographic plates or the like images consisting of many small parts in close contiguity to one another and decomposed into the colours of the spectrum. Franz Urban, 56, Ludgate Hill, London.

**TELEPHOTOGRAPHY.**—No. 8,727. Improved methods of telegraphically transmitting photographs and the like and system therefor. Arthur Korn, 173, Fleet Street, London.

**PRINTING APPARATUS.**—No. 8,817. Improvements in photographic printing apparatus. James Warry Vickers, Finsbury Square Buildings, London.

**PRINTING FRAME.**—No. 8,896. Combination photo printing frame. Leonard Arthur Waldron, 46, Distillery Street, Norwich, Norfolk.

**MULTIPLE PHOTOGRAPHY.**—No. 8,957. Multiple device for photographing. James Beckett Shaw, 91, Blantyre Road, Liverpool.

**SHUTTERS.**—No. 9,039. Improvements in shutters for signalling, photographic, philosophical, and like purposes. Arthur James Carter, 6, Lord Street, Liverpool.

**MOUNTANTS.**—No. 9,105. Paste for mounting photographs, prints, pictures, maps, or diagrams, or the like. George Richard Holding, 62, Caversham Road, Kentish Town, London.

**DAMPING.**—No. 9,115. Improved means for damping one surface to another, especially applicable in photographic cameras. Louis Gandolfi, 185, Fleet Street, London.

**LANTERN PROJECTION.**—No. 9,246. Improvements in or connected with means for displaying photographic or other pictures or the like by the aid of a lantern or otherwise. Alfred Clarke, Birkbeck Bank Chambers, Southampton Buildings, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**CYLINDER PRINTING MACHINES.**—No. 24,851. 1906. The invention relates to a continuous printing machine, in which a drum A is mounted in the frame B, and adapted to be rotated. The drum A is covered with flexible material, and rotates, carrying with it the tracing and photographic paper, in close contact with the concave surface of a glass plate C, fixedly mounted in the frame B. The glass plate C may be made as a semi-cylinder, as shown

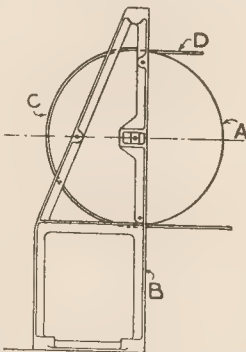


Fig. 1.

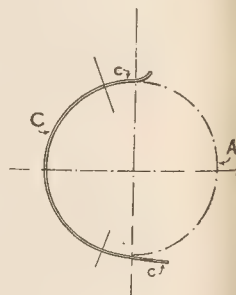


Fig. 2.

in Fig. 1, fitted in suitable end frames, or it may be made as a section of a cylinder, less than a semi-cylinder, as shown in Fig. 2, and provided with extension pieces c, which act as guides for the tracing and photographic paper carried around by the drum A.

In work, the tracing and photographic paper are fed, over the feed table D, between the glass C and the periphery of the



rotating drum A, and carried therewith in close contact with the glass C, the drum being revolved at a speed in proportion to the exposure required. The friction between the glass and the tracing being less than that between the tracing and the photographic paper there is no relative movement between the photographic paper and the tracing and the drum carries these two round without the use of any adhesive. Benjamin James Hall, 1, Castlenau, Barnes.

ops.—No. 15,674. 1906. Each leg of the tripod is provided with a thin metal plate, so shaped and pivoted to the upper end of the leg that it can be folded into the leg or turned upwards to combine with the plates on the other legs to form the block for the camera or other object. The plates are provided with corrugations, pins, and holes, or similar means for holding the plates and legs in their proper relative positions, and such means may be arranged to hold the plates and legs and allow the size of the block being varied. The plates may be connected together by the screw used for attaching the object to the block, or by separate fastenings.

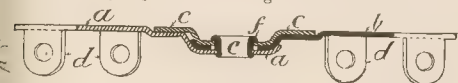


Fig. 1.

In the arrangement shown in the drawings the top for the tripod stand consists of three metal plates, *a*, *b*, and *c*, each of which is provided with a pair of lugs *d*, by which the plates are pivoted to the tops of the legs, so that they can be folded on the legs or be opened out to form the complete top. The lower plate *a* is provided with a hollow pin *e*, which has a head and the opposite sides of this head are cut away, as shown in Fig. 1. The centre plate, *b*, has a hole of the same size and shape as the head *f* of the pin *e*, and the top plate *c* is made with a slot *g*, which is enlarged at one end to pass over the head of the pin *e*. The plates are all corrugated in the direction of the length of the top plate *c*, so that when the three plates are together as shown there can be no movement of one plate relatively to the others in a direction at right angles to the length of the plate *c*.

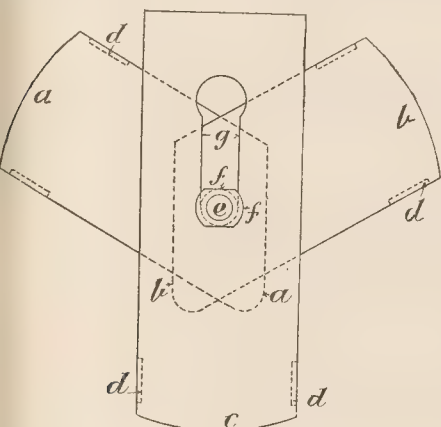


Fig. 2.

With a tripod stand fitted with a top of the kind herein described, the hole in the plate *b* is passed over the pin *e*, and this pin and the corrugations the plates are held from moving relatively to each other. The plate *c* is then placed in position over the pin *e*, and pulled forward in any desired position in slot *g*, when the head of the pin *e* prevents the three plates from coming apart. The camera can then be placed in position and fixed by a screw passed through the hollow pin *e*. When improved top is to be used for cameras fitted with a turning ring, the ends of the plates *a*, *b*, and *c*, are placed in the turning ring and the three plates are securely fastened together by a bolt, which is passed through the pin *e*, and has a head

recessed on its underside to cover the head *f* and grip the plates. The clipping bolt may be used whenever it is desired to firmly fasten the plates together, and it may be hollow or tapped to allow of a camera or other object being attached by a screw. Leon Faure, trading as Gay and Co., Bridlesmith Gate, Nottingham.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### "Watalu" Self Developing Plates.

Testing a "Watalu" (says a writer in "The Photographic Monthly") against a "Wellington" unbacked plate of the same variety, we found halation entirely absent from the negative of a candle-flame on the former; the unbacked plate, with the same exposure, and developed for the same time in developer dissolved from a "Watalu," showing it distinctly. Eighteenpence per dozen quarter-plates, therefore, does not seem too much to pay for backed plates and developer, especially as we cannot find that their advantages are obtained at the cost of lessened efficiency in any way.

### A Backing Test.

In selecting a backing (says Mr. W. H. Glaser, in "The Practical and Pictorial Photographer") few photographers consider optical characteristics, and fewer still submit the chosen products to any test except that of actual work. No better test could be desired as a final criterion provided the comparisons be made under identical conditions for all the brands tested; yet how often are such conditions convenient, or even possible, to secure? But the most important optical characteristic can be examined by a simple and easy experiment, which can be carried out in the work-room in less than one minute, with no other apparatus than the ground glass screen belonging to the camera. Smear a little of the backing on the rough side of the screen, and rub it well in with the finger tip, until the patch is translucent. The more perfect the backing the more transparent will the patch be. Remember the distinction that a translucent body is one which merely transmits light, whereas a transparent body is one through which objects can be distinctly seen.

### Photographing Running Matches.

RUNNING photographs (says Mr. Adolphe Abrahams in "The Photographic News") need a focal-plane shutter unless you stand a very long way from the subject, in which case the figures will be undesirably small. It must be remembered that movements of limbs—I might almost add of features too—as well as forward velocity have to be considered. The hundred yards should receive 1-400 to 1-1,000 sec. according to proximity. The finish of a long race does not need a briefer exposure than 1-250 sec. If you have to stand in the crowd a long focus lens is of great service. When photographing at Queen's Club, or at the Championship meeting, I use the back combination of my Zeiss lens (14in. focus), and with an exposure of 1-400 sec. at *f*/12.6 have been able to secure sufficiently full exposures on fairly well-lighted subjects in late March.

## New Materials.

"Auto" Self-toning Paper. Made by Drs. Lüttke and Arndt, 8, Zollstrasse, Wandsbek, Germany.

In availing ourselves of an opportunity of making a trial of this self-toning P.O.P., we selected a variety of negatives, both portrait and landscape, the results from which on the paper entirely satisfied us as to the latter's suitability for various classes of work. "Auto" is a collodion paper obtainable in one glossy surface (mauve), three matts (mauve, chamois, and white), and one rough surface. In the case of the three of these varieties, which came under our notice we found it necessary to overprint to just the same extent as with ordinary P.O.P. The simplest form of treatment is the use of a hypo bath of 2oz. to the pint, in which the prints, after a preliminary washing, are tone-fixed for 10 to 15 minutes. It was satisfactory to find that this toning action took place energetically when the bath was, as advised, in an alkaline condition, and when, as we have just said, the prints were freed from free acid by a

preliminary wash. Such conditions are chemically right, and the toning action which takes place under them should assure the permanence of the results. The hypo solution is made alkaline with a little carbonate of soda, and the tone obtained in the solution thus constituted is a pleasing brown.

Substituting a 10-minute treatment in a 2 per cent. salt solution for the first wash, the tone in our experience was more purple, although the makers give it as redder, but for a rich purple the so-called "photographic" tone, the prints are treated for five or ten minutes—the lesser time for fresh paper—in the following:—

Sodium acetate .....	1oz.
Ammonium sulpho-cyanide .....	1oz.
Sodium chloride .....	1oz.
Distilled water .....	50gs.

As regards its mechanical properties, the "Auto" shows every sign of being a collodion paper of high quality. It exhibits no inconvenient curling propensities, and is not easily caused to crack. It is issued in the regular English sizes, as well as in a quality of heavier weight, fitted as regards both size and substance for postcards. For samples and particulars of the prices, application should be made to the makers at the address given in the advertisement pages.

"Bordalace" Mounts. Sold by Jonathan Fallowfield, 146, Charing Cross Road, London, W.

Quite a novelty in mounts is offered by the firm of Fallowfield in these mounts, the essential feature of which is the series of circular holes which forms a border to the card. The holes permit of ribbon



of different colours being used in great variety, and, as a result, impart to the mounts a very attractive appearance. Not only this but the method affords numerous means of lacing mounts together in series. It is easy to see how any wall space, however large, might be covered with photographs on "Bordalace" mounts, while requiring



only the uppermost row to be attached to the wall. The price of the mounts is low. For prints up to quarter-plate it is 4s. per 100, 35s. per 1,000. For those up to  $5\frac{1}{2} \times 3\frac{3}{4}$  it is 6s. per 100, 35s. per 1,000. A smaller size is made for prints up to  $3 \times 2$  inches at 3s. per 100, or 25s. per 1,000. The novelty is one which both dealers and professional photographers should find a ready source of business.

THE "ENSIGN" ROLL FILM MONTHLY NEGATIVE COMPETITION.—Messrs. Houghtons, Ltd., are offering a monthly prize of a three-guinea "Holborn-Ilex" quarter-plate hand magazine camera and a packet of "Ensign" flat cut films for the best and most striking negative taken on an "Ensign" roll film. Each entry must consist of a negative and contact print from it, accompanied by an entry form, which may be obtained from any dealer, or direct from Messrs. Houghtons, Ltd., 88 and 89, High Holborn, London, W.C.

## CATALOGUES AND TRADE NOTICES.

"GOLDONA" POSTCARDS.—Messrs. Griffin deserve the thanks of photographers for the laughs they promise to arouse by means of series of picture-postcards illustrating photography in the stone age. The cards call attention to the virtue of "Goldona."

MESSRS. WELLINGTON AND WARD have issued a booklet entitled "Notes on the Use of the Wellington 'Watalu' Self-Developing Plates," which presents the necessarily scanty instructions for the use of that new product. It contains two examples of the powers of the plate in the shape of "Wellington Carbon Bromide" prints from "Watalu" negatives.

MESSRS. TURNER AND CO., Exchange Street, Blackburn, send an illustrated circular of the "Cosway" background which they have ready. The circular includes a large reproduction of the background, and may be had gratis from Messrs. Turner. One may mention that the firm, which has specialised with success in backgrounds of all kinds, is enlarging its borders, having opened premises at Kingston Place, Blackburn.

MESSRS. W. BUTCHER AND SONS have issued a little booklet containing a full list of their popular "Primus" specialties, a copy of which will be sent free to all applicants on receipt of postcard addressed to the above firm at Camera House, Farringdon Avenue, London, E.C. Messrs. Butcher and Sons will also be pleased to send a supply to any photographic dealer for free distribution to the counter.

MESSRS. O. SICHEL AND CO., of 52, Bunhill Row, London, E.C., have issued a list of the goods manufactured by them, or for which they are wholesale agents, for the special use of professional photographers to whom they are now mailing copies. The list contains illustrations and particulars of all the apparatus and accessories needed for studio work, including a large variety of background chairs, benches, etc., and is well worth a careful perusal. Messrs. Sichel will be glad to send a copy to any professional photographer who has not yet received one on receipt of trade card.

MESSRS. ROMANET AND GUILBERT, whose London address is Red Lion Square, W.C., send us a copy of their 1907 catalogue of photographic apparatus and accessories, a considerable portion of which is devoted to the description and illustration of their "Argus" cameras, to which some new features have been recently added. A variety of telescopic metal tripods at very reasonable prices are also worthy of special attention.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### SATURDAY, MAY 4.

North Middlesex Photographic Society. Outing to Ashted.  
Aberdeen Photo Art Club. Outing to Edzell.  
Hull Photographic Society. Outing to Farnington.  
Chelsea and District Photographic Society. Outing to Perivale.  
Borough Polytechnic Photographic Society. Outing to Loughton.  
Handsworth Photographic Society. Outing to Salford Priors.  
Edmonton and District Photographic Society. Outing to Wanstead Park.

#### MONDAY, MAY 6.

Bowes Park and District Photographic Society. "Stereoscopic Photography." H. A. Miles.

#### TUESDAY, MAY 7.

Royal Photographic Society. "Dry Collodion Plates with Preservative." J. Watson.  
Sheffield Photographic Society. Practical Demonstration. J. Gilbert Jackson.  
Rotherham Photographic Society. "Buying and Using a Camera." J. W. Stas.  
Hackney Photographic Society. "Results on S.C.P. Lantern Plates and Papers."  
Handsworth Photographic Society. Council Meeting.

#### WEDNESDAY, MAY 8.

Hampstead Scientific Society. Members' Print Competition.  
Edmonton and District Photographic Society. "Re-touching." Mr. Vince.  
Competition, April 20, Prints.  
Workshop and District Photographic Society. "Theory and Practice of Self-Toning Papers." John J. Griffin & Sons.  
Croydon Camera Club. "Hand Cameras." The President.  
Central Technical College Photographic Society. "The Cinematograph." N. M. Clougher.  
North Middlesex Photographic Society. "Copying." S. H. Bentley.

#### THURSDAY, MAY 9.

Handsworth Photographic Society. "The Carbon Process." R. J. Pummell.  
Richmond Camera Club. Annual General Meeting.  
North London Photographic Society. Members' Lantern Slide Evening.  
Kettering Camera Club. "Theory and Practice of Self-Toning Papers." John J. Griffin & Sons.



## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held April 30, Mr. Leslie Selby in the chair. A lecture, entitled "With a Hand Camera to the Niagara Falls," by Mr. H. O. Klein, was read by the secretary, Mr. J. McIntosh, in the unavoidable absence of Mr. Klein, and was much enjoyed by an interested audience.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—At the eleventh hour it was decided to hold the opening meeting of this new society at Avenue House, Lewisham, where there was a large room available, than at the society's headquarters, 75, High Street, Lewisham. The result justified the move, for about 150 members and photographic friends managed to squeeze themselves in to hear Mr. F. J. Mortimer's lecture on "Marine Photography," while a number who came late were unable to obtain admission, and a party of men who failed to find room in front stored themselves away behind the screen. A resolution was enthusiastically adopted approving the action of the organising committee in establishing the society, with a rider instructing the executive committee to appoint an advisory committee of ladies, with Mrs. Bennetto as lady secretary, to look after the interests of the lady members. This is a novelty in photographic circles, and we shall watch the result with interest. Mr. F. J. Mortimer, F.R.P.S., was elected president for the year, and amongst the vice-presidents elected were the Mayors of Lewisham and Deptford, Major E. F. Coates, M.P. for Lewisham, the Vicar of Lewisham, Canon Barnes-Lawrence, and Messrs. W. W. Bryant, F.R.A.S. (Royal Observatory), A. Haddon, T. K. Grant, F.R.P.S., P. R. Salmon, F.R.P.S., C. Winthrop Somerville, F.R.P.S., W. Calder Marshall, F.C.A., and C. Welborne Piper, A.R.I.B.A. Mr. J. Nixon, of Ingle-side Grove, Blackheath, who was hon. secretary to the organising committee, was appointed hon. secretary and treasurer to the society, with Mr. G. W. Andrew, of 12, Old Dover Road, as joint hon. secretary, to look after the portfolio, which is to have a prominent place in the society's programme. Communications were received from Mr. Horsley Hinton, the editor of "Focus," Rev. F. C. Lambert, and others, wishing success to the new venture.

## Commercial &amp; Legal Intelligence.

**RAPID PHOTOGRAPHY.**—Sitting at the Brighton County Court, last week, his Honour Judge Scully had before him a case in which De Jorrette Plummer, 59, King's Road, Brighton, rapid art photographer, sued Isaac Mindel, of Herman's Studio, Whitechapel Road, London, photographer's assistant, for £16 damages sustained by an alleged breach of agreement, by reason of the defendant leaving plaintiff's service without giving two months' notice. There was a counterclaim of £3 6s. 2d. for commission, travelling expenses, etc.

Mr. Rowland Harker, barrister, who appeared for the plaintiff, said the fact of defendant's leaving without notice was not disputed, and he thought the real fight would be on the counterclaim.

Plaintiff said he made a specialty of rapid art photography, taking and finishing photographs "while you wait." When defendant entered his employ in July last year he represented his age as twenty-five. His wages were first 30s., and afterwards £2 a week and commission. Until he left in December he had the run of the dark rooms, and was enlightened as to witness's patent processes. In October he was sent to the Southampton branch, and in December was instructed to go to the Portsmouth branch, but, instead of doing so, he left without giving the two months' notice specified in the agreement. Nothing was due to defendant for commission, and he knew nothing about his claim for travelling expenses.

For the defence, defendant's solicitor, Mr. C. H. Downes, put his client in the box. Defendant said he was only twenty when he entered the plaintiff's employ and signed the agreement, and he denied that he represented himself as twenty-five.

Cross-examined, he said he left plaintiff's employ because he was not paid. He admitted, however, that he had charge of the cash at the Southampton branch, and had instructions to take his wages out of it. After he had left, plaintiff saw him in London, and paid him £2 for wages due to him.

Mr. Downes asked his Honour to hold that at the time defendant entered into the agreement he was an infant, and that the agreement was void.

Questioned on the counterclaim, defendant said 2½ per cent. commission on £50 or £60 was due to him, and a sovereign or 25s. for travelling expenses.

Dealing with the point of law raised on the agreement, Mr. Rowland Harker pointed out that plaintiff was not asking for an injunction, and submitted that his Honour had power to strike out any unreasonable covenant and enforce the good.

The Judge thought that, on the whole, the agreement was enforceable, and that the plaintiff was entitled to the damages he claimed. Defendant had not made out his counterclaim, and on plaintiff undertaking to hand over a photograph—which defendant claimed, and which was one of the items in it—it would be disallowed.

Judgment was accordingly entered in plaintiff's favour, with costs, leave to appeal being granted, on the application of Mr. Downes.

**A CANVASSER CHARGED.**—At the Liscard Police Court, last week, a respectably-dressed young man, named Leonard Newton Ernest Beaumont, of Albion Road, Walton, was brought up on a charge of obtaining money by false pretences from Mr. May, junior, photographer, of Liverpool. From the evidence it appeared that the prisoner was employed by Mr. May as a canvasser, but on April 6 the business was sold to his father, and the prisoner was discharged. It was alleged, however, that on the 10th ult. he went to a Mrs. Roberts and collected 12s. from her in settlement of an account which was outstanding to Mr. May. Formal evidence of arrest having been given, prisoner was remanded on bail.

**A BISHOPS STORTFORD BANKRUPTCY.**—The Official Receiver for the Hertford district has just issued particulars under the failure of Mr. Tom Bruxby, photographer, Station Road, Bishops Stortford, from which it appears that the debtor has filed a statement of affairs, showing a deficiency of £82 18s. 3d. The report and observations of the Official Receiver are as follows:—The debtor, who has been an adjudged bankrupt, states that he commenced business at Station Road, Bishops Stortford, on July 29, 1905, without capital, and that for two years up to the end of 1904 he was employed as a builder's foreman. About November, 1900, the debtor executed a deed of assignment for the benefit of his creditors. The debtor is unable to state the amount of his liabilities at the time, or what dividend was paid under the deed, but believes that his deficiency was about £2,000. The tenancy of the debtor's residence is stated to be in the name of his wife, who claims the furniture there, as having been purchased by her from the trustee under the deed of assignment mentioned above, and from other persons. At the date of the receiving order one creditor had obtained judgment against the debtor. The unsecured liabilities are in respect of law costs, water-rate, and rent. The debtor states that his present business had never paid its way, but that he had been supported by his wife. The cause of insolvency is stated to be "a libel action brought against me," and the debtor states that he became aware that he had not sufficient property to pay his debts in full on February 9, 1907, when he states judgment was obtained against him for one farthing damages and costs. The only book of account stated to have been kept is a book showing the sales over the counter. No cash book has been kept.

**INDECENT PHOTOS.**—At the Clerkenwell Sessions last week, a Spaniard, named Gil Rovira, was found guilty of having unlawfully sold improper photographs. The prisoner had supplied the photographs (for some of which he had posed) to a newsagent named Scoop, who received four months' imprisonment a little time ago. Mr. Wallace sentenced the prisoner to six months' imprisonment, and ordered him to be deported.

**THE SALE OF A BUSINESS.**—George Thomas Orgill, of Swadlincote, brought an action at the Burton County Court last week to recover the sum of 16s., which he had paid to an agent of Messrs. A. G. Taylor and Co., photographers, of Derby, owing to the non-fulfilment of the order. Mr. A. J. Cash defended. The case for the plaintiff, as stated by himself, was that in the year 1904 he gave an order for the enlargement of a cabinet photograph of his grandmother, and paid the sum of 16s. by weekly instalments. Although two years had elapsed since then, nothing had been done by the defendant to fulfil the contract, and as he had the work done elsewhere he claimed the amount he had paid. Henry James Blount, of the Derby Photographic Company, stated that the business of Messrs. Taylor had been purchased by them, and every effort was being made to fulfil the orders given to the latter. No correspondence relating to the plaintiff's order

could be traced amongst the documents in possession of his (Mr. Blount's) firm, and although Mr. Orgill had been told that many pictures were on the premises awaiting claimants, and that his expenses would be paid if he would go to Derby and see if his was amongst them, he had declined to do anything. His Honour held that the plaintiff was entitled to succeed, as he had given the defendants every opportunity to fulfil their part of the contract and they had failed to do so. Judgment was, therefore, given for the amount claimed, with costs.

**A COUNTERCLAIM.**—Alliance, Ltd., proprietors of the Taber Bas Relief Photographic Co., 115, Newgate Street, sued Mr. James Reeve, 38, Stavard Road, Hanwell, for £22s. 9d. for work done. Defendant said that the plaintiff owed him £3 5s. The Judge said that being so the defendant should have raised a counterclaim. As he had not done that his £3 5s. claim could not be inquired into. He found for the plaintiffs on the claim, adding that the defendant could bring a separate action on his counterclaim.

#### NEW COMPANIES.

**AUSTIN EDWARDS.**—Capital £20,000 (15,000 "A" and 5,000 "B"). To acquire the business of manufacturers of photographic materials, carried on at Warwick and elsewhere, by Austin Edwards, and to adopt two agreements with A. Edwards, and one with A. O. Picot. No initial public issue. Not less than two nor more than four. A. Edwards is managing director. Holders of shares No. 8 to 5,007 and 5,008 to 10,007, respectively, have certain powers of appointing directors. A. Edwards is nominee of first-mentioned group. No qualification. Remuneration (except managing director) not more than £50 each per annum. No manager or servant (except A. Edwards) to be paid more than £500 per annum, except with sanction of general meeting.

## News and Notes.

**NOTICE.**—Owing to "great pressure upon our space a number of articles and replies to correspondents, together with the discussion upon Messrs. Beck's paper on the "Isostigmat" lens, are unavoidably held over until next week.

**THE OIL PROCESS.**—Messrs. John J. Griffin and Sons, Limited, have on view at their exhibition-room in Kingsway a series of four portrait heads by Herr R. Dührkoop printed by the oil process. Our readers who are interested in this process may be pleased to have the opportunity of seeing the results produced by such an artist.

**THE YORKSHIRE UNION.**—On April 20 the Yorkshire Photographic Union held their annual meeting, by invitation of the Sheffield Photographic Society, in the Cambridge Hall, Sheffield. There were about 80 members present representing societies and photographers from all parts of the county. The president of the Sheffield Society (Mr. T. W. Charlesworth) welcomed the members of the Yorkshire Union, and acknowledged the benefits received from the union, both by the Sheffield Society and by himself personally. The president of the union, Mr. Atkinson, thanked the Sheffield Society for their cordiality and hospitality. This, he said, was his second year as president, and he felt that each year it became, and would become, more difficult to faithfully fulfil the duties of president, owing to the popularity of the union. He felt that the photography of the present day was doing a great deal in helping people to see beauty in nature, and to take an interest in historical buildings and objects which would otherwise be neglected. This he regarded as of great educational value, and he urged those present to make the most of the materials close at hand, referring to Hogarth and Constable as examples for their encouragement. The treasurer's report showed that the past year had been successful from a financial standpoint, and the union closed its books with a balance of over £21 to the good, an improvement of, roughly, £2 15s. on the year's working. The general secretary, in submitting his report, first traced the history of the union, its objects and its responsibilities, and then urged the responsibilities of the societies to the union to enable it to carry on its work efficiently. He complained that some societies had appointed delegates who never attended

the meetings, and strongly urged the necessity for those societies taking a more real interest in the work if they wished to have the benefits provided by the union. A hearty vote of thanks to the officers of the union for their work during the year, and to the Sheffield Society for their hospitality, concluded the proceedings. In the evening there was an entertainment provided, in addition to an exhibition of pictures from the various Yorkshire societies, and lantern slides by members of the Sheffield Society.

**STOLEN LENSES.**—We are informed by the firm of Carl Zeiss that a robbery has been committed on their premises at 29, Margaret Street, and optical instruments to the value of over £500 stolen from the premises. At Messrs. Zeiss' request we publish a list of the stolen articles which will, we hope, prevent a number of them from being accepted for purchase:—

Achromat objective 3 mm. 1.30 No. 415, apochromat objective 3 mm. 0.9 No. 888, apochromat objective 2.5 mm. 1.25 No. 525, apochromat objective 8 mm. 0.65 No. 2,428, apochromat objective 16 mm. 0.50 No. 5,064, compensating ocular 2, folding aplanats X6, folding aplanat X10, folding aplanat X10 and X20, folding aplanat X20 and 27, folding aplanat X16 and 27, large Brucke lens, improved alcazar in sleeve, folding aplanat in ivory handle, dissecting lens 1,404.

Micrometer eyepiece with drum, index ocular 195, projection ocular 2, apertometers 155 and 156, projection eyepiece 2, small mechanical stage 1,574, mechanical stage (new model) 1,565, large mechanical stage 3,553, polariser and analyser 170, selenite films, centring achromatic condenser.

Screw micrometer ocular 528, astro objective No. 221, sporting telemeter No. 120, stereo Palms 9 x 12 cm. No. 3,833, two Tessar lenses Nos. 80,861-65, one single Tessar 145 mm. 81,901, one front-board, one Hilton adapter 9 x 12 cm., two slides for above.

One cut film holder 9 x 12 cm., minimum Palms 9 x 12 cm. No. 4,813, Unar lens No. 63,821, tele-tube No. 806 with negative 77,588, minimum Palms 4 x 5 in. No. 4,259, Tessar lens No. 66,534, film pack adapter 4-plate, roll-holder 4 x 5 in. No. 2,918, telephoto lens No. 81,802a, minimum Palms 2 x 3½ in. No. 5,753, Tessar 4.5 88,802, tele-adapter and negative lens 1,211, universal Palms 9 x 12 cm. 5,929, double protar in compound shutter 81,476-85,575, wide-angle lens 80 mm. 77,925.

Heyl's actinometer, Zeiss pack adapter 11,796, stereo Palms 9 x 18 cm. 3,270, two Tessars 68,659-547, three double dark slides 9 x 18 cm.

Binoculars X4 de luxe 3,535, X6 de luxe 11,351, X8 de luxe 49,090, X4 3,539, X8 48,486, X10 10,780, X12 11,762, X5 11,229, X7½ 10,565, X5 and 10 859.

Monoculars X4 144, X6 291, X8 1,896, X7½ 1,298, X10 1,098, X12 1,444.

Zigmond's coloured glasses (one set), two demonstration prisms, hand spectroscope 203-204, Adix calculator, Unicam shutter 99,530, Goerz spectro shutter 3,310, Linhof shutters 4,355, 4916, Goerz shutter 4,659, focussing glass x6.

Protar lenses 86 mm. 71,194 rotating diaph., 350 mm., 71,123 double Protar 183-183 mm. 76,572-3, 285-224 mm., 73,381-72,059, 285-285 mm. 81,569-70; Tessar lenses 75 mm. 73, 393, 40 mm. 68,215; Planar lenses 110 mm. 74,436, 100 mm. 78,697, 20 mm. 80,681; Tessar lens 155 mm. 73,468 in compound shutter.

Teletube III. No. 585 with negative lens 45 mm. 79,754; positive lens 135 mm. 52,873; Tessar lenses 210 mm. 81,135, 155 mm. 77,694, 112 mm. 64,949; Planar lenses 50 mm. 38,186 and sleeve, 76 mm. 35,446 and sleeve, 100 mm. 39,056 and sleeve, 205 mm. 38,695 and sleeve; projection aplanat 250 mm. 1,005, aplanat magnifier X6, one hand spectroscope 204, one projection aplanatic lens 183 mm. 10 us.

**ZIGAS COMPETITION, 1907.**—The enormous number of entries for this competition, which closed on March 31 last, amply testified to its popularity, and the judge, Mr. P. R. Salmon, had no easy task in awarding the prizes. The following are the successful competitors:—"Open" classes: Section A—1st prize, £5, J. Ayton Symington, Kew; 2nd, £3, A. H. Robinson, Scarborough; 3rd, £2, Robert Low, Cork. Prizes of 5s. were also awarded to F. W. Beken, Cowes; James Dunlop, Motherwell; E. R. Bull, Forest Hill; J. Anderson, Belfast; J. F. Johnson, Harlesden; C. R. Dodd, Clapham; Harry Cross, St. Leonards; James Omond, Orkney. Section B—1st prize, £5, Herbert A. Gane, Bayswater; 2nd, £3,



Holding, Wimbledon; 3rd, £2, Miss Frances Pitt, Bridge; and prizes of 5s. each to Miss J. Hamilton, Hammersmith; I. Poole, St. Helens; Harry Holt, West Kirkby. "Novice" class: Section A—1st prize, £5 10s., J. W. Carr, Manchester; £2, S. Featherstone, Rolls Road, S.E.; 3rd, £1 10s., John Leeds; and prizes of 5s. each to W. Ingram, Glasgow; E. Till, infield; F. G. Price, Aberberg. Section B—1st prize, with 2nd, £2, F. Mears, Gnosall, Staffs; 3rd, £1 10s., T. Rivers, and prizes of 5s. each to Miss J. M. Bryden, Bideford; F. Price, Aberberg; T. Lambert, Brighton. The "Zigas" competition for professional photographers only closes on June 30.

THE CINEMATOGRAF in Science, Education, and Matters of "is the title of a booklet by Mr. Charles Urban, whose object prove that the time has now come when the cinematograph should be recognised as a national instrument by all those responsible for the advancement of education, science, and state affairs in general. Mr. Urban endeavours to show that the equipment of the school, scientific laboratory, school, technical institute, etc., is incomplete without its moving picture apparatus, and his arguments are well worth the consideration of those to whom, from its the booklet would appeal. Copies will be forwarded gratis on application to the Charles Urban Trading Company, Limited, 48, Abchurch Lane, Street, Shaftesbury Avenue, London, W.

PARTNERSHIP ACTION.—On Monday last, at the Watford County Court, an action was heard in which W. F. Cooper, of the Cooper Laboratory, sought an injunction to restrain J. H. P. from disclosing the secret of manufacture of a direct sepia dye paper, which the plaintiff stated had been discovered in the laboratory, and whilst the defendant was in his employ. The judge, in declining to grant an injunction, stated that he had come to the conclusion that the defendant was not a servant of the plaintiff, and that they were, to all extent and purposes, in partnership in the manufacture of the secret, and both were therefore entitled to it jointly. The judge declined to grant the defendant his costs, as he considered that the defendant had taken up a perfectly unjustifiable attitude, and he was not satisfied that the defendant had possessed, as he stated, a secret, on the assumption the arrangement had been concluded, nor did he think that the defendant had acted quite honourably.

RAILWAY PHOTOGRAPHY.—The death of George Edwards, a news- and photographer, of Queen's Road, Peckham, who was knocked by a train on the Chatham and South-Eastern Railway, near Uxley Station, formed the subject of inquiry at the City Coroner's Court on Monday last. Edwards was in the habit of photographing of workmen, and railway officials stated that his object in being on the railway was to solicit business from the men. The foreman of the bridge repairs said the deceased had no right to be on the railway at all, and the company's engineer agreed that Edwards was trespassing when he met his death. The Coroner said the fault lay with Edwards, but he wanted to know if it was possible for the company to prevent such an accident recurring. Mr. Groves, appeared for the company, said a strongly worded notice could be issued among the members of the staff, calling upon them to warn any unauthorised photographer who appeared on the railway. The jury, in returning a verdict of "Accidental death while trespassing," expressed the opinion that the company should take more stringent measures to prevent trespassing on the railway.

LATE MR. DESMOND.—We regret to record the death of Mr. Desmond, of Priory House, Cardigan. The deceased gentleman had conducted a photographic business in several Welsh towns.

"OPTICAL LANTERN AND CINEMATOGRAF JOURNAL," formerly "Optical Magic Lantern Journal and Photographic Enlarger," will be issued weekly instead of monthly, and will be entitled in the future "The Kinematograph and Lantern Weekly." It will be issued on a trade only, under the editorship of Mr. Theodore Brown, by Messrs. E. T. Heron and Co., 9 and 11, Tottenham Street, Tottenham Court Road.

EASTERN PHOTOGRAPHIC SOCIETY.—The following is a list of the members and committee for the year 1907-1908: President—Dr. A. S. G. Vice-presidents—C. D. Baxandall and R. W. Wearing. Secretary—A. Davies, W. A. Tester, S. D. Stevens, J. H. Parker, and A. J. Braithwaite. Hon. secretary—John Holt. Hon. treasurer—W. Gunson. Hon. auditors—A. R. D. MacDonald and J. H. Arkle. Librarian—W. Arkle.

## Correspondence.

\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE VARIATION OF THE TIME OF DEVELOPMENT WITH THE TEMPERATURE.

To the Editors.

Gentlemen,—I only received the "B.J." for April 19 at the moment when I was leaving Arosa, and as my note-books, etc., were packed up, I could not at once reply to the interesting letter of Mr. Cranston.

As to M. Houdaille's statement, it is certainly correct in principle, but the method of applying it suggested by M. Clerc is erroneous. As your correspondent, "G. S.," points out, the increase of 5 per cent. should be calculated from degree to degree, which Mr. Cranston in his letter to you has correctly done by my method given in the "Photo. Journal" for May, 1906.

The temperature coefficient is not precisely the same for every developer, as Mees and Sheppard have pointed out, and therefore the 5 per cent. rule can not be applied to every case.

I have not by me in Zurich "Real Orthochromatism," but, taking the data from Mr. Cranston's letter, we have—

Time at 50 deg. F. (10 deg. C.) = 7 minutes.

Time at 65 deg. F. (18.8 deg. C.) = 5.25 minutes.

From these data we find the log of the temperature coefficient for 1 deg. C. for the developer used by subtracting the log of the smaller time from the log of the greater time, and dividing the result by the difference in temperature—

$$\log 7 - \log 5.25$$

$$8.3$$

$$\log 7 = 0.8451$$

$$\log 5.25 = 0.7202$$

$$.1249 \div 8.3 = 0.0151$$

Then the requisite time of development at 15.5 deg. C. will be found by subtracting from the log of the greater time the product of the log of the temperature coefficient, and the difference in temperature between 10 deg. C. and 15.5 C. The result is the log of required time—

$$\log 7 - 5.5 \times 0.0151 = \log \text{ of required time.}$$

$$\log 7 = 0.8451$$

$$0.0830$$

$$0.7621 = \log \text{ of } 5.78 \text{ minutes.}$$

which figure substantially agrees with the 5.75 minutes given in the pamphlet.

I do not quite understand how Mr. Cranston gets the 4½ minutes mentioned in the last paragraph but one of his letter, but perhaps he has not first calculated out the correct temperature coefficient for the developer used.—Yours faithfully,

Pension Neptun, Zurich, Suisse.

To the Editors.

Gentlemen,—As the effect of temperature varies very considerably with different developers, the arithmetical rule proposed by Col. Houdaille can certainly not hold good for all. As a measure of the effect, in the quantitative study of development, I have used the so-called "temperature-coefficient for 10 deg.," this being the ratio of the velocities of development at 20 deg. C. and 10 deg. C. respectively. From a paper of my own (Trans. Chem. Soc., 1906, 89, 530), and one with Dr. Mees (Roy. Soc. Proc., A., 1905, 76, 217), the following data are taken, which exhibit this variation—

Developer.	Quinol.	Ferrous Oxalate.	Hydroxyl-amine.	Rodinal.	Metol.
T.C.	2.8	1.7	2.00	1.5	1.3

This means, of course, that hydroquinone at 20 deg. C., develops 2.8 times as fast as at 10 deg. C., and so on. For calculating purposes, however, it is necessary to know the change for any variation of temperature within a certain range, and for this an empirical formula, deduced from a series of measurements, is valuable. That

given by Mr. W. B. Ferguson, K.C., in the "Phot. Journ." for May, 1906, answers very well over a short range, only different exponents must be used with different developers. The choice of a formula is chiefly a matter of convenience and the range over which it is to be used. I found that for ferrous oxalate from 0 deg. to 30 deg., the formula  $\log K = -1806/T + 7.60$ , where K is the velocity of development and T the absolute temperature (temp. Centigrade + 270 deg.), represented the results very well, but generally the form

$$\frac{t}{t_0} = \left(\frac{T_0}{T}\right)^c \text{ where } t, t_0 \text{ are the times of development corresponding}$$

to the required temperature and the initial temperature, whilst C is a constant, which must be calculated from experimental results, yields sufficient accuracy for practical purposes.—Yours, etc.,

Marburg, a/L., Germany.

S. E. SHEPPARD.

#### UNIFORMITY IN HALF-TONE NEGATIVES.

To the Editors.

Gentlemen,—I have not read Mr. Biermann's article in the "Penrose Annual" for 1907, so I do not know what similarity it may bear to the method I was advocating at the R.P.S. When it was suggested at the meeting the method was not new I thought the charge of plagiarism was against myself. I gave the date of my first publication in the "B. J." for March 13, 1896, as evidence that I could not have copied from "Penrose" of 1907. I commented on the significance of the fact of us being fellow-townsmen, and remarked that if the methods were identical, I thought it must have been derived more or less directly from myself. The fact that I claim ten or eleven years' priority of publication will clear me, I hope, and if identical methods occur twice independently in the same town it is very interesting.—Yours truly,

84, Stanmore Road, Birmingham.

E. C. MIDDLETON.

#### A NEW METHOD OF MEASURING THE TIMES OF PHOTOGRAPHIC SHUTTERS.

To the Editors.

Gentlemen,—In reply to Mr. Hunter's letter, in your issue of the 19th inst., and Dr. Glazebrook's, in your issue of the 26th inst., in which both writers express their regret that my name was not mentioned in the paper referred to in my previous letter in your issue of the 19th inst., I willingly accept these apologies.

At the same time, both writers use the argument that Mr. Hunter's method is different from my own, a statement which I cannot accept, as from the first I have actually used a scale on the slit of my apparatus for measuring the low speeds (or, as described in my specification, "estimated"), and, if Mr. Hunter only gets within 20 per cent., perhaps it would be more in keeping were he to use this word.

Mr. Hunter mentions in his letter that I do not describe my method of photographing in my patent. As I make no claim for this it is not necessary for me to explain. I enclose, however, a print for your inspection, showing that I can get confirmation of my method by photography. This is obtained simply by using an ordinary camera in front of the slit, and a powerful illuminant substituted for the one used for visual testing.

Another point raised by Dr. Glazebrook in his letter as to the similarity of the two methods, which in a way raises the question as to whether my method is a new one, and, following this, a subject for a patent. Fizeau certainly used a disc with slots—to be accurate, a toothed wheel—but this was for a different purpose, and used in a different manner. I do not claim in my patent simply the disc with radial slits, but a particular combination of parts and for a particular purpose.

The similarity of Mr. Hunter's method and my own does not rest only on our both using a disc with radial slits, but Mr. Hunter uses the whole combination, as described in my specification *i.e.*, an illuminated stationary slit, in combination with a revolving disc, with a number of radial slits as, and for the purpose of, measuring the speeds of photographic shutters.

As proof of this, in his paper he says. As an alternative method persistence of vision may be used (which he now acknowledges as being the method used by me), and, unless he uses my apparatus, I fail to see how these results are possible.

However, this is a question with which I need not trouble you, for if the National Physical Laboratory continues using the apparatus

without my permission, my remedy will be in another direction, not through the Press.

A. KERSHAW,

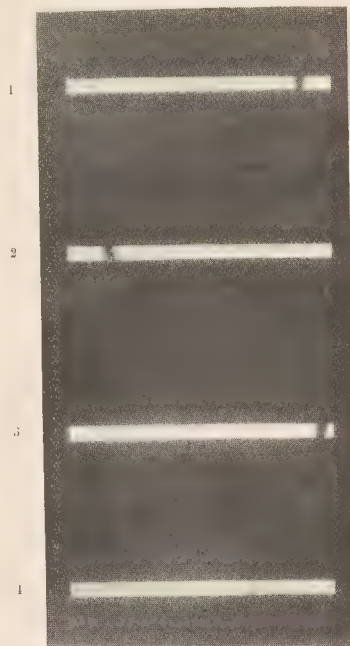
Photographic Apparatus Manufacture

St. Columba Street, Woodhouse Lane, Leeds.

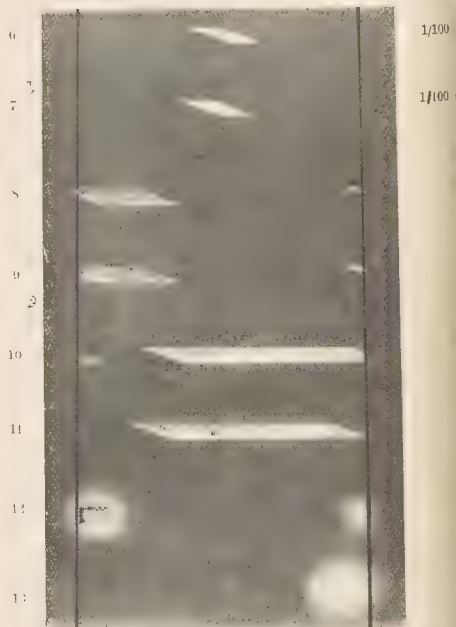
April 27, 1907.

[The following are the two diagrams referred to by Mr. Kershaw with his description of them.—Eds. "B.J."]

Period.



Period.



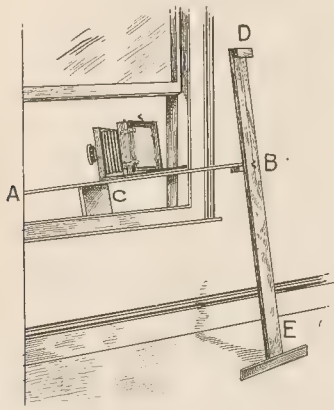
Roller Blind Shutter: No. 1, 2, and 3, period = 1.22 sec., speed 1-25; No. 4, period = 1.24, shutter speed 1-25. Those



print are with a focal-plane shutter, with varying periods. The sharp definition which enables accurate readings to be Nos. 6 and 7: These two are almost identical, and are about sec. The period is 1-100 sec. Nos. 12 and 13: Period - c., speed 1-57 sec.

# N EXTEMPOREISED FOLDING TILTING TABLE.

To the Editors.  
Gentlemen,—I enclose photograph of a simple contrivance for photographs from any window. A B. is a flat piece of wood;



foot like the foot of a stool. This rests on the window sill. is an upright piece attached to A. B. with a thumb screw. camera can thus be tilted at any angle.—Yours, etc.,  
n Street, Strabane.

R. GALLAGHER.

# BLISTERS ON BROMIDE.

To the Editors.  
Gentlemen,—In reference to the correspondence on the subject of blisters on bromide paper, I have read with interest what little attention has been given, and regret the scarcity of contributors. My experience the trouble seems to have a "selective" peculiarity applied to the users of bromide paper. One hears of those who never free from the infection, while others experience an immunity in all circumstances. Personally, over a period of some eighteen months of bromide paper work, I have been fortunate to escape any trouble from blisters, but on the occasions when I was troubled, nothing I could do in the way of treatment of the paper was of any use. Equalisation of temperatures, formalin, alum, etc., completely even to minimise the defect.

On the other hand, although I have had so little personal experience I have had a large experience of other people's sorrows on the

one exception, that of an Edinburgh firm, who suffered from a change in the water supply to one of a colder temperature. My single recommendation has been to "change the paper," without exception the remedy has been effective.

Too vigorous chemical treatment nothing is easier than the treatment of blisters, but by the ordinary treatment for which the paper is made I do not think blisters should occur.

I entirely agree with Mr. J. Pike that the paper is at fault; and the manufacturer who sends out inferior stuff in that direction should be made to suffer in the only possible way.

Those who have had a wide experience of different manufacturers know that a blisterless (under ordinary conditions) paper can be made, and remain constantly reliable; on the other hand, if some one likes to depart from manufacturer's instructions and subject paper to extraordinary conditions, they are justly served when it comes.

It always seems a pity to me that such a beautiful and comprehensive printing process should ever suffer from unjust criticism, whether it be due to the manufacturer or the user.

It is, however, one undoubted cause of blisters entirely outside the manufacturer's control, and not always in control of the consumer. In firms where time is money: I refer to the difference in the nature of developer and fixer, and washing water.

In the case of the firm above mentioned, my recommendation to transfer straight from developer to acid fixer, and the use of a hypo eliminator to reduce the time of washing, has proved effective.  
—Yours, etc.,  
C. WINTHROP SOMERVILLE.

"Lyrrath," 117, Hazelbark Road, Hither Green, S.E.

April 26, 1907.

# Answers to Correspondents.

\* \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\* \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

## PHOTOGRAPHS REGISTERED:—

R. W. Rowe, 1, and 2, Foster Place, Dublin. Photograph of a Coalman with a Horse and Dray.

Brimmell Bros., Church Street, Launceston. Combination Photograph of Views of Launceston with the Arms.

A. Hubbard, 7, Exchange Walk, Nottingham. Five Photographs of Miss Pansey Montague.

W. McQueen, 7, Oldham Road, Royton, Lancashire. Photograph of Railway Smash at Cowhill, Oldham.

## DRAWINGS REGISTERED:—

H. P. Simms, 12, High Street, Chipping Norton. Two Pen and Ink Drawings: Man Climbing Lamp-post to Light Electric Light with Matches. Market Square, Chipping Norton, Describing Local Joke.

STUDIO AND LENS QUERY.—1. I am having a studio built, size 26ft. x 12ft., and wish to know what length of focus of lens would be most suitable? Could I obtain fairly or passable results with one of the cheap portrait lenses, as my purse is rather limited, and can hardly afford a first-class portrait lens? Is speed of the best make of lenses the only advantage over cheaper kind. I have noticed that cabinet portrait lenses are advertised as low as £2. Do you think one of this description would be good enough to start with? 2. The glazed side of the studio will face N.E. What colour blinds would you recommend for top light and side light? 3. Would French, grey, or pale-blue paint be suitable for interior of studio woodwork? 4. I wish to cover the plain glass over with a substance, to keep people from looking through. What would you recommend? Something that will not obstruct out too much light, and, if best, inside of glass or the outside.—STUDIO.

1. The most suitable lens for this length of studio, if you have only one, would be from 11in. to 12in. focus. Large aperture is not the only advantage in an expensive lens, which has many other qualities over the cheaper kinds. Of course, you must not expect much for the exceedingly low price you quote, considering that the cost of a high-class instrument for cabinet portraits is something like eight times that quoted. 2. Pale green or dark blue would be a good colour for that aspect. 3. Either colour would be suitable; the first-named would perhaps be the better. 4. If the side of the studio were glazed with fluted glass, people could not see through, and no light would be obstructed. The glass may be obscured by stippling it over, on the inside, with starch paste, in which a little whiting has been mixed; or it may have tissue, or tracing paper, or linen, attached to the sash bars with paste, or you can use the plain "window decoration," or Reinemann and Co., New Zealand Avenue, Barbican, E.C.

FAULTY LIGHTING.—We enclose you a rough untouched print, and wish to ask your advice about same. 1. You will notice that there is no light and shade in the hair, and the face and neck are much too dark. We have always used "plain lighting," but to keep up with the times we find that we must introduce fancy

lightings, but you will see our results have not been very successful. A lot can be done to the negative by working on it, but we wish to get the light so that there will not be much of that needed. We shall be pleased if you can kindly advise us in what way we can improve on same.—FORWARD.

1. The lighting of the portrait sent is very faulty, as you say, but we do not see how we can help you, as you give no idea of the form of your studio or the arrangement of the blinds when the picture was made. What is required is more reflected light on the shaded side of the face to soften the shadows—that you can surely easily arrange without assistance. 2. As we have no idea whatever what the system is, we can offer no opinion on its merits. Possibly it may be of assistance to you, as you seem to be somewhat at sea at present.

STUDIO QUERY.—I am building a studio, and I should be glad of your kind advice. I enclose rough sketch and plan. Do you think the area of glass is enough? The studio light faces north, and it will be glazed with 21oz. clear glass; the whole area of glass about 84 square feet; area of studio, 10ft. x 22ft. 1. Is the area of glass enough and distributed rightly? 2. What curtains would you advise, and how to be hung? 3. Where could I get the "Plastine" recommended by a correspondent in a recent issue for glazing?—W. J. R.

1. Judging from the sketches we would suggest that you should have eight feet of glass at the side and roof instead of six; also that the height to the ridge be increased a foot or so. 2. For the top blinds, pale green or medium blue holland, on spring rollers, would be good, and for side curtains art serge of similar colour would be very suitable. 3. We do not know the material. If you will give us the reference to it we will look it up.

W. D.—We should advise carbon, platinum or bromide (in this order) if the prints are to be made in England and sent out, but for working on the spot by those not experts, we should recommend bromide.

J. T.—A 10-inch is better than the shorter focus, on account of the better perspective. We should certainly decide in favour of No. III., as you will need a greater covering power, and the aperture is quite large enough.

M. D.—We should say the price you name a reasonable one for the two negatives. For a similar distance one guinea for one whole-plate negative and print would be an average charge for good work.

GASLIGHT EMULSION.—Will you please give me a formula for gaslight emulsion for postcards, rapid and slow, as I want to sensitise them myself?—J. HARRIS.

No formula for gaslight emulsions has, so far as we are aware, been published, and makers' formulæ are naturally guarded very carefully. It is stated, however, to be a chloro-bromide, and the following is an excellent formula for this:—

Ammonium bromide .....	65 grains.
Ammonium chloride .....	216 grains.
Nitric acid .....	90 minims.
Gelatine .....	24 ozs.
Water to .....	20 ozs.

Allow the gelatine to soak for an hour and melt by the aid of a water bath, add the salts and acids, and heat to 140 degrees Fahr., and add slowly with constant stirring

Silver nitrate .....	720 grains.
Water to .....	20 ozs.

As soon as mixed, pour out to set, and wash. Then re-melt and add some gelatine, previously well washed in water, the quantity varying according to requirements. It does not pay to do this work unless the operator has some experience in emulsion making and a coating machine and drying conveniences.

JUSTICE.—We think he is fully entitled to use the words in question. He must not use the Royal Arms. We reply to your query as to canvassers under "Ex Cathedra."

F. SIMOND.—"Photo-Revue," 112, Rue d'Assas, Paris.

ETCHING GLASS.—Would you kindly inform me how to proceed to make a focussing screen by etching with fluoric acid or otherwise?—IRIS.

It is not very easy to get a fine matt with hydrofluoric acid. The usual way is to grind two glasses together with the finest emery powder. We advise you to try the process on page 713 of the "B.J. Almanac," 1907.

VALUE OF LENS.—Some time ago I bought a 1-1 plate lens with following (as near as I can make out) on: "Vallantin, (something here I cannot read), M. Leberours, Paris." I should be extremely obliged if you would give me some idea as to its value.—X. Y. Z.

As you cannot decipher the engraving on the mount of the lens it is evidently a very old one, and of ancient construction. We should say it has very little commercial value at the present time. It may be a very serviceable instrument, but that will be able to see for yourself by taking one or two pictures with it. Some of these old French lenses are fairly good, but not up to those of modern construction.

OPERATOR.—There is none.

OTHELLO.—Such repairs are done for the trade by small shops, but do not work except for them. We advise you to send the lens to the firm supplying it.

TYRO.—1. (a) Any ortho plate with either the screen made by makers or a filter yellow K filter; (b) naturally a panchromatic plate with deeper filter must be used. 2. Unless you have special drying facilities and can work in the dark, we should advise you to undertake this. 3. It is not corrected for red, and will not correct for red. 4. Yes, and is suitable for all-round work, but not for stand development.

W. H. C.—Imogen sulphite is a secret preparation. Pyrocat is a large constituent of the other developer, but whether only one we cannot say.

COPYING WITHOUT A CAMERA.—Will you kindly inform me whether it is possible for anyone to copy photographs from others without a camera or lens. A lady friend of mine sent me a photograph from America, which she says she copied without a camera. They are real photographs, and certainly very good, and can hardly tell they are copies. She tells me she used a special light paper, and made a paper negative from the photograph and then printed them in the ordinary way. Will you kindly inform me where to get the paper, or will the ordinary Pyrocat do as well? She says she can do postcards in the same manner. I should like to be able to do some myself. I have got a snapshot camera, but I cannot copy with it, and I have a cabinet photograph from which I should like to copy and make some postcards if it is possible. By giving me any information on the subject you will greatly oblige.—SUBSCRIBER.

Certainly you can print from the unmounted photograph contact on to a gaslight or printing-out paper. The exposure will be a good deal longer than from a negative, and the quality of the paper in each case may be very evident. If the print is mounted, the above method is, of course, impracticable, but it is possible to make copies by the following process, though we cannot call it one suitable for regular work:—Place a sheet of phosphorescent paper (i.e., paper coated with calcium phosphide) in contact with the photograph in artificial light (light). The paper should have been previously exposed to light for a few seconds. After about five or ten minutes remove the phosphorescent paper, which is now very faintly luminous, and place it, in the dark, in contact with bromide paper, keep the two together for about twenty to thirty minutes at a temperature of 120 deg. F., afterwards developing.

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## The British Journal of Photography

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## SUMMARY.

ness and technical expedients, including a follow-up system, dark-room checking methods, and an inexpensive dark-room sink described before the recent Convention of the Professional Photographers' Society of New York in competition for a 50-dollar (P. 344.)

tain Owen Wheeler strongly recommends a long hood for the lens as a means of securing brilliant negatives. We receive a series of telephotographs taken by Captain Wheeler the aid of the hood. (Pp. 342 and 343.)

interesting lawsuit connected with a process for direct sepia prints appears under "Commercial and Legal Intelligence."

"Isotigmar" lens. The views of others on Messrs. Beck's paper are given on page 347.

Royal Academy contains many examples of modern portraiture which may be studied by any professional photographer desirous of advancing his own work. (P. 342.)

contents of the week include a folding stereoscope and two new lenses. (P. 351.)

de-light on the postcard business is cast by a recent case. (P. 346.)

recent paper by Dr. E. Demole on the latent image contains conclusions which appear to call for criticism. (P. 346.)

take exception to some pronouncements on orthochromatism made by E. A. Salt before the Croydon Camera Club. (P. 350.)

ing society proceedings have been Mr. H. Stuart on "Gummate" at the L. and P., and Mr. J. Watson on "The Tannin" at the R.P.S. (P. 355.)

## EX CATHEDRA.

### Rights In Research.

The report of the case of Cooper v. Gillard, which we publish on another page, should make interesting reading for any persons who are collaborating in the investigation of processes with a view to their commercial application. Through lack of an express undertaking in writing that, in the event of a process of a direct sepia bromide paper proving successful, neither was to dispose of it without the sanction of the other, the Judge could not grant the injunction asked for, but his summing up strongly emphasises his view of the moral obligations of the plaintiff, who, nevertheless, from his share in the researches, was not regarded by his Honour as an employee, and, therefore, the rights of each party to the discovery were those of partners. The case should serve as a reminder of the need of a business-like agreement in such cases.

\* \* \*

### A Wave of Orthochromatism.

According to a report published on another page, orthochromatism is what a particular club and the photographic world generally is suffering from, with the result that our negatives want "sparkle, life, and go," and our pictures are consequently flattened, wanting in gradation and the subtle play of light. We have here an expression of opinion which is still far too commonly met with, notwithstanding the fact that for over twenty-one years, year in year out, some one or other has been preaching and proving the advantages of the colour-sensitive plate. The truth of the matter is that the adherents to this opinion cling tenaciously to old thoughts and practice, and are loth so to change their procedure as to take advantage of the greater powers at their command. The familiar is preferred to the unfamiliar, no matter how much more truthful the latter may be. Their comparative tests, if they make them, are too often made with their thumb in the scale-pan, like that of the itinerant fruit vendor. Their criticism of the results is based, as all criticism must be, on their past experience and knowledge, and

"Truth new-born  
Looks a mis-shapen and untimely growth."

\* \* \*

### Sparkle.

Exactly what is this particular virtue, which a negative must possess, we have never been able to learn. True, it is defined as "life," "go," "pluck," but a rational explanation it is impossible to obtain. It is, according to these authorities, that particular characteristic which a wet-plate negative possesses, and if you do not happen to be an old wet-plate worker, as they are, then you are about as wise as before. If you obtain a wet-plate negative and examine it, you are not much wiser, and a print from the same merely shows you black masses where there should be the tender play of light

and shade in the various greens, and you involuntarily wonder if the grass and trees are actually as black as the proverbial coal-hole. For so long have these workers relied upon the wrong values given by ordinary plates for obtaining pictorial results, that they are utterly incapable of making pictures with the new colours. Their palette is as restricted as that of the black-and-white line artist, and given a complete colour-box they are helpless, and make a hopeless, infantile caricature. Then they blame the tools.

\* \* \*

#### A Reserve Power.

Colour-sensitiveness, orthochromatism, or any other term that one may apply to it, is merely a reserve power, which may or may not be used at the will of the operator. That one does not want to use it is no reason why one should not have it. It would be interesting to know, putting the matter in its baldest form, whether the lecturer who is responsible for these views, would prefer to go away for a holiday with an extra five pound note in his pocket, or with merely enough money for his bare necessities. It does not necessarily follow that because one has the reserve force that one need be extravagant. One of the arguments in favour of the adoption of ordinary plates is, we think, most unhappy—for the said lecturer's views. He tells us that many leading flower photographers use ordinary plates from choice, not from innate conservatism, and then adds: "Their choice is probably deliberate, assisted by the fact that they can mostly avoid heavy colour contrasts." Quite so; their work is necessarily restricted, which is probably about one of the strongest arguments in favour of the orthochromatic plate.

\* \* \*

#### The Question of Gradation.

Let us tackle our friend, however, on his question of gradation. According to him, by the use of colour-sensitive plates we "lose much of the infinite gradation and subtle play of light." Is this a fact, or is it merely an erroneous preconceived prejudice? This can be only answered by direct photometric measurements, and, as proved by both Drs. Eder and E. Stenger ("B.J. Alm." 1907, p. 836), the gradation under a set of three-colour filters is approximately the same for the same plate, therefore one may argue that under a yellow filter the same fact will be apparent. It is obvious, then, that, given correct exposure and correct development, the colour-sensitive plate is in this respect *pari passu* with the ordinary. As to the greater difficulties of working orthochromatic plates, these are not dependent on the plate but on the operator. Some people cannot use a tack hammer, let alone a scientific production like a photographic plate or printing paper, and many are deterred even from using such simple processes as carbon and platinum printing because these are not of the printing-out order. One always has a lurking idea that the lecturer in question may be speaking with his tongue in his cheek; his views are not always orthodox, and he is the first to parry this term by the old definition of "his doxy and the other man's doxy" with a quiet twinkle that makes strangers wonder what he does mean or believe.

\* \* \*

#### Telephoto Fog.

Negatives taken with the telephoto lens so often suffer to a greater or less extent from veil that it is usual to hear a telephoto print of average clearness specially commended on this account. Yet, except for the caution that the positive lens of a telephoto combination should be shielded from direct rays of the sun, we do not recollect to have seen the screening of the lens particularly emphasised as a means of avoiding flatness. The great benefit of thus screening the lens with a hood, fully large enough to cut out ex-

traneous light which falls upon the surface even comparatively small angle, was recently demonstrated, by Captain Owen Wheeler, by a number of comparative prints taken with and without a lens-shade, which, in particular case of Captain Wheeler, takes the form of a conical hood extending in some cases as much as 18 inches from the lens mount. In the "Pall Mall Gazette" for May 2, Captain Wheeler, in the course of an address on service telephotography, speaks of the great satisfaction which he has derived in his own work from regular use of a hood, particularly when employing fairly high magnifications as twelve and fourteen times. He has arrived at the lens hood as the most effective means of excluding extraneous light after putting other expedients, such as internal diaphragms, to the test. Its practical use during a number of years past, and its importance, therefore, attaches to his preference for it, and to the fact that Messrs. R. and J. Beck have now put it on the market in a convenient form.

#### PORTRAITURE AT THE ROYAL ACADEMY.

To write about pictures for a photographic journal is usually not an inspiring task. The critic has a feeling that he should always have the photographic point of view in mind, and this consciousness is as a millstone tied round the neck. So many matters have to be disregarded, especially those that comprise execution and colour. What remains amounts to little more than the design and tone of the works. It ought to be nearly time, however, to admit remarks on colour, since photographers have happily at last invaded that hitherto forbidden land, if it be granted to the critic that he may introduce a camera man, as such, to the painter's paradise, the reviewing of pictures will be a less heart-breaking task.

In a paragraph last week mention was made of the works of Sargent, and since no other portrait painter earns so much of both praise and abuse from the critic that stand and gaze, he may very well furnish the remarks of this review. As to the "Lady Sassoon," all artists will agree that it is one of those high-water marks recording the flow of art throughout the centuries. I do not too much to say, we believe, that in years to come "Lady Sassoon" will be spoken of, written of, bought and sold, or will become an ornament to some national gallery thus gaining an equal footing with "The Duchess of Devonshire and Child," "Lady Hamilton," "Mrs. Siddons," works of similar eminence. For, in spite of all that has been said as to Sargent's failings upon the psychological side, he shows himself here to have captured not only the elusive touch that makes a portrait breathe, but that which gives it the convincing impression of movement of the facial muscles. Lady Sassoon gracefully holds her black silk skirt as she passes before us—the swish of her silk as she turns—and as she moves she throws us a look of irresistible greeting. Her eyes beam recognition; her lips prepare to utter, not the conventional accosting of a crowded reception, but the friendly word. It has been thought that the work is full of accents. Is it not, however, all the greater for avoiding the centralising trick of moderns, who realise a face amidst a wilderness of suggestion, wherein the eye cannot rest if it would? Its mere execution is magnificent. Ladies may be overheard reviling the "awful" hands. Of course, these fair critics do not understand the difference between the claims of a modern work and a Holbein. All who look at this work from the distance of the settler's opposition will be delighted. Painters alone may go nearer to profit. The wizard Academician has four other portraits here; but having spoken of No. 237, it were beyond



cession to speak of the rest, for comparison dwarfs line as most of them are.

The same room are four other portraits, which of lives mark out 1907 as a year of good portraits. Henry Van der Bergh" is a vivacious one by S. J. n, R.A., of a large and easy style and fine colour. Solid and genuine in effort, and admits a somewhat view than the last, wherein it will commend itself more to those who see "by the nose."

Next noteworthy work is a group by Geo. W. rt. It is certainly the most individual work of d in the show, and possesses a touch of that ness without which younger men seem unable to mark. Two ladies dressed in the present fashion together in the open air, one with her arm over oulder of the other. By their side is a boy, who have stepped out of a Flemish picture, or have been by Dürer. He has bare legs and sandals, and s to be wearing his father's coat, which, thrown displays the half-vest half-stays garment worn by children. His air of swagger suggests the son ip IV., by Velasquez. In the nearer foreground is ing baby, just placed upon the ground by his , and having his clothes all bunched up, so as w his chubby thighs. It is all intensely natural, t strangely unnatural, even to the tree stump with arishing sprout upon it. Evidently it is a bid for by a man of great power. Its worst parts are the hich sticks to the figures and is, after all, but a ound, and the largeness of the taller lady's hand.

Shannon, A.R.A., scores with his "Mrs. Henry J. imer," which, though a little unpleasantly dark, is al in pose, in design, and in expression. The subd Mr. Shannon's treatment of it has resulted in a ting and haunting portrait.

Other work of the "new" men in this room which attention is Mr. Young Hunter's portrait of his ho appears at full length in a gown of gorgeous and emerald green. Strong and admirable as it cannot but detect the "academy pitch" motive aces it so far from the spirit of restraint and y of the great Sargent near which it hangs.

Gallery VIII. is the group of nine life-size figures H. F. Bacon, A.R.A. Its disjointed title, "The Butterfly (The Harvey Family)," very neatly sums complex motive; for it totters between a family por-ou and a subject picture. Mr. Bacon has failed to he butterfly interest either his models or the spec- In a garden scene, a bored family are sullenly for the tea to draw of which the eldest daughter arge. Of course, the difficulty of blending nine s, all equally made out, into a homogeneous whole ns of a pictorial motive is almost insurmountable. two great Dutchmen have done it; but Mr. Bacon . Taken separately, his figures are unexceptionable.

ge Henry, the new Associate, sends four works, the hich are perhaps the two that adorn Galleries d X. The first is a charming design called "The " showing a lady at full length glancing into a g glass, one hand touching the wall and the other raising the front of her dress in a pose at once d graceful. It is in such designs that the younger re over the old, who won their laurels with sitter's re throne, and who seem unable to produce a pose those time-honoured aids. "The Mirror" has all ose of the old style, but it has a delightful expect motion into the bargain. In the "Goldfish," Mr. with charming grace of line, places his lady at where she watches the movements of golden carp wl. Both these works are pale in tone, but full hoicest colour and light.

king of design in portraiture brings to mind the

work of J. E. Blanche, who certainly excels in this particular. His only picture in the Academy is admirable in this respect, and is a fine object lesson to those who are content to flop a sitter into the regulation chair and take the first arrangement that comes. In execution he has the manner of Sargent without the matter. The drooping right hand of Miss B. Capel might be thought from its gangrenous colour to be dropping away into dissolution. On the whole, however, the colour is fine, if the steely quality of the dress be thought not unpleasant.

Of the five by Arthur Hacker, A.R.A., the portrait of the artist's mother will be judged the best. The lady reclines upon a sofa, her hands clasped upon a newspaper. Simplicity could go no further; but strength goes with simplicity. The reticence and fine feeling of this, its intimate character, and the charm of its Orchardson-like colour, will help on the painter's reputation in a great degree.

A name that deserves to be more widely known is that of H. G. Riviere, whose "Countess of Leitrim" is remarkable for the animation of the expression—truly a "speaking" likeness. The same artist's portrait of Captain Hamilton, of the Fire Brigade, in full war paint of helmet and epaulets, would be rather a terrible thing to hang in a room.

One of the greatest surprises of the year is "An Early Victorian," by William Logsdail. He showed last year how fine a portrait painter of children had been hiding his light under garish Italian views; but this year his little maiden in the costume of our grandmothers is a startling proof of the artist's store of power. It is, naturally, of the school of complete realisation, and in that particular style of work it stands as a perfect achievement, vivid and strong in its contrasts of tone and lovely in colour. Mouat Loudan continues his tapestry-like idylls of portraiture in "Mrs. Sydney Belfield" and "Mrs. Bowles." The former has its charm spoilt by the fact that the seated figure is too closely framed, so that one has an uncomfortable feeling of its cramped imprisonment, and the hopelessness of its ever being able to rise to its full length. The other work is the finer, on the whole. The dignity and seriousness of the handsome elderly face is masterly, and a delightful harmony exists between the lavender dress and the silvery grey hair of the sitter. In such work, and in that of others mentioned, the evident desire of the painters to do more than give merely a coloured record of their subjects lifts portrait painting to a higher level than still-life likeness taking: such a desire adds individuality and a pictorial interest. It may be portrait-painting extraordinary according to the more usual standards: but only along such a line can the art find further room to develop. The "Lady Weber" of Frank Dicksee, R.A., accomplished and faultless as it is, is but ordinary, and that alone is why one sees it passed by without the appreciation that is its due.

George Clausen, A.R.A., makes occasional attempts at the art, but so far he has not added to his great reputation won in another branch. How curious it is that a man treading with steps so firm and unerring and so far ahead in landscape should stumble so much in the path of portraiture, where many an obscure name is found upon works of undoubted charm—such, for instance, as the taking little figure of "Winnie," by W. J. Gibbs.

We should, before closing this article, direct the attention of photographers to what may be called apparatus pieces, of which there are two or three interesting examples. Nor should we be properly loyal to omit mention of his Majesty the King, whom A. S. Cope, A.R.A., has painted as "a man that hath two coats and everything handsome about him." But to the apparatus pieces. The first is also by Mr. Cope, and represents Sir William Perkin. F.R.S., in a black velvet jacket and with a piece of

silk held across his hands of the mauve colour which he invented. The retorts and other paraphernalia make excellent pictorial accessories. Sir William's fine face seems to want life and purpose.

A less ambitious attempt by Miss Spong gives with nice restraint a man who is evidently sitting at his work, though he smokes a pipe at the same time. But the finest of the apparatus series is probably the portrait of Sir Andrew Noble, Bart., K.C.B. He looks uncommonly like the Duke of Cambridge. Attired in a blue overall, he regards with calculative interest a long test-tube which

he holds with perfect naturalness and the ease of common use. We could imagine no portrait more convincingly carried out for the purposes of a scientific society, by H. Harris Brown.

Amongst the water-colours, we like best the lady's dainty works of Miss Mary Gow, who, whilst pushing the medium as far as safety admits in the matter, does not lose sight of its characteristic qualitative charm.

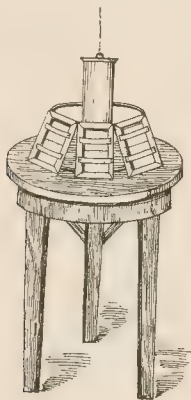
Other works no less deserving of attention and lying beyond the scope of this article.

## AMERICAN IDEAS IN PROFESSIONAL PHOTOGRAPHY.

[The Convention of the Professional Photographers' Society of New York, brief though it was, and free from the formalities which are usually associated with such gatherings, contained one novel feature, due, we are told, to the constructive energy of the President, Mr. Pirie Macdonald. This was a competition in ideas of service to the professional photographers, the results being communicated to a public meeting of the members and adjudicated for the award (of fifty dollars) by those present. We give below the descriptions of such of the ideas which have gained publicity in the columns of the official organ of the society, our New York contemporary, the "Photographer." The fact of a judging body thus constituted is probably responsible for the rather strange idea, that of Mr. Stebbins, for a dark-room sink, selected for the award.]

### Artificial Light Printing Frame.

Mr. Wendell, of Albany, showed a printing frame such as he used in his studios. It was designed for a six-ampere arc lamp run on 110-volt current, or the ordinary incandescent lamp current. The electric light companies supplied the lamps free,



and the printing frames were constructed to carry five or six cabinet frames at once. The cost of current consumed was only five cents an hour, against the 35 cents an hour of the Aristo lamp, and the printing was effected in six or seven minutes. Several of these frames could be used in a studio, turning on one, two, or three, as the work required. The saving was quite considerable over the larger size lamp.

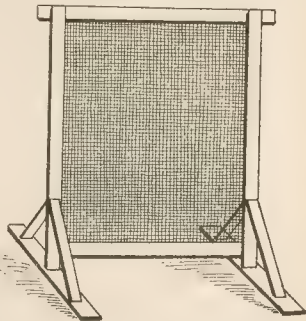
### A Dark-Room Sink.

The sink, bought, or put in by a plumber, of which Mr. Stebbins showed a section, was made of a mixture of cement and sand. A framework of half-inch boards was first built on the supports where the sink was to be placed, and on this a thick layer of cement and sand in the proportions of cement 2 parts, sand 3 parts, was laid, about an inch thick. While this is setting an inner framework of half-inch boards, about 2 in. shorter than the outer one and about an inch shallower and without any bottom, is prepared, and when the bottom layer of cement is set, this inner framework is rested

on it, and the tops of the inner and other framework are steady at an even distance of about an inch apart by little pieces of wood attached at distances at the tops. This forms a space between the two frameworks and the bottom layer of cement and into this mould more cement mixture is poured and allowed to set. The whole forms a most permanent form of sink, the cost of not over \$1.50 for one eight feet long. Mr. Stebbins figured that his sink cost 75 cents for labour and 78 cents for cement. Waste pipes should be put in place before the cement is put in and set a little below the surface of the cement to allow for shrinkage when the cement sets. To strengthen the sink at the sides, corners, etc., tenpenny nails or pieces of steel can be driven into the sink, and, if thoroughly covered, will not rust. A sink could be lined with cement in the same way. The sink showed no signs of damage from chemicals, etc., after use of a year or more, and was thoroughly water-tight and very cheapest possible.

### A Wire-Netting Background.

Mr. Merrill, of Salem, Mass., showed a background covered with wire mosquito netting, grey being the best. Black or white oil paints and grey ground, the only limitations, the photographer has as to his background is in his individual



capacity to carry out his ideas. The mosquito netting can also be used to intercept too harsh a background behind the sitter. The expense of a 6 by 8 piece is about \$3.00. Black or white oil paint is applied with a broad brush right through the mesh.



# Making Pictures the Patron Will Want to Buy.

Evans, of Pittsburg, offered a suggestion from practical sense. Undertake and carry out as far as you can to make sure that your patrons will want to buy. Business on a speculative basis can be carried on most successfully. Evans never lets a print go out of his studio without being fully satisfactory both to the sitter and his or her friends. No action or your money back. There is nothing a man will rather than a good picture of himself. Women are not in men for vanity. In groups of large sizes you never fail to get a picture to every man in the group whose face is good. Never attempt to sell them. The man who pleases his eyes makes money. The man who limits himself to two or three negatives loses out. Make good, and you will not have to about your bank account.

## Control in the Printing Room.

Wendell, of Albany, offered as a second suggestion his method of controlling the work and the consumption of paper in the printing room. He charges his printer with the paper sent to the printing room and makes him account for it. He has 6,200 square inches of paper to the roll of twenty-six feet wide. The system keeps the printer to the mark and benefits him as well as his employer. The system is as follows:—

### REPORT ON PLATINUM PAPER.

Platinum Paper (Black). Roll Nos. 1 and 2. March 28, 1907.

	Amount Cut.	Accepted.	Rejected.	Unprinted.	Waste.	Amount on Hand.
22	4	3	1			12,400 sq. in.
10	20	18	2			Cut 6959 "
8	32	30	2			Left 5,441
7	40	30	7	3		
6	55	40	10	5		
3	29			29	2 in.	
...	180	121	22	37	2 in.	

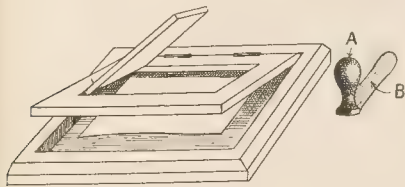
Notes: Paper is not working well. Is paper fresh? Yes. Are there coating? Some. Condition of weather: Bright and dry. (Signed) JOHN JONES, Printer. Prints average? Good. Are they spotted? No. Are they rubbed? Is the printer getting all there is in the negatives? I don't think he is. (Signed) JIM SMITH, Inspector. Quantity of waste for March 28, 1907, Platinum Paper (Black) 15 per Cent. or less, valued 2-24 dols.

## Hollinger's Suggestion for Children.

Hollinger, in a most humorous speech, gave his methods of drawing the attention of children while under the skylight. He suggested a variety of simple conjuring tricks with bits of paper and pennies, etc. He also recommended the use of glass instead of rubber ones for the children to play with. It is different and new to the kids. These kinds of tricks excited the child and got him into more and better positions than the ordinary whistling birds, etc.

## A Postcard Printing Frame.

Phelps, of Sidney, showed his postcard printing frame, which is illustrated herewith. It is a piece of apparatus consisting of a window-frame arranged to receive the negative and printing paper, and a wooden slide mask operated by the handle which cuts off the light from the negative. One hundred postcards in five minutes can be made with this apparatus. A patent has been applied for it.



g of a window-frame arranged to receive the negative and printing paper, and a wooden slide mask operated by the handle which cuts off the light from the negative. One hundred postcards in five minutes can be made with this apparatus. A patent has been applied for it.

## Macdonald's System of "Following-Up" Orders.

Mr. Macdonald showed his card method of entering orders and following them through until finally disposed of and entered as paid or billed. He showed that, by a good system, it was impossible for any orders to get out of the studio unpaid for or uncharged. He had a set of three pigeon-holes, in the first of which the card was filed as soon as the first sitting was made. As soon as proofs were sent out, this was noted on the card, and it was transferred to the second pigeon-hole. Here it must remain until the order for finished pictures was received. The number of cards in the proof pigeon-hole was a guide to the state of the business. If any proofs stayed out too long it was easy to follow by reference to this pigeon-hole. The card was transferred to the third pigeon-hole when the proofs came back with the order. The cards in the third pigeon-hole had to show what orders were in the house undelivered or unpaid for. The cards themselves were divided up in spaces carrying the usual notices of name, address, date, style, etc., etc., and entirely took the place of the regulation register, which all too soon becomes cluttered up with a number of filled orders, among which it was difficult to find any particular order which might have hung fire for some reason or other.

## A Business Idea.

The Rochester Section of the Society, through Mr. Clarence Smith, submitted for general attention an idea or scheme for drawing a more powerfully distinctive line between professional and amateur photographers.

"As no high-class photographer is in a position to compete with the amateur and so-called 'penny-picture-man,' it is highly important for us to establish a certain standard as to size as well as artistic merit in our work. We would suggest that no 'bust size' portrait sold by the dozen should measure less than 1½ inches from the top of the head to the bottom of the chin, and that the better workers in the larger towns shall absolutely confine themselves to 5 by 7 plates or larger, and produce an article in photography that will command a price based upon intrinsic worth or value, and not upon any popular price basis, which latter undesirable basis is the only one on which, and with which, all the 'cheaper workers' exist and flourish."

"Let us coin two new names, one 'Portrait Size,' made by professional portrait photographers, which should be given to all prints on 4 by 6 paper, and the other 'Amateur Size,' which should be applied to all smaller work, made by photo men or amateurs, and let these distinctive names be constantly advertised and emphasised by all the worthy members of our many state associations as distinguishing and classifying the difference between the work of the professional portrait photographer and the so-called 'amateur' or 'penny-picture-taker,' and we feel reasonably sure that within a fairly short length of time the general public would be thoroughly educated to clearly note the distinction between professional portraits and amateur workmanship, and would gladly appreciate the difference in the cost price of the two productions, thus settling one of the present troublesome questions of our artistic profession."

## An Enlargement Method.

Mr. Rockwood was not a candidate for "golden honours," though his suggestions are of great value to the fraternity. He referred to his method of making enlargements, which has been wonderfully successful in his own studio and been adopted by others with great satisfaction. His point was to make the positive at once to the size of the desired large negative; then, after retouching, accenting, or alteration—which can be done to almost any extent—the large negative can be made in the dark-room by superposition, preferably in a printing frame. The cost is a trifle more, but the results amply justify the expense, as there is no suspicion that the negative is not direct from life. Mr. Rockwood's excellent 8 by 10's of children are all made from instantaneous cabinet-sized negatives.

## EXPERIMENTS ON THE LATENT IMAGE.

(A Paper read before the Paris Academy of Sciences.)

THREE facts have long been known:—1. That a photographic plate, treated with potassium bichromate, washed and dried, and exposed behind a negative, may be developed in full daylight, a reproduced negative being obtained. 2. Prolonged exposure to light affects the latent image in such a way that there is reversal on development. 3. That the film, when exposed in the presence of oxidising bodies, is particularly liable to reversal.

I propose to consider the action of weak oxidising agents on the latent image—not such as are used for its destruction, but those which form a new combination with the latent image which permits of distinctions being made as to the constitution of the latter.

When a plate which has received an exposure is placed for a few minutes in a one per cent. solution of potassium ferricyanide, and is rinsed and developed in hydroquinone, potash, and sulphite, two facts are noticed. The first is that the plate may have been very greatly over-exposed without the developer being any the quicker or the result being any the worse. The oxidising agent plays the part of a regulator of the exposure. The second fact is that if one develops by the unscreened light of a candle the result obtained will be negative instead of positive, as it would have been by red light. Reversal thus takes place, even after a very short exposure, but a stronger image is obtained after a more lengthy exposure.

These facts, it would seem, should be distinguished from those known as solarisation, although this phenomenon is always the characteristic of a prolonged exposure.

The regulation of the time of exposure by means of an oxidising agent can be applied to certain bromide papers—for example, to the "Orthobrome" paper of the firm of Gevaert, of Anvers. The only necessary precaution is to add five per cent. of glacial acetic acid to the oxidising solution.

### A NOTE ON THE ABOVE PAPER.

It is quite possible that there may be some hidden principle or value in M. Demole's experiments, but at first sight the facts as cited by him are not inconsistent with the ordinary phases of solarisation.

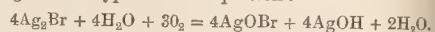
Dealing first with his statement as to the treatment of an over-exposed plate with ferricyanide, it would be as well to point out that this is not a newly observed fact. It has been pointed out by Sterry (1899), Lüppo-Cramer (1901), Schaum (1903), and Eder (1902), that any oxidising agent destroys the solarised silver bromide image and leaves behind that on the normal silver bromide. This being the case it is obvious that the developer will not be any the quicker nor the result any the worse. Can it be said, therefore, that the ferricyanide is "a regulator of the exposure"? The second observation (that a negative is obtained instead of a positive when developing is effected by candle-light instead of red light) merely confirms a fact that has long been known, and which we personally have applied before now for obtaining a positive or reversed negative, and that is that as soon as development has proceeded to some extent by red light a flash of white light will reverse the image.

Exactly how these facts differ from solarisation is not clear. That the procedure can be applied to bromide paper is a natural corollary, and, speaking from personal experience the slower the sensitive salts the more successful this method of reversal.

Dealing with the prolongation of exposure, one should bear in mind that Janssen pointed out that there were successive stages with prolonged exposure, and that to obtain a second negative image from a primary negative required an increase

If the exposure is prolonged above a certain limit the plate undergoes a second reversal, the inverse of the first. Thus using a Lumière "blue label" plate behind a negative at from an arc lamp a good positive copy is obtained in one when development is done in red light. With increased exposure the plate is oxidised, and on development in white light the result of from one second to 170 seconds' exposure is reversed, i.e., a negative. From 180 seconds' exposure, development at first a positive, which, little by little, with increased exposure, becomes negative. From seven minutes' exposure the positive still shows, and does not distinctly alter, but the lights are not clear. From fourteen minutes' exposure the positive is persistent, and one has, in a way, realised the sought-after problem of development in daylight.

If it is assumed that the latent photographic image consists of a silver sub-bromide,  $\text{Ag}_2\text{Br}$ , resulting from the decomposition of light in the presence of a bromine absorbent, such as gelatine, the sub-bromide, being a very unstable body, is readily oxidised to an oxy-bromide of the formula  $\text{AgOBr}$  according to the hypothetical equation:—



This hypothetical oxy-bromide of silver, oxidised by the action of the developer alone, is more easily reduced than the combined action of developer and light, but is less quickly reduced by the surrounding silver bromide which has not acted upon. Hence it is that the latent image being so, and its immediate surroundings not so, the image is reversed. It should be said, in conclusion, that the hypothesis which in this reaction into account is based on the existence of a sub-bromide as a constituent of the latent image, an assumption yet to be proved.

E. DEMOLE.

in exposure of 100,000 times the normal. This statement has also been confirmed by Eder, who, using a Chapman-Jones sensitometer plate, finds that (assuming that a vigorous half-toned negative required an exposure of one to two Hefner camera-meter-seconds) a distinct reversed positive required an exposure of 300,000 H.c.m.s. Thus the exposures given by M. Demole of fourteen minutes are much below this limit. True, he says that with this exposure and subsequent treatment with ferricyanide "one has, in a way, realised the much-sought-after problem of development in daylight"; but, by the well-known principle of utilising an oxidising agent he would have destroyed his solarised image, or, to put it in other words, have rendered it incapable of being developed. The result must be the reverse, positive, because the bromide of silver that is left in a developable condition is the inverse of the negative image.

There is also one other action which M. Demole recognises in the case of bromide paper, but not in the case of the plate, and that is the action of the ferricyanide on the gelatine itself. This it is well known is a hardening action, and it might be taken into consideration. Further than that, one must also assume the possibility of some interaction between so powerful an oxidiser as ferricyanide and the hypothetical silver sub-bromide, which, as Dr. Homolka suggests, can be easily split into  $\text{Ag} + \text{AgBr}$ . This being the case, one may be reminded as pointed out by Dr. Sedlacek in his work on toning bromide with ferricyanides, and by Mr. Douglas Carnegie in his article on "The Chemistry of the Sulphide Toning Process" ("B.J.P.", p. 907, p. 676), a complex of silver ferrocyanide which would be impermeable to a developer.



th regard to the author's equation, we must take exception is on precisely the same grounds that led us to pen our in our issue of the 19th ult.  
Demole's experiments are easily carried out, and therefore

me may feel tempted to repeat them. Hence the above es are written merely to try to explain the observation by t is known rather than search for what seems a somewhat strained reading.

## THE ISOSTIGMAR LENS AND THE PETZVAL CONDITION.

The following report of the discussion which followed Messrs. Beck's paper before the Royal Photographic Society, continues the rest of the paper itself published in the last two issues. It is addition to the properties of a flat field anastigmat will be taken

Beck's paper before the Royal Photographic Society, continues the rest of the paper itself published in the last two issues. It is and discussed by other opticians.—Eds. "B.J."]

D. CHALMERS said that he was particularly interested to notice in this new type of lens Messrs. Beck had departed rather than was usual from the Petzval condition. It could be proved for absolutely perfect correction over a small field, the Petzval condition must be satisfied. The correct statement of this condition is that the sum of the focal powers of the individual surfaces, when added by the product of the refractive indices on either side of the e, should be zero. When this sum was not zero, it gave the ure of field, provided a certain choice was made in cases where atism was present as to what should be called the focus. er of the focal lines, nor the circle of least confusion, would r to this requirement; but a point as far from one of the focal as the confusion circle would answer, and the curvature of the passing through such points could be calculated from the sum Petzval terms. He pointed out, however, that the effects of tions of higher order must be considered, and admitted that, ards these terms, no simple expressions had as yet been put d, and the elimination or reduction of their effects was one of oubles of the designer of photographic lenses. With any definite tions of this order there would be a most suitable value for the ponding aberration of the first order, and even with favourable tion of aberrations of higher order, there was a definite limit possible departure from the Petzval condition depending on the rd of definition required, the aperture and angular field. When tigmatism was perfectly corrected the maximum amount of ure of field might be reduced to be half the amount calculated he Petzval condition, for the actual field at which this maxi- occurs, or one-quarter the amount calculated for the angular t which the focus actually came back to the true focal plane- g the actual lens as described by Mr. Beck, this angular value e be found to be about 32 deg., and the departure from the as calculated from Petzval's condition, would be four times ual value of the greatest departure. Thus, assuming the astig- n to be corrected, the possible departure from the Petzval con- was four times the amount which would be obtained if one disregard aberrations of higher order. Allowing astigmatism able amount and type a still greater departure was possible. halmers was much interested in the series of diagrams thrown screen which illustrated the curious ways in which aberrations her order might affect the definition. He had worked out the e of the various aberrations of higher order, and it was curious erve that some of the lenses showed a large amount of one e of these aberrations.

Frederick Cheshire: I am afraid that my contribution to this g's discussion will be a very modest one. By the courtesy of thors I have had the privilege of looking through their paper rance, and I have been particularly struck by the fact that an ain note runs through it as to what the Petzval condition is. I thought then that I could not do better than go to one sources which is not easily accessible, and see what Petzval ly did say about his famous equation. It is very short indeed. rticle is entitled "Fortsetzung des Berichtes über optische suchungen," and is to be found in the "Sitzungsberichte der mie der Wissenschaften z. Wien," Vol. XXIV. (1857), on -6. The following is a somewhat free translation:—  
The value of the reciprocal of the radius of curvature at the vertex curved surface upon which a picture is produced by a lens nation is independent of the [lens] curvatures, and is equal sum of the products of the values of the reciprocals of the lengths into the values of the reciprocals of the refractive s; or, calling the radius of curvature of the picture R,

the focal lengths of the separate lenses  $p_1 p_2 p_3 \dots p_m$ , the refractive indices of the different media of which they consist  $n_1 n_2 n_3 \dots n_m$  then the following equation holds, viz.:—

$$\frac{1}{R} = \frac{1}{n_1 p_1} + \frac{1}{n_2 p_2} + \frac{1}{n_3 p_3} \dots \dots \frac{1}{n_m p_m}$$

"The principle as well as the formula, which is the expression of the same, remains true if one or several of the lenses are replaced by a mirror or mirrors, the refractive index for each mirror being taken as equal to one. In this general formula the lens curvatures only come in so far as they are contained in the focal lengths  $p_1 p_2 p_3 \dots p_m$ , but the intervals, on the other hand, do not appear, so that it is only necessary to consider the lenses and mirrors of which such a combination consists without taking any account whatever of their manner of arrangement. For this reason we have a method of determining the curvature of the picture surface.

"In considering the limits within which this important principle is true, it should be noticed that it is not necessary that the lenses and mirrors should be spherical, because the equation given above is derived as a special case from the following general equation:—

$$\frac{1}{R} = \frac{n_1 - 1}{n_1 \tau_1} + \frac{n_2 - 1}{n_2 \tau_2} + \frac{n_3 - 1}{n_3 \tau_3} \dots \dots \frac{n_m - 1}{n_m \tau_m}$$

where  $\tau_1 \tau_2 \tau_3 \dots \tau_m$  are the radii of curvature of the respective surfaces of rotation, taken at the vertices, and  $n_1 n_2 n_3 \dots n_m$  are the refractive indices of the media at them."

Mr. Beck's question is thus answered. It is not the equivalent focal lengths of thick lenses which must be put in the equation

$$\frac{1}{R} = \Sigma \frac{1}{n f}$$

but the refracting powers simply of the various surfaces. Perhaps the least easily misunderstood form of Petzval's equation is that given by Czapski, viz.:—

$$\frac{1}{R} = \Sigma \frac{1}{\tau} \Delta \left( \frac{1}{n} \right)$$

i.e., the curvature of the image surface at the vertex is equal to the sum of the products obtained by multiplying the curvature of each refracting surface by the difference of the reciprocals of the refractive indices of the bounding media. Finally, I would point out that Petzval's equation does not give the curvature of the image surface over an extended area, as Mr. Beck appears to assume, but at the vertex only.

Mr. F. J. Selby: While congratulating Messrs. Beck upon their new lens, I do not entirely agree with what they have said about the Petzval condition, but neither do I altogether disagree with it. It is a matter for congratulation that the remarks they have made about the Petzval condition have been made in such a way that attention is certain to be drawn to the subject; the point at issue is one of interest and importance. I need not say anything further as to what is the accurate statement of the Petzval condition, for it has been put very clearly on the blackboard by Mr. Cheshire. The state-

ment, however, can also be put in the form:  $\Sigma \frac{1}{\mu r} = 0$  where  $r$  if the radius of the curvature of either surface bounding the medium of refractive index  $\mu$ , and the summation is extended over each surface bounding each medium, the proper signs being given. In this form there is no ambiguity. With regard to the accuracy of the Petzval condition, the statement that  $\Sigma \frac{1}{\mu f}$  gives the curvature of the focal surface is only true when we add that it gives the curva-

ture of that surface at the point where the axis of the lens cuts that surface, or at what I may call the vertex of that surface. The statement necessarily will only hold good and give exact results over a comparatively small angle. It cannot be applied over so wide an angle as is considered in the measurements which are recorded in this paper. The statement with regard to the limits of accuracy of the formula has been made very clearly by my friend, Mr. Chalmers, and affords some new and interesting information regarding that formula. One cannot expect that the Petzval formula gives complete information as to the curvature over so large an angle as 35 deg. If the formula is applied up to an angle of 15 deg. or 20 deg., I think one may see from the curves which were shown on the screen that the departure from truth up to that point is not very great; not larger than might reasonably be expected when one takes into account the fact that other factors have necessarily been adjusted to counteract the curvature to be expected from the non-satisfaction of the Petzval condition, and at this angle are already beginning to affect the result. I have worked out the amount of departure in the "Isostigmatic" curve from a flat surface at 15 deg. and 20 deg., taking the curvature at the centre, as given in this paper, by the Petzval formula, as 25 inches. The curvature at 15 deg. is .07 inch. I do not know what it is actually in the case of this lens.

Mr. Horace Beck: It is .04 inch.

Mr. Selby: And at 20 deg. I find the departure from flatness, according to the Petzval formula, to be .14 inch. Mr. Beck, in his paper, gives the maximum departure for the actual lens as .09 inch.

Mr. Beck: At 20 deg. it is .07 inch.

Mr. Chalmers: The one-quarter refers to the calculated value of the Petzval terms near the edge of the field; in fact, at the place where the two curves actually cross the focal plane.

Mr. Selby: That would appear to agree very well with the results of some of Mr. Chalmers' work which he has just communicated to me, as to the ratio between the actual curvature and the curvature given by the Petzval formula, when the Petzval condition is not satisfied.

Mr. Conrad Beck: In order to stimulate further discussion, I may perhaps say a word or two before my brother makes his reply to the questions which have been raised. In my opinion, Mr. Selby's explanation does not approach the real question. If the Petzval condition is simply an approximation that only refers to a few degrees on either side of the axis, it is evident that it is a useless condition to consider in making photographic lenses, which are instruments in which a considerable angle is used. I do not think that the Petzval condition has been generally understood to be limited and to apply only over such a small angle as Mr. Selby suggests; but even were this so, our new lens is corrected for the small angles near the axis. The condition as put forward by Coddington was applied to a considerable angle. The proof we have in Coddington's work is a complete one, advanced step by step, and covering the entire point. We have no reason to suppose that Coddington intended the Petzval condition to apply only to a few degrees, and although certain approximations are employed by him, they are only inserted in the small quantities of the second approximation. There is no suggestion of further approximations, except in the earlier portions of Coddington's work, which, however, might have a serious influence upon the matter. But if we take Von Seidel's five conditions—spherical aberration, coma, astigmatism, curvature of field, and distortion—we find them stated as being inter-dependent, and to be satisfied in that order. If the fourth condition is only to be the first approximation, which it certainly is not, it is one that would be of no use for photographic purposes. The nature of the curve of the anastigmatically corrected field that is generally found in anastigmatic lenses is not a circle—it is a wavy line. Mr. Chalmers was the first to point out that the Petzval condition need not be entirely satisfied. We are rather inclined to think that the true condition which governs astigmatism would be very complicated and not simple like the Petzval condition. Mr. Chalmers hints at a method of setting back the curvature of the field so that we can obtain a residual error equal to one-fourth of what would be expected if the Petzval condition were correct. We are anxious to see this point elucidated, because if that portion of the theory of lenses could be worked out we should be one stage nearer providing opticians with a working hypothesis. We have got beyond the point where the Petzval condition suffices for making photographic lenses, and we are ready for a further condi-

tion; as opticians, we are not prepared at the present time to accept Mr. Selby's explanation of the error, because, although our new lens does not approximately fulfil the Petzval condition, the anastigmatically flat field is obtained both at small and at large angles.

Mr. Chalmers explained that he had not intended to put forward any method for bringing the field back to the focal plane.

Mr. Selby: May I make my position clear? I think there is no doubt as to the usefulness of the Petzval condition. If the Petzval condition is not satisfied, then the field will not be flat, and curvature will be determinable within certain limits. Beyond limits other factors may come in, and I think Messrs. Beck have done useful service in showing that too rigid an observance of the Petzval condition may not be always desirable.

Mr. Lan-Davis said that he had been specially interested in the question raised respecting the Petzval condition. In Von Seidel's research on the design of photographic lenses, it was clearly demonstrated that in taking a first approximation it is necessary to satisfy algebraic conditions, of which the Petzval condition is the first. The fulfilment of these five conditions only removed aberration of the first order, such as arose when using narrow-angled pencils. Very wide-angled pencils were used, other conditions of much greater complexity must be fulfilled. This was well illustrated in the case of central spherical aberration, for it is well known that a great deal of this aberration remains in lenses of large aperture after the Seidel condition has been fulfilled. The Petzval condition has a similar bearing on flatness of field. In constructing photographic lenses aberration of first order might be got rid of by fulfilling the five Seidel conditions, but, when finally correcting, these conditions had to be somewhat departed from. In other words, it was necessary that the Petzval condition should be fulfilled in order to produce lenses without aberrations of the first order, but afterwards the Petzval condition might be somewhat departed from and aberration of higher order eliminated, while the field of the lens remained flat.

Mr. C. P. Butler said that as this was a new lens he might ask the usual question as to the permanence of the glass. He believed it to be a fact that certain specimens of Jena glass were undoubtedly deteriorating with time, and although it could be cleaned, it was causing a good deal of trouble. He did not know whether it was stated what was the degree of apochromatism for the central ray, but presumed that it was perfect for that ray, and it would be interesting to know to what extent the secondary spectrum had been eliminated.

Mr. E. J. Wall asked whether the particular rays for which the lens was corrected were those which would affect colour work. He was thinking particularly of photographic three-colour work, and desired to know whether the lens was what was generally called an apochromatic for that purpose.

Mr. J. W. Gordon said: The difficulty which has chiefly been discussed—affecting in this instance the application of the Petzval condition—applies not to this particular matter alone, nor even to photography generally. In all cases in which we apply exact mathematical formulae to practical ends we invariably find that there are limits beyond which a formula will not hold, and it very often happens that a useful formula applies only in a very limited sphere. Therefore, I fancy that the difference of opinion which has been brought out in the course of this discussion is one rather of appearance than of fact. Nobody would suggest that this Petzval condition does not apply in the vertex of the field, and nobody would suggest, apparently, that it holds in the edge of a widely extended field. It does not follow from this that the condition is useless. Mr. Beck says, in effect, that the Petzval condition is of very little use to him in endeavouring to secure a good lens for wide angles. He wants something which will carry him over the field. He wants a pure and definite mathematical value to be elaborated into the form in which it is adapted to the practical work of the optician. He wants a general form of the algebraical expression which he can apply without restrictions; in other words, a round trip ticket which will carry him as far as he wants to go. We can all agree upon the desirability of that. It is very likely that to the end of the story the best way of solving the practical problem will be to set to work as Messrs. Beck have done, first of all to provide an extremely accurate observing instrument, and then to proceed by the old but not yet superseded method of trial and error.

The Chairman: The discussion seems to show that photograph



is largely a matter of approximation, and that it is not at present to be very definite—at all events, as regards any optical aspect of the matter. I should like to ask whether the lens is achromatic for the enclosed arc—how far it is corrected for violet light.

Horace C. Beck, in replying to the questions which had been asked, said that if the matter were merely one of approximation he only say that some people's ideas on the subject of approximation were rather wide. Mr. Beck instituted a comparison between a near lens and his new anastigmat, pointing out that with the very curved field which was practically free from astigmatism he obtained if the lens was specially constructed. By means of tests on the blackboard he showed that, theoretically, according to Petzval condition, in his new anastigmat lens there should be one-half the amount of curvature which the rectilinear lens when the astigmatism was corrected. He considered that the distortions in the shape of the lenses and the curves were quite sufficient to upset the practical results of this calculation on the lens; he certainly thought, in view of the enormous amount of astigmatism which was caused in a rectilinear when the attempt was made to have the astigmatic field on to a flat field, it was remarkable that the theoretical curvature in the Isostigmat lens should work out at all what there was in a rectilinear lens.

Chalmers asked at what angle the astigmatism and curvature were exactly corrected?

Beck said that it was near the 35 degrees fourth axis. In answer to Mr. Butler's question, Mr. Beck said that the negative lines were made of ordinary silica glasses. With regard to the chromatic aberrations, he could only say that the lens was ordinarily corrected for photographic work, but not specifically for three-colour work. It indeed be good enough for that already, but he had not tried it. He would recommend it so far as ultra-violet light was concerned, but not for the red end of the spectrum. He had no doubt that for arc work it would prove satisfactory. With regard to Gordon's remarks about the "round trip ticket," the attainment of a more definite formula would undoubtedly be of use, if it only be relied upon. In his personal work he found that he did not limit himself or tie himself up by considering the Petzval condition. He advised workers to try that plan first of all, and then if they failed to consider the Petzval condition. But his experience was that the Petzval condition was not of much assistance even in preliminary calculations.

#### THE HOODED LENS IN TELEPHOTOGRAPHY.

In reference to the paragraph describing the recommendation of Captain Owen Wheeler to employ a hood of considerable length as a preventive of veil in telephoto-work, we are able to reproduce four

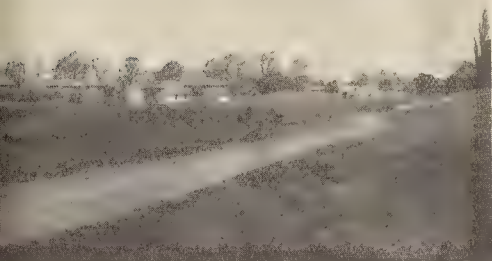


Fig. 1.

The Green, Weybridge. Positive lens only, Beck Isostigmat 7.2 in. focal length.

photographs from negatives by Captain Wheeler, which, as they lie before us, very fully bear out his claims for the advantages conferred on the negatives as regards brilliancy by the use of such an

attachment, and even the half-tone reproductions, which in the hand proofs convey very well the effect of the half-plate prints, should show the reader that flatness and veil in telephotographs is to be regarded as a defect just as much as in other branches of photography. In making the four exposures successively the positive lens in each case has been Messrs. Beck's new Isostigmat—viz., the 7.2in. lens of Series III.—an instrument of which Captain Wheeler writes to us in most appreciative terms, and his praise, coming as it



Fig. 2.

Telephotograph, five magnifications, Isostigmat positive, stopped to  $f/16$ , Voigtlander negative, 2.6 in.

does from one practised in the critical work of telephotography, is a notable testimonial to the new lens. The exposures were made in the windy weather of Saturday, May 4, with a maximum camera extension of 15in. The prints are straight, untouched duplicates of the negatives. In reproducing them, we may quote Captain Wheeler's own opinion of the advantage of the hood from his article in the "Pall Mall Gazette":—

"It is safe to say that much of this deterioration in the quality of telephotographic negatives, as compared with negatives obtained with ordinary lenses, has been due to what are known as 'internal



Fig. 3.

Telephotograph, nine magnifications, Isostigmat positive, Series II, stopped to  $f/16$ , Beck negative, 1.2 in.

reflections.' These in an ordinary photographic objective can usually be disregarded, but in a telephoto system they become very serious. The light enters the latter, when one is working at any but very low magnifications, at an extremely small angle, and, accordingly, the interior of the lens mount is illuminated quite sufficiently to interfere with the proper formation of the image on the sensitive plate, and to cause fog. These internal reflections have been variously dealt with by opticians who realised their objectionable

capabilities. The usual method has been to place diaphragms, or 'stops,' in the lens tube with the object of intercepting the redundant light. In another case a partition has been introduced in the camera, and the 'negative' element of the telephoto system screwed into it, instead of into a lens mount, the bellows space remaining between the negative lens and the camera front which holds the 'positive' being regarded as a trap for the internal reflections. In all these cases, however, there is the disadvantage that the internal reflections during exposure are still in the system all the time and every time. In the case of the partition camera, it is obvious that any improvement secured must be at the expense of an appreciable increase in weight and bulk.

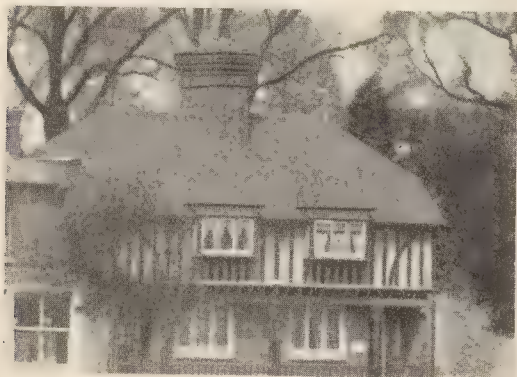


Fig. 4.

Telephotograph, thirteen magnifications, Iostigmat positive, Series II, stopped to  $f/16$ , Goerz negative, 1.2 in.

"A more simple and certainly very effective remedy for internal reflections has been worked out by the writer, who for many years has been interested in the application of photography to military purposes, but who, until a month or two ago, was baffled by the difficulty and uncertainty surrounding telephotography at high magnifications. The idea consists in the use of a specially constructed and very extended hood, sometimes about a foot long, which is attached to the lens mount, and the length of which is adjustable at will. The difference which this appliance makes in the quality of the negatives, in ease of working, and in latitude of exposure is very striking, and there is reason to believe that the practice of telephotography in general will receive a decided impetus by the habitual employment of the telescopic hood to overcome the nuisance of internal reflections."

#### A POINT IN ORTHOCHROMATICS.

DURING the past session the Croydon Camera Club has experienced a wave of orthochromatism, lectures and demonstrations on this subject having loomed large in its programme. The last to administer a heavy dose of orthochromatic wisdom was Mr. E. A. Salt, who on the 24th ult. substituted some remarks on this subject for a description of a new shutter-tester.

The point raised by Mr. Salt in his own words is as follows:—When working in the past with orthochromatic plates and filters I have always been struck with some subtle difference, difficult to define, in the negatives produced by their aid, as contrasted with results obtained on ordinary plates, this being quite apart from any question of better rendering of colour values in monochrome. A recent series of exposures on screened ortho plates, ranging from quarter-plate to 12 x 10, has again brought the matter forcibly forward, and a careful examination of the negatives leaves no doubt at all in my mind that the difference is one of "quality." In the case of the larger negatives this difference may be expressed as akin to that which can almost invariably be detected when comparing an enlarged negative with one taken direct, or, in other words, they

had a sort of "process" look. Now just for a moment let us consider what is, in nine cases out of ten, meant by a "high class" or "quality" negative in professional or trade circles. It is, of course, essential that it be within the range of the printing process employed, though it need not necessarily print its entire scale; it must have sparkle, life, and go, coupled with tender gradation everywhere, gradation as only a photographic process can give it. I am quite aware that I am using the somewhat indefinite term "quality" in a restrictive, and even meretricious, sense; good qualities may, and do, exist in other directions, but so long as the sense in which I am employing it is understood, it will be sufficient for the present purpose. This brings me directly to the point I wish to touch before you—viz., when it is desirable, or undesirable, to use orthochromatic plates and filters. If we wish to retain in our negatives the characteristics indicated, then I think it will at least be worth while to omit the filter. Its employment has a distinct tendency (I do not wish to put it any stronger than this) to knock the life out of a picture, to flatten it, and to lose much of the infinite gradation and subtle play of light which adds so much to its charm. When the light is yellow, as in late evening, we have here the equivalent of a filter in position, and we must consider whether an ordinary orthochromatic plate will give us best what we require. It may be that the filter, under normal conditions, only accentuates what is inherent in the ortho plate, and if this is so, it is an open question whether it will, under every condition, do all that an ordinary plate is capable of; that it will do far more on occasions is, of course, obvious.

We have from time to time seen very fine flower studies on orthochromatic plates, and I believe I am correct in saying that some of our best floral photographers never use any but ordinary plates. It can hardly be conceived that this is purely due to an innate conservatism. The choice is probably deliberate, assisted by the fact that they can avoid heavy colour contrasts. In portraiture how many professionals employ colour sensitive plates? Very few. The retoucher can remove blemishes due to freckles and the like, and the ordinary plate will, in the majority of cases, give satisfaction to the public.

I do not wish it to be understood that I in any way wish to depreciate the use of orthochromatic plates and filters, or that I do not appreciate the notable advances recently made in their manufacture. Brilliance and sparkle, however desirable in some cases, must not be set up as a fetish or regarded as the ultimate aim of the pictorial photographer. Their suppression, indeed, may be a positive advantage, irrespective of colour translation. Again, there are subjects and effects in nature which can only be satisfactorily translated into monochrome by employing ortho plates and filters, such as which no ordinary plate could possibly hope to deal with, and should accordingly be grateful to the plate-maker for having so well extended the scope and possibilities of our art.

On the other hand, there has been a distinct tendency here to orthochromatism run away with us. Two pictorialists, for example, set out on an expedition together, one armed with ordinary plates, the other with orthochromatic, and adjusted filter. They may expose on the same subjects, and will compare prints afterwards. The orthochromatic gentleman cheerfully chortles with joy on finding out that his confrère's, and that he has secured a possibly altogether unsatisfactory, entirely absent in the latter's print. In vain the owner of the ordinary plate meekly urges that, taken as a whole, his print is more satisfactory, judged by usual standards; the falsity of his rendering pointed out to him in gently modulated accents of an inferiority, and he subsides crushed, if not convinced. There really is no reason why our not altogether imaginary friend should be so convinced, for literal truth is of no moment whatever in a picture, whether it be photograph or painting. "Values" always are, and ever must be, important, and ordinary plates, in the great majority of cases, can give these adequately.

In reply to questions, Mr. Salt said he thought it was a mistake to employ ortho plates when ordinary plates would suffice. Quite apart from the point advanced in their favour, the latter were more easily worked, and presented certain other advantages in practice. In cases where the subject pointed to the desirability of using colour-sensitive plates and filters, then it would be foolish not to take advantage of the added power they placed at the operator's hands.



## Exhibitions.

### PHOTOGRAPHIC SOCIETY OF IRELAND.

THE exhibition which opened at the gallery in Molesworth Street, Dublin, on April 29, contains many good things in both members' and open classes. The hall in which they are arranged has been tastefully decorated, the walls being hung with drapery of two delicate tints of green, whilst the pictures are, as far as possible, could be effected, divided into sections by means of panels, the whole being surmounted by a frieze. Class C, according to "Freeman's Journal," is very strong in flowers. Mr. J. B. Anderson has carried off the silver medal in this department for his truly artistic portrayal of bramble blossom (No. 5). The bronze medal has been accorded to Mrs. F. Perry for the charming picture to which she has given the poetic title, "Loveliest of lovely things are they on earth that soonest pass away" (No. 7). "Onions" (No. 8), by Mr. T. K. Hackett, is a realistic presentation of those useful, if rather humble, products of Nature. Mrs. Heenan's "Bridge of Sighs" (No. 15) cannot fail to attract considerable attention; the water is magnificently done. Mr. R. T. Crook's "Muckross Abbey" (No. 16), Mr. S. S. Rea's "East Window, Ennis Abbey" (No. 13), and Mr. Hugh Pollock's "Sculpture from the Portal of St. Pierre, Moissac" (No. 21) are also certain to be much admired. The silver medal in class A has been secured by Mr. Harold Jacob for an excellently executed picture, entitled, "Place St. Remi, Dieppe," "Sunshine and Mist" (No. 48) is well worthy of the bronze medal which it gained for Mr. John B. Anderson. A similar distinction has been accorded to Mr. T. K. Hackett for "The Islands, Howth" (No. 69). Lambay is beautifully limned. "An Impression of Glendalough" (No. 66), by Mr. Harold Jacob, conveys to the fullest extent the poet's conception of gloominess. "Mist and Thaw in College Green" (No. 63), by Mrs. Mahony, and "On the Liffey" (No. 74), by Miss Elsie Curran, are finished specimens of excellent photography. In class H Mr. C. W. Pearson scored a signal success by being allotted the silver medal, and also the Werner Medal (awarded to the best picture amongst members' classes) for his "Head of a Young Girl" (No. 86). Delicacy and neatness are characteristics of Mrs. D. Mahony's "The Never Never Land" (No. 108). The artist was thoroughly titled to the bronze medal it obtained. Class X., the exhibitors of which are novices who had not previously won a prize, is very interesting. No. 111, "Deserted" (bronze medal) by Mr. W. S. Gosse, is touchingly sympathetic. Class F, open to residents in Ireland who are not members of the Society, is replete with good conscientious work. No. 159, "Landing the Catch" (silver medal), by Mr. Hugh Cochrane, jun., affords a life-like presentment of a fisherman's scene. Artistic perception is palpable in Mr. Robert Low's "A Ray of Light" (No. 127) (bronze medal). Mr. James B. Doran's "Bellast Night" (No. 154), is conspicuous owing to the acceptable style in which the dome of the new Town Hall is rendered darkly visible. No small amount of attention will be devoted to the array of exhibits in the open class, representative of South Africa, Germany, France, India, etc. The collection is of a high order. Mr. Louis G. Hele was deservedly awarded the silver medal for that weirdly impressive conception, "The Garden of Allah" (No. 211). The distinction of being the recipient of an extra silver medal fell to Mr. Henry J. Comley for a three-colour carbons picture "A Corner of the Larder" (No. 240). Various vegetables are strikingly shown in the hues with which Nature endowed them. No. 234, "Waterfall the Moor" (bronze medal), by Mr. J. M. Whitehead, is instinct with rare picturesqueness.

A notable feature of the exhibition is the collection lent by Herr Ehrkoop, the eminent Hamburg photographer. It embraces twenty-seven prints, all of which will more or less awaken the interest of visitors, particularly those which delineate children. A. Holsley Hinton, editor of the "Amateur Photographer," is the judge, and showed two of his works, "On the Moors" and " Windsor Castle."

**SOCIETY FOR COALVILLE.**—An effort is being made to form a photographic society at Coalville, Leicester, for the mutual assistance of members and the encouragement of photography as a hobby.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between April 22 and April 27:—

**STEREOGRAPHS.**—No. 9,260. Method of producing stereoscopic photographs in sheets. Gilbert Dyas, 9, May Street, Dublin.

**CAMERA.**—No. 9,268. Improved magazine camera. Thomas George Goodwin, 3, Avenue Road, Hammersmith, London.

**COLOURING FILMS.**—No. 9,306. Machine for mechanically colouring cinematograph films. Reginald William James, 1, Queen Victoria Street, London.

**MEASURING DISTANCES.**—No. 9,362. Improvements in instruments for optically measuring distances. Optische Anstalt C. P. Goertz Akt.-Ges., 31, Bedford Street, Strand, London.

**SINGING AND SPEAKING PHOTOGRAPHS.**—No. 9,391. Improved method in relation to, and connected with, the taking and exhibiting of singing and speaking photographs for entertainments. George Robson, 21, Rochdale Road, Leyton, Essex.

**AERIAL PHOTOGRAPHY.**—No. 9,433. Improvements in apparatus for aerial photography. Sydney Thomas Williams, 54, Bouverie Road, Stoke Newington, London.

**AERIAL PHOTOGRAPHY.**—No. 9,445. Apparatus for obtaining photographs from balloons or kites. John Edwards Capper and Griffith Brewer, 33, Chancery Lane, London.

**OPTICAL LANTERNS.**—No. 9,484. Improvements in or relating to optical lanterns. Robert Thorn Haines, Chancery Lane Station Chambers, London.

**ILLUMINATING APPARATUS.**—No. 9,574. Improvements in illuminating apparatus, more particularly for use in photography. Jean Schmidt, 31, Bedford Street, Strand, London.

**PHOTOGRAPHIC ART.**—No. 9,699. Improvements in the art or profession of photography. Frederick Scrivner, 2, York Avenue, Manley Park, Manchester.

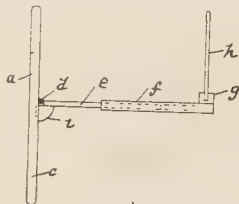
**CINEMATOGRAPHS.**—No. 9,759. Improvements in and relating to cameras for cinematograph films. Leo Kamm, 27, Powell Street, Goswell Road, London.

**EMULSION.**—No. 9,855. Process for producing an emulsion of phosphate of silver. York Schwartz, 77, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**FOLDING STEREOSCOPE.**—No. 24,404, 1906. Attached to the stereoscope *a* is a handle *c* to enable the apparatus to be held in the hand when in use. At the back *a* is hinged at *d* a piece of wood or other suitable material *e* on which slides a sleeve *f* of wood, at the outer end of which is a block *g* having a groove to receive



the picture *h*. The sleeve *f* is made movable on the piece *e* to form a focussing slide. *i* is a block secured to the stereoscope *a* to form a support for the focussing slide when the instrument is in use. When not in use the instrument folds up and lies flat.—John Stott, 89, Grange Park Road, Leyton, Essex.

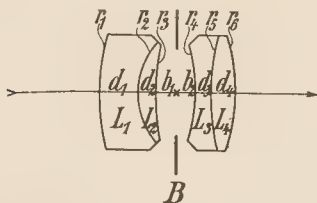
**CAMERAS.**—No. 8,788, 1906. The invention relates to the design of a camera which shall be capable of being folded up into a thin flat case that need only slightly exceed in thickness the length of the lens-mount, the baseboard forming the whole or part of one side of the case, and automatically drawing out from the case to a fixed position the front or lens-carrier when the camera is being opened, and reversing such motion when the camera is

being closed. In addition, the camera can be so made as to enable the lens-carrier to be adjusted in an infinite number of positions either in or out of the perpendicular with regard to the baseboard.

The lens carrier is held between two uprights, which are each actuated by a pair of crossed arms or levers pivoted together at the centre, and also pivoted to the top and bottom respectively of the uprights, the other ends of the arms or levers being pivoted or connected to the camera case. The movement of the lower ends of the uprights is moderated and regulated by causing the pivot connecting the lower ends of the uprights to the corresponding ends of the corresponding arms or levers to move in a guide-way or slot of appropriate shape formed in a front base which is fixed to the baseboard of the camera.

By moderating and adjusting the lengths of the arms or levers, the positions and methods of pivoting and attachment, and the shape and size of the guide-way or slot, the objects above enumerated are attained. The thirteen figures of the specification are required for the explanation of the constructional details. Bertram George Cooper, 36, Clarence Street, Kingston-on-Thames.

**DOUBLET LENSES.**—No. 29,446, 1906. The invention is an improvement in certain of the Zeiss double objectives described in the Patent of Rudolph, No. 6,028, 1890. It relates to that kind of objective, each of the two components of which consists of a collective lens and a dispersive lens, both lenses being cemented together in the one component by a dispersive cemented surface presenting its concavity towards the diaphragm, in the other component by a collective cemented surface presenting its convexity towards the diaphragm, while in both components, or only in that one with the dispersive cemented surface, the dispersive lens has higher relative dispersion than the collective lens.

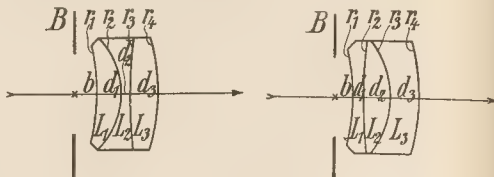


This improvement consists in that the collective lens, which appertains to the dispersive cemented surface, is produced from a glass of relatively high refractive index—that is to say, that the refractive index should amount to at least 1.54, consequently the height of the index should at least be that of a light flint glass. In all former constructions after the above specification, a glass of very low refractive index has been made use of for this collective lens, in order to obtain an especially large difference between the refractive indices at the dispersive cemented surface. Investigations, upon which the present invention is based, have, however, shown that the important point for the correction is not so much this difference, but rather the height of the index of the collective lens.

The advantage of the new objective consists in that relatively large apertures or small zones of spherical aberration or satisfactory flatness of field, can be obtained. This effect of the present improvement is independent as to whether the component possessing the collective cemented surface is composed of two or of three lenses. Carl Zeiss, Carl Zeiss Strasse, Jena, Germany.

**TRIPLET LENSES.**—No. 29,447, 1906. The invention relates to triplet photographic lenses with a diaphragm in front, in which a dispersive cemented surface presents the concavity, and a collective cemented surface the convexity towards the diaphragm. Such lenses are already known through the Patent Specifications, Nos. 23,378, 1892, and 4,692, 1893. Whilst, however, in the objectives described in these patent specifications, as also in the objectives of this kind placed on the market, the kinds of glass are chosen so that the difference in index of refraction at the dispersive cemented surface has about the same amount as at the collective cemented surface, according to the present invention a more perfect correction of the spherical or the astigmatic deviation can be obtained by augmenting the difference between

the refractive indices at the collective cemented surface—at the cost of the difference at the dispersive cemented surface—so that the difference at the collective cemented surface will be at least twice as great as that at the dispersive one.



The result of this improvement may be directed to manifest itself either in a spherical correction for a relatively large aperture, or in diminished zones of spherical aberration, or in diminished astigmatic differences combined with satisfactory flatness of the image. This result extends not only to single objectives, in which the sine condition is fulfilled simultaneously with spherical correction, but also to systems in which little or no regard has been paid to the sine condition. In the first case good components for convertible objectives can be obtained; in the second, components of which two must be combined into a double objective in order to show a quite satisfactory correction. Carl Zeiss, Carl Zeiss Strasse, Jena, Germany.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Exposure in Enlargement.

The rule is (says Mr. F. H. Jeffree in "The Amateur Photographer," in writing of the exposure of enlargements by rule) gauge the intensity of the light falling on the negative by means of an actinometer, and calculate the exposure as in negative-taking (multiplying by a suitable subject number to represent the density of the negative) and then multiply the exposure so found by the square of the linear enlargement plus one. Thus, if we wished to enlarge a  $\frac{1}{4}$ -plate negative to 12 by 10 inches, or to speak more accurately, to enlarge a part 4 by 3 inches to 12 by 9 inches—i.e., linear enlargement of 3, we multiply the exposure as ordinarily found by  $(3 \times 1)^2 + 4 = 16$ . There remains the question of density or negative. An unstained negative of just sufficient density to give a plucky print on P.O.P. will be our standard, and in negative-taking would correspond to an ordinary landscape without dark objects in the foreground, or a subject number of 1. Such a negative will take about 60 times as long to produce the print spoken of below, as the paper in Watkins' exposure-meter does to attain standard density—i.e., one minute for every second. Having settled on the standard, any other negative may be compared with it by making a contact print of the two negatives at the same time, and noting the time each takes to produce a harmonious print—i.e., not the time to produce a print suitable for toning and fixing, in which as printed, the shadows are all blocked up; but that which looks right as printed and not fixed—a proof, in fact. Thus, if the standard negative took 10 minutes and that from which we wish to enlarge took 25, the density would be reckoned  $2\frac{1}{2}$ .

### Actinometry for Ferro-prussiate Printing.

I have, in the course of business (writes Mr. Josiah Martin in "Photography") to copy surveyors' plans on ferro-prussiate or blue paper. As there is considerable difficulty in determining the proper time for exposure, I make use of an actinometer, in which I place a strip of P.O.P. When this prints a certain number, I know there has been light enough for the blue print, and I take it out and develop it in a water bath. This plan has always proved successful when the sunshine has been clear and strong. But, unfortunately, it fails just where it is most needed—that is, upon a dull and cloudy day. Under these circumstances, the blue print will gain considerably on the P.O.P., and when we read the usual indication on the actinometer we find the blue print very much overdone. This seems to indicate a different ratio of sensitiveness in the two kinds of



ing papers, the ferro-prussiate being more sensitive in weak than the gelatino-chloride of silver in the P.O.P. This opens a new field for investigation.

## New Books.

**Lucas's Book of Receipts.** Rewritten by E. W. Lucas, F.I.C., F.C.S. Pp. 418, 7 x 5 in. London: J. and A. Churchill. 7s. 6d.

It is difficult to imagine a volume more concisely eloquent of man's needs, ills, and vanities than this closely printed formulary, compiler whereof has spared no pains to give comprehensiveness to his work. A hurried glance through his pages shows a first prescribing remedies for pink eye and wooden tongue, then the formulæ for aerated waters, and for the preparations by which a promising but, alas! disappointing "head" may be induced to these beverages. Nine recipes for sauce of the "Worcester" are a mere trifle among the recipes for condiments which precede the equally numerous prescriptions for rat poisons, coloured inks, freezing mixtures, hat revivers, stains for wood, luminous paints, marking ink, weed killers, battery solutions, cooling powders, cures, gargles, insect-bite remedies, cough mixtures, pick-me-ups, moustache fixatives (and varnishes), face powders, hair driers—in short, well-nigh everything that is or can be commanded for the care of man and the beautification of woman.

This really well-ordered compilation contains a selection of photographic prescriptions which is made up of some leading makers' formulae, with a few other recipes which are useful as far as they go, and are not by any means the best selection which could be made to occupy the twenty pages allotted to them. Yet to anyone who has read of the preparations which we have only briefly indicated above, "Book of Receipts" is a most useful and moderately priced book.

**Deutscher Photographen-Kalender, Part II., 1907.** Pp. 578.

Weimar: Offices of the "Deutsche Photographen Zeitung." 2s. This is an almanac and pocket-book, edited by Herr K. Schwier, of Weimar contemporary, appears in its twenty-sixth yearly issue with an increased number of pages, but with the arrangement of its contents unaltered. Just as we look to "Eder's Jahrbuch" for the systematic record of technical advances by Continental and other photographers, so "Schwier" is an indispensable reference book of personal and commercial information. We do not exaggerate its usefulness when we say that hardly an inquiry as to an article or process of Continental origin is addressed to us but what a moment's consultation of its pages enables us to answer the querist. If we are destroying an editorial reputation for omniscience, we are nevertheless only giving Herr Schwier his due, and we should not mind if our correspondents sought help at first hand from his well-arranged volume. As before, the first portion is devoted to a list of photographic societies in Germany and Austria, divided into professional and amateur—there are 25 of the former in Germany—accompanied in each instance by the names and addresses of members. Particulars follow of the bodies connected with the photographic trade and with photographic employees. There is a list of photographic societies outside Germany, and of seats of photographic instruction in Germany and Austria. A directory of photographic publications of the world concludes this portion of the volume. The second portion (yellow pages) contains an alphabetical list of firms in the German and Austrian photographic and photo-mechanical trades, and a classified list of photographic requisites, with the names in each case, of firms manufacturing or selling them. Lastly, this commercial directory is completed by an alphabetical list of towns with the names of photographic firms in them. The matters above enumerated are all included in Part II. of "Kalender." Part I. is devoted to technical matters, photographic formulæ, etc., and is sold separately at 1 mark.

**Heat Shadows.** By W. Jamieson, B.Sc. (Lon.), A.M.I.E.E. Thirty pages, 7in. by 4½in. London: Blackie and Son. 6d.

This little work describes a series of experiments on the conduction and radiation of heat, which can be very easily carried out by any physical student with but simple apparatus, such as pieces

of wire gauze, cloth, and the special sensitive paper which is prepared by the author. Particularly interesting are the lessons dealing with the absorptive powers of colours for solar heat and the fact that, as the author states, a print may be obtained on his paper from a negative merely by the radiant heat of the skin.

**"CAMERA WORK."**—The current issue of Mr. Stieglitz's quarterly, for which the name of magazine seems scarcely good enough, is, in many respects, as entertaining and charming as ever. Its plates comprise five photogravures by Mr. Craig Anran, after certain works of his own, that it has been our pleasure to draw attention to when they have been placed upon exhibition, and a sixth by Mr. Steichen, also famous, and entitled "Pastoral—Moonlight." Of Mr. Craig Anran's, our favourites are the majestic "Stirling Castle" and the portrait of Jane Burnet, a perfect realisation of the dignity and graciousness of old age. If we may be hypercritical we should suggest that this fine work would have been finer still if the differences of weight, texture, and quality that must have existed between the black bodice and the wall or background had not been so entirely lost sight of. The other plates are the portrait of Strang, as "The Etching Printer," "Portrait of Miss C.," and the freize-like "Ploughing Team." Needless to say, they are a selection of unusual strength and beauty. Mr. Steichen appears to have spared neither time nor pains to make his Pastoral the artistic success it is.

Of the letterpress, much is taken up with fiction—that is to say, novelettes. We have not read them. The rest, so far from being fiction, appears to be what is described mechanically as "dead true," as we are informed that "Coburn has enjoyed exceptional advantages. Not the least of these has been his mother." A well-written article by J. M. Bowles reveals the fact that the writer has tired of modern excellencies of pictorial photography, and is athirst for a nice, healthy shock from something ordinary, and not too utterly intense. We feel with him to some extent. M. Demachy follows him with an article wherein he perseveres with his strictures upon the straight print, and comes to a frank and fearless avowal that photography, of itself, is not art. This view is one much in the air just now. On this side of the Atlantic it has found expression in the last shilling "Burlington."

## New Materials.

**Celloido (collodio-chloride) Self-toning Paper.** Made by B. J. Edwards and Co., Castle Bar Works, Ealing, London, W.

In making a bid for the custom of users of sensitive papers Messrs. B. J. Edwards and Co. have been quick to come into the market with the all-popular self-toning paper, and at the same time with one which is free from the drawbacks which attach to a paper with a gelatine emulsion. The collodion self-toning paper which they have just introduced as "Celloido" is evidently a distinctive product, which, in our experience of it, should command a high degree of favour, not only in respect to the quality of the print and its tone, but for the additional reason that Messrs. Edwards have introduced, as postcards, a number of tinted varieties of the paper (blue, green, orange, and grey), enabling the user to obtain a range of effects which may at all times be of the greatest advantage to him, particularly in the handling of negatives of too great contrasts.

In regard to the manipulation of the paper, the greatest praise which can be accorded the makers is to state that the directions for the use of the sensitive material are conspicuous by their paucity. The prints are taken somewhat deeper than is usual in printing gelatine P.O.P. and placed without washing in a salt bath of two ounces to the pint for three or four minutes. They are then fixed for five minutes in 10 per cent. hypos solution, and, after an hour's washing, are blotted off and dried in the expeditious manner possible with collodion prints. Our own results with both the paper and the postcards has given us great satisfaction, and it is no exaggeration to describe "Celloido" as a notable addition to the self-toning papers which should immediately make friends for itself among those who are able to judge of the qualities of a print. The glossy brand is a paper eminently suited for commercial work of high surface, the matt has given us delicate effects which recommend its use for artistic portraiture, while there are yet two other brands, the

"rough white" and "rough cream," which we consider a particularly welcome innovation, and one to which photographers should most certainly accord a careful trial. The results possess a richness and depth which are equal to anything obtainable in printing-out papers, yet are produced by the simplest conceivable manipulation. Though the cost of the paper is higher than that of standard gelatine P.O.P., a photographer may well consider within himself whether the reduced expenditure for chemicals and labour does not render the adoption of a self-toning paper capable of giving him his results an actually economical proceeding.

Though giving most agreeable brown tones by the simple salt-hypo or hypo process, "Celloido" easily yields very fine black tones on treatment with a single platinum bath, and this latter process is one which can be advised as an extension of the paper's facilities.

The prices of the paper are based on 22 quarter-plate pieces for 1s., in all four varieties—viz., glossy, matt, rough white, and rough cream, and in connection with their appearance on the market we may call attention to Messrs. Edwards' very reasonable offer to send post free a shilling packet of any grade or size for half the price—that is, for sixpence. We would recommend our professional readers to take advantage of the offer by asking for a packet of the grade which best suits their work, or they may, if they so desire, obtain on the same terms an assortment of all four grades.

Wellington Carbon-Surface P.O.P. Made by Wellington and Ward, Elstree, Herts.

"Another good thing of Wellington's" the discriminating user of sensitive materials will anticipate when he sees the announcement of the Elstree firm's new introduction of a printing-out paper with "carbon surface," nor will he be disappointed in the latest addition to the Wellington P.O.P.s, which has the richness and semi-sheen of the carbon print prepared on the average single transfer paper. In its toning properties it is equal to its P.O.P. predecessors from the factory of Messrs. Wellington and Ward, and we have no need to search for a more sincere expression of approval.

**NEW MOUNTS.**—The Crown Manufactory, Rotherham, send us some specimens of three new introductions of theirs, the "Cosway," "Medallion Oval," and "Panel Slip-in." The first conveys the relief effect of the fashionable "Cosway," and is of the appropriate dark-brown colour. In 10 x 8 size and with printed inscription it is 10s. 6d. per 100 post free. The "Medallion," also in 10 x 8 size and with a neatly drawn design for cabinet size of print is 8s. per 100; whilst the "Panel" mount takes a 4½ x 2½ print, and costs 4s. 6d. per 100. All three are worth attention.

#### CATALOGUES AND TRADE NOTICES.

"THE BOOK OF FORMULÆ AND INSTRUCTIONS," issued by the Lumière Company, of Lyons, France, is now in its fourth edition, and forms a complete guide to the use of the plates, films, papers, and chemicals manufactured by that firm. The causes of the more general failures met with in working, together with their remedies, are fully and clearly described, and a careful perusal of the booklet should prove of great assistance to those photographers who use Messrs. Lumière's specialties.

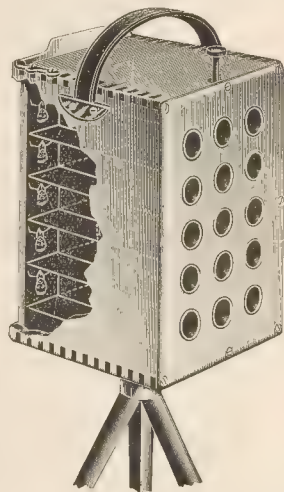
MESSRS. ERDMANN AND SCHANZ, of 109, Bedford Hill, Balham, S.W., have issued an abridged catalogue of their fine art photographs, which include copies of paintings and statuary from many of the principal European art galleries, together with a collection of direct studies.

MR. J. LIZARS, of Glasgow, London, Edinburgh, Liverpool, Belfast, and Aberdeen, has just issued a new and up-to-date catalogue, which contains particulars of practically everything which the photographic worker could require. Whilst there have been many improvements in the existing models of "Challenge" cameras, an addition has been made to their number in the form of the "Challenge Fulvue" reflex camera, an instrument of novel construction and extreme simplicity. A new form of enlarging easel is an introduction which will appeal to workers in this branch of photography. A number of formulæ for use with the various makes of plates and papers, together with many useful practical hints, have been included in the book, which will be sent free on receipt of a penny stamp. Applications should be addressed to Mr. Lizars, at 101 and 107, Buchanan Street, Glasgow.

## New Apparatus, &c.

The "Royal Mail" Stamp Camera. Sold by W. Butcher and Son Camera House, Farringdon Avenue, London, E.C.

This piece of apparatus, as the drawing shows, is for the making of postage stamp portraits, fifteen of which it produces on a quarter plate. The camera is provided with a set of single lenses, the definition afforded by which over each field of 1 x ¾ inch is nevertheless



exceedingly good. The lenses are covered simultaneously by shutter, controlled by the screw on the top of the camera, and the exposure is conveniently made in this way. The camera may be used for landscapes as well as portraits, being held on the tripod top to dispose the long side of the plate, either horizontally or vertically, as may be desired. Bushes are provided for this purpose. The negative having been obtained, a mask is used to print the



fifteen pictures, each with a plain border, and a second printing from a border negative, which Messrs. Butcher supply to register with the mask, suffices to supply each portrait or view with an ornamental border. The device is easy to manipulate, and might be used also for the making of the stamp negatives from cabinet photographs, since the focal aperture of each lens gives the sufficient depth of focus to obtain a sharp copy. The price of the "Royal Mail," with one single slide and tripod screw, is £1 5s. Extra slides are 1s. 6d. each and border negatives 1s. each, with three masks. Messrs. Butcher also supply P.O.P. ready perforated.

S. B. BOLAS AND Co.—The partnership between Samuel Bolt Bolas and Richard Lander Warham, architectural photographer and collotype printers, 68, Oxford Street, London, under the style of S. B. Bolas and Co., has been dissolved by mutual consent and from February 23, 1907. Debts will be received and paid by S. B. Bolas, who continues.

THE "RAJAR" CAMERA, offered monthly by Messrs. Rajar, Ltd. of Moberley, Cheshire, for the best print on "Rajar" P.O.P., has been awarded to Mr. William Cheetham, of Malpas Street, Oldham, whose print was judged the best received during April. The paper on which the print was made was purchased from Mr. Charles Garbutt, side, Hilton Arcade, Oldham.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, MAY 11.

ackney Photographic Society. Outing to Rickmansworth.  
outh London Photographic Society. Outing to Eynsford and Shoreham.  
owes Park and District Photographic Society. Outing to High Beech, Epping Forest.

MONDAY, MAY 13.

avesend and District Photographic Society. "Retouching." The President.

TUESDAY, MAY 14.

oyal Photographic Society. Ordinary Meeting. "The Camera at Home." E. T. Holding.  
ackney Photographic Society. Exhibition of Novelties in Apparatus.  
ackney Photographic Society. "Wrinkles." Harold W. Lane.

WEDNESDAY, MAY 15.

orth Middlesex Photographic Society. "Carbon Printing." H. G. Seaborne.  
ntral Technical College Photographic Society. "The Platinotype Process."  
emonstrated. The Platinotype Company.  
erton Camera Club. "Retouching Negatives and Prints." E. W. Scott.  
bridge Wells Amateur Photographic Association. Photography Prize Slides.

THURSDAY, MAY 16.

orth London Photographic Society. "The Lens in Theory and Practice." C. H. Madden.  
ndsworth Photographic Society. Conversation and Suggestions Relating to Exhibition Work.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held May 7, the president, Mr. J. C. S. Mummery, in the chair. The fourth of the series of demonstrations of obsolete photographic processes was given by Mr. J. Watson, on "Dry Collodion and the Tannin Process." Mr. Watson said that the period of photography which followed on the heels of Scott Archer's wet collodion process was aptly described by Professor Meldola as the "grocery riot," in reference to the fact that domestic products in great number figured in the formulae of that day. The so-called "preservatives" of the dry collodion plate included coffee, tea, sugar, raisins, salt, resin, beer, liquorice, and honey, and in 1859 the editor of the "Photographic News" was found to be discouraging a reader from a use of too much sherry! As in the wet collodion process, a substitute was needed to prevent the collodion film from floating off the plate down the sink. Rubber, albumen, and gelatine were the three best substrata, the last-named being the one preferred by Major Russell for his tannin process. That process, which the lecturer then proceeded to demonstrate in its various stages, was the best of the methods adopted in the sixties and seventies for preparing a collodion plate, which could be kept for considerable time between exposure and development. The lecturer used Mawson's bromo-iodised collodion, which he sensitised in a silver nitrate bath containing 36 grains of pyro and a little acetic acid. This bath was saturated with silver iodide by the very convenient plan of adding a small dose of the iodine to it, shaking up well, and allowing the precipitated silver iodide to settle out.

After sensitising, the plate was washed for a short time in distilled water containing a little acetic acid, then with distilled water, and then the tannin solution applied several times in succession. The plate was then drained, dried, and put aside for use. The strength of the tannin solution might vary from 2 to 30 grains per ounce. A stronger solution gave a deeper colour of image. The developer might be a weak alkaline solution of pyro or an acid solution of ferrous sulphate. In the former case a thin image was obtained and was intensified with acid silver. In the latter case a deep silver nitrate added to the developer gave the necessary density. Mr. Watson carried through the operation of preparing a negative of positive transparency, and incidentally referred to other methods which were contemporaries of the tannin process.

After a short discussion, a hearty vote of thanks to the demonstrator, on the motion of the chairman, terminated the proceedings.

OUTH LONDON PHOTOGRAPHIC SOCIETY.—On Monday last Dr. Norman's lecture on three-colour photo-micrography was delivered to a member of the society, Dr. A. R. F. Evershed. The apparatus used by Dr. Norman was first described, and pictured on the screen. The work-table, to ensure freedom from vibration, which is so essential in this class of work, has the legs resting in wooden cups containing felt wads, the apparatus itself resting on indiarubber washers. The illuminant used is limelight

with a special form of blow-through jet: the lenses for low-power work being Zeiss Planars, and for high-power apochromatic objective down to one-sixteenth. The fullest details were given of Dr. Norman's method of work, which is done by the Sanger-Shepherd process, using dyed lantern plates.

After showing the effect produced by the various single stainings, the finished three-colour slides were shown, these being probably the finest specimens of technical work in this direction ever produced, and a monument of patient, painstaking labour. The register of the slides was so perfect that even with a magnification of x2,000, plus that given by the projection lantern, no overlapping could be detected by the audience. The slides shown included various histological specimens, including several of bacilli of various virulent diseases, natural history specimens, and what was most pleasing to the audience, a number of mineral specimens taken by polarised light and selenite screens, the beauty of colour in these being much appreciated.

At the conclusion of the lecture a hearty vote of thanks was accorded the author (Dr. Norman) and to Dr. Evershed for his able reading of the lecture and lucid explanations of various technical and pathological questions which arose out of the lecture.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held May 4, 1907, Mr. T. E. Freshwater in the chair. Mr. H. Stuart lectured upon and demonstrated gum-bichromate printing. He said he was not going to detail the history of gum work, the broad principle of it being now well known; at the same time nothing could be standardised, each worker being a law unto himself. He therefore intended to explain and show how he himself worked the process. With regard to the paper used, there were many kinds available, although, personally, he only used one, viz., the "O.W." brand. This was a good stout, well-sized paper, and he purchased it cut to a special size of 18 x 14 at 7s. 6d. for three quires. The gum was ordinary commercial gum arabic of good quality, in a 40 per cent. solution. As pigments he used Windsor and Newton's process black, liquid sepia, and also at times cake colours, ground in water. He greatly preferred these colours to the powdered ones, because they did not require so much preparation by grinding. In fact, the process black and liquid sepia only required the bottle shaking. For sensitising a saturated solution of potass bichromate could be used, but he thought it better to powder the bichromate and weigh it out into twenty-four grain packets, his formula reading for black:—Twenty-four grains potass bichromate, dissolve in 2 drs. hot water; 4oz. 40 per cent. gum solution; 1 drachm process black; mix well. This was sufficient for coating six sheets for 15 x 12 prints. The coating was done by the aid of a mop camel hair brush, the paper being fastened by the four corners to a drawing board, and the pigment solution put on with the brush first worked from end to end and afterwards across, and afterwards softened off by a hog-hair softener some 4in. or 5in. in width. He preferred this class of brush to the sable softener so often recommended, which was in his mind too soft to do the work properly; any stray hairs should be lifted off by the aid of a pair of forceps. A sheet of 15 x 12 paper being coated in 15 seconds, drying could be done by placing the coated paper upon the rack of a kitchener, and the paper should, if to be kept, be stored in a calcium tube. He had kept it in this manner for a month, but it certainly did not work so easily. The negative should be thin, and printing done by the aid of a meter. He used Wynne's. The thin negative was of great use when using the multiple printing, as it enabled one to obtain exact register by looking through it. The printing-frame was dispensed with, a drawing-board, with strips of wood at one end and side, taking its place. The end was provided with an additional strip fastened by the aid of turn-buttons. This held the paper firmly in place, and the negative was pressed home into the corner, a sheet of plate glass being quite sufficient to keep all in register. Development might be done either automatically or by spray. Any running of the image was due to under-exposure. He developed by aid of the spray upon sheets of zinc stood upon an easel. When multiple printing was to be done the first print should be allowed to dry upon the zinc (which stood on edge), otherwise the paper was apt to dry unevenly and cause trouble in registration. If hung up it stretched by its own weight. The bichromate could be discharged from the paper either by an alum bath, or by sunlight, which method he preferred, as it gave a soft mellow effect. The colour of a print could be altered by coating it with a solution of gum, colour and bichromate, and afterwards discharging the bichro-

mate by sunlight. Skies could be put in either by printing from another negative or by printing through plain glass, and rubbing in with the aid of brushes. To do this the Wynne's meter should be provided with a sheet of ground glass in addition to the opal, and the first row of figures faintly printed; lamp-posts could easily be moved, and walls turned into fields. Shadows could be added where needed by allowing the printed surface to become dry, and rubbing in the colour, afterwards fixing it by the aid of gum and bichromate. A pleasing colour was made by adding liquid sepia to the process black; the gum should, however, not be altered, but the sepia added to the formula as given. This, he said, was the process as he worked it. Mr. Stuart then proceeded to coat the paper, and also developed prints. Messrs. Teape, Ernest Human, Burgess and Brigginslaw, took part in the discussion, a vote of thanks proposed by Mr. Rapson, seconded by Mr. Teape, closing the proceedings.

**CROYDON CAMERA CLUB.**—Wednesday, the 1st inst., was devoted to "Odds and Ends," and a sufficiently varied fare was provided. Mr. W. H. Smith showed a vacuum-cleaner of his own design for removing dirt and dust from camera bellows and the like, and remarkably well it did its work. Mr. E. A. Salt exhibited Messrs. J. Lancaster's "Eureka" daylight loading slide for glass plates and films, a very ingenious appliance, simple to work, and, so far as could be judged reliable in action. Mr. J. M. Sellors showed a combined cover, and rebated base, the latter taking a developing dish for time development in darkness. The brightest of lights could be used in the room without fear of fogging the most sensitive plate. He also showed an extremely simple, portable, and effective sky-shade, a little idea of his own. A piece of brass is soldered to a tie-clip, forming an extension piece, and a hole bored at the free end. The tie-clip is bent over at right angles to the front of the camera, and held in position over the lens by a milled-head screw, which passes through the hole in the extension piece and rigidly secures it, and the tie-clip. A few pieces of thin black card of varying sizes can be easily carried by the operator, and adjusted over the lens in a second or two, and inclined at any suitable angle to meet requirements. Folding side-wings can be provided if necessary. Mr. H. P. C. Harpur spoke of many things, and in particular of the merits of Mr. Baskett's oily concoction for local reduction. Certainly in Mr. Harpur's dexterous hands a negative worked upon showed a decided change for the better, judging from the gaslight print pulled from it before and after reduction.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—On May 1, Mr. Wm. Cullen gave a demonstration on "Emulsion Making" before a very interested audience. After a few opening remarks as to the theory of the emulsion, the lecturer proceeded to make an emulsion and coat a plate, although, of course, many points, such as the prolonged cooking, were omitted, and some substitutions had to be made in order to facilitate the demonstrating of the process. A solution of gelatine, in which silver nitrate was incorporated, was first made. The lecture room was then converted into a dark room, and the potassium bromide was slowly added to the gelatine, and the whole well shaken up, when a precipitate of silver bromide slowly separated out. This being completed, the solution was poured into alcohol, which caused the emulsion to set, and after removal the alcohol was squeezed out. As this was very much like rubber it had to be re-dissolved in a fresh supply of gelatine solution, when the emulsion thus obtained was ready for coating on glass plates. The plate was allowed to set for a few minutes and then exposed under a negative, when a very good positive was obtained. The demonstration was very much appreciated, as the difficulties that Mr. Cullen had to contend against were fully realised.

**THE IMPERIAL DRY PLATE CO., LTD.,** of Cricklewood, announce that their "Special-Sensitive" orthochrome plates, which have hitherto been sold at special prices, will in future be sold at popular prices as follows:— $3\frac{1}{2} \times 2\frac{1}{2}$ , 9d.;  $\frac{1}{4}$ -plate, 1s.;  $5 \times 4$ , 1s. 7d.;  $\frac{1}{2}$ -plate, 2s. 3d.;  $7 \times 5$ , 3s.; whole-plate, 4s. 3d.;  $10 \times 8$ , 7s. 3d.;  $12 \times 10$ , 10s. 6d., and all other sizes, in inches and centimetres, at proportionate prices.

"**THE SOUTH AFRICAN PHOTOGRAPHIC JOURNAL,**" the publication of Messrs. E. H. Oakley and Co., Camera House, Cape Town, has been enlarged and revised, and is now a very live and active organ of the photographic doings of the Colony. It is issued gratis.

## Commercial & Legal Intelligence.

**A FALMOUTH BANKRUPTCY.**—At the Truro Bankruptcy Court last week, Mr. William M. Harrison, formerly a photographer at Falmouth and other places, applied for his discharge from bankruptcy. It was reported that the estate had realised 15s. in the £ and was likely to produce more. His Honour Judge Grange granted immediate discharge on payment of £2.

**A POSTCARD DISPUTE.**—At the Clerkenwell County Court, last week, Messrs. S. Hildesheimer and Co., Ltd., of 96, Clerkenwell Road, sued W. A. Haynes, of 4, Polter Street, Bishop's Stortford for £15 1s. 2d., being the first quarterly instalment of a sum of £50 4s. 8d. for goods sold and delivered.

Plaintiffs' travellet called upon defendant in April of last year and it was then agreed that the plaintiffs should send a photographer down and take certain local views, print them on postcard and as panoramic cards to defendant's order, his name being printed on the cards, and he having the sole right of the sale of these cards in Bishop's Stortford. Defendant gave an order for 1,000 each of the postcards and the panoramic cards, and it was agreed that he should pay in four quarterly instalments.

Subsequently defendant wrote and asked permission to amend the order, and later he wrote that he wished to cancel the order altogether. Plaintiffs wrote several letters to defendant, but only got a reply to one, to the effect that defendant adhered to his letter cancelling the order. The cards were printed, but defendant refused to accept delivery.

His Honour (to defendant): You cannot cancel except by the agreement of both sides, though if you had really done so the could only have sued you for damages—loss of anticipated profit but now you are clearly liable. Judgment must be for the plaintiff for the first quarter's instalment, £15 1s. 2d., and costs. Counsel for the plaintiffs said his clients would be prepared to come to terms with defendant for the payment of the next quarter's instalment of £15 1s. 2d., to avoid a further action, provided that the judgment now given was satisfied within fourteen days.

**DIRECT SEPIA BROMIDES.**—The adjourned hearing of the action brought by W. F. Cooper against J. H. P. Gillard, a brief account of which appeared in our last issue, can now be reported in full. The plaintiff, who is a director of the Cooper Research Laboratories, Watford, applied for an injunction to restrain defendant from selling a secret photographic process which produces a direct sepia bromide.

Mr. Valentine Ball (instructed by Mr. Matthew Arnold) was for the plaintiff, and Mr. G. H. Mallinson (instructed by Messrs. Camp and Ellis) for the defendant.

William Frederick Paulett, assistant chemist in plaintiff's research laboratory; Walter Harold Nuttall, Fellow of the Institute of Chemistry, Mr. Cooper's principal chemical assistant; and Ernest Charles Morgan, of Morgan and Kidd, Richmond, joint patentee with defendant of "agar agar," were called to give evidence for the plaintiff.

For the defendant, Maurice Berger, manager of a firm of photographic manufacturers; Miss Ellen McQuire, sister-in-law of the defendant; and William John Wilson, managing director of the Paget Prize Plate Company, were called into the witness-box.

His Honour, in giving judgment, first referred to an objection taken by Mr. Mallinson that the case was out of his jurisdiction. He certainly must say he felt very grave doubt whether he had jurisdiction in the matter at all. He had come to the conclusion that the relationship between the parties was not that of master and servant. Defendant was a person who had some skill, and who professed to have a process which was of value. He was to experiment at the laboratory of Mr. Cooper upon the value of his process, and upon the various ways in which it could be perfected and made of commercial success. Mr. Cooper certainly did suggest a line of inquiry in the mornings, and during the day defendant carried out his experiments. A master had a right to dictate to his servant not only what he should do, but how he should do it, and he saw nothing of that in this case, although it was quite true that defendant was receiving remuneration at the rate of £3 per week for those experiments. The defendant's position was, he did not hesi-



to say, a preposterous one. He said: "I went to work there, and I was to preserve my own secret rigidly, although I unfortunately allowed the plaintiff to know the composition, which I regret very much. I took elaborate precautions. I took a dummy lock down there, and anything which I discovered was mine." That was defendant's contention. If that were so, it seemed that plaintiff was paying Mr. Gillard £3 a week, and allowing him to use the laboratory for the sole and entire advantage of himself. That seemed to him, as he had said, a preposterous contention.

What was the true relationship between the parties? One was in the position of having capital and the other was dependent upon that he earned. Both contributed their skill and experience—the one as a chemist and a scientific man, and the other as a person who had a practical knowledge of photography and the requirements of the photographic trade. The discovery was made, and it seemed to him that the only possible relationship between the parties was partnership with regard to this particular secret, which was of great value. Their position in law was that they were entitled to the secret jointly. Here was a discovery, the result of the exertions of two persons, and neither of them—unfortunately for the plaintiff—thought fit to stipulate what should be done in the event of their investigations being successful. There is no express undertaking that neither should make use of the knowledge they had gained without the consent of the other. It is a case in which both partners could take what steps they chose to utilise the secret.

It was impossible for him to grant an injunction, but he must say on the facts of the case that defendant had taken up an entirely justifiable attitude. He had, according to his own evidence, prevented the action of the plaintiff when he asked him to carry out an experiment, and when he was told, "This is our joint experiment," he said "If it is your experiment I won't do it; let one of our boys do it." That was the way in which, unfortunately, this dispute came about.

Then defendant had also done that which seemed to him also to not honourable—that was to say, he had gone in the first instance to the Paget Prize Plate Company, and endeavoured to dispose of the secret without divulging what his position was with the plaintiff in the position in which both of them were working, which gave Mr. Cooper the right to say he was interested in the results. Then, when the plaintiff was endeavouring, notwithstanding that, to bring about a settlement by means of an agreement, defendant objected to it, and said that inasmuch as his interest in the proposed company might be terminated very soon, it was not sufficient. Defendant had not satisfied him that he had made the discovery in 1905, which plaintiff said was made in his laboratory, nor had defendant insisted that he was solely at liberty to exploit Mr. Cooper's laboratory, receive £3 a week, and then dispose of any secrets he might gain. The defendant had very largely brought these proceedings on himself. Assuming that he had jurisdiction, of which he had grave doubt, he found that the relationship between the parties in this case was not that of master and servant, but of two persons who were jointly prosecuting experiments together; he did not find any obligation between them not to divulge the results of the experiments, and on those grounds he refused the injunction. Mr. Ball asked that no order should be made as to costs.

Mr. Mallinson pressed for costs to follow the judgment. His Honour refused to grant defendant costs, on the ground that Mr. Gillard had taken up an attitude throughout which seemed to him not to be justified.

**STRIPPING FILMS FROM GLASS.**—The following formula was given by Mr. Longworth Cooper in a recent paper before the Manchester Amateur Photographic Society:—

Soak the negative for 10 minutes in	
Concentrated solution of caustic soda.....	7 parts.
Formalin .....	4 parts.
Water .....	200 parts.
then place without washing in	
Dilute hydrochloric acid .....	1 oz.
Water .....	20 oz.

Wipe the film at the edges with the fingers until it leaves the glass. If it be a film from a broken negative, wash the film and replace (under water) upon a sheet of glass a size larger than the original, and let it out and allow to dry.

## News and Notes.

**A MIDLAND PHOTOGRAPHIC FEDERATION.**—Mr. Lewis Lloyd, the hon. secretary of the Birmingham Photographic Society, informs us of the step being taken by himself to bind the Midland societies into one federation. A circular letter has been addressed to all known societies in the district, and Mr. Lloyd asks their consideration of his scheme. He also begs that any society which may have been overlooked will apply to him at The Hollies, Church Road, Moseley, Birmingham, for a copy of the letter, the text of which we may reproduce in explanation of the objects of the proposed federation:—"DEAR SIR,—It has occurred to me that considerable benefit would result to the photographic societies in the Midland counties if they were formed into a federation or union. In the districts covered by the four unions which already exist a great deal of good has been done in extending a knowledge of photography and in mutually benefiting the members of all societies composing them. Nearly all societies have joined, which is a proof of their usefulness. The chief objects are: Intercourse and exchange of opinion between the members of one society and another; united action for the purpose of discussing any question of importance to photographers, such as questions of principle relative to railway charges, etc., privileges for working in places of interest not open to the general public, etc.; interchange of prints and lantern slides; interchange of lecturers and lectures; special railway fares; the provision of a staff of judges, available for exhibitions and competitions. In the Midland district there are about 30 societies at present more or less isolated, but which, under this scheme, would become mutually helpful. From these societies a very strong lecture list could be drawn up, and the difficulties which a secretary often experiences in arranging the programme much lessened. I should be glad if you would do your best to secure the support of your society. Correspondence I shall gladly welcome, and hope that you will write me, giving your views on the matter. Later on I hope to call a meeting of delegates to draw up rules and a working constitution.—I am, dear sir, faithfully yours, LEWIS LLOYD."

**THE CHEMISTS' EXHIBITION.**—An immense variety of chemists' goods is collected in the Royal Horticultural Hall this week at an exhibition organised by our contemporary "The British and Colonial Druggist." The great firms which supply the chemist with the innumerable proprietary articles which form a large proportion of his sales have come, not in ones or twos, but in battalions, and the result is a scene of splendour which resembles the second act of a Seymour Hicks musical comedy, so profusely are colour and ornament showered on the stalls. Picking our way through this fairy land we came to where Mr. Hesketh, of the Thornton-Pickard Co., was seated amid the handsome "specialties" of that firm. Not far off was Mr. J. E. Lockyer, presiding over the display of ready-made developers, one form of which he now supplies at as little as 2d. The Rotary Photographic Co. made a strong show of bromide enlargements and colour prints, and, by the time these lines appear—it had not arrived at the Press view—of the new carbon-bromide process, by which the manipulation and sensitiveness of bromide are applied to produce a carbon print direct. In other words, the pigment is combined with the bromide coating, and is fixed by the operation of development. More will soon be heard of this new development of a comparatively ancient process. Messrs. John Sanger and Co. show the Walls Grove packet developers; and the Express Developing Co., of Whitechapel, a collection of enlargements which might have been more carefully selected, to say the least.

**ROYAL INSTITUTION.**—The annual meeting of the members of the Royal Institution was held on May 1, the Duke of Northumberland, K.G., president, in the chair. The annual report of the Committee of Visitors for the year 1906, testifying to the continued prosperity and efficient management of the institution, was read and adopted, and the report on the Davy-Faraday Research Laboratory of the Royal Institution, which accompanied it, was also read. Thirty-six new members were elected in 1906, and sixty-three lectures and nineteen evening discourses were delivered. The books and pamphlets presented amounted to about 216 volumes, making with 782 volumes (including periodicals bound) purchased by the managers, a total of 998 volumes added to the library in the year. Thanks

were voted to the president, treasurer, and the hon. secretary, to the Committees of Managers and Visitors, and to the professors, for their valuable services to the institution during the past year. The chairman announced that the managers had awarded the Actonian Prize of 100 guineas to Madame Curie, as the author of the Essay "Recherches sur les Substances Radio-actives."

**VALUE OF ADVERTISING.**—How business profits vary according to the amount spent on advertising was shown by plaintiff's counsel in an action for damages for alleged wrongful dismissal brought in the King's Bench before Mr. Justice Grantham and a special jury by Mr. Thomas Samuel Stevens against Messrs. B. F. Brown and Co., an American firm of boot polish manufacturers. Counsel stated that the advertising of the firm had been cut down, and the business commenced to fall off. He illustrated this by the following figures:—

#### ADVERTISING PROFITS.

	Spent on Advs.	Profits.
1880 .....	£130 .....	£264
1881 .....	£244 .....	£904
1882 .....	£654 .....	£1,683
1900 .....	£180 .....	£560

In this connection also we may quote Mr. Charles W. Post, chairman of the Postum Cereal Company, Limited, of Battle Creek, Michigan, U.S.A., and of Grape Nuts, Limited, in London, who has been speaking about the power of advertising at a dinner of the American Advertising Men's Club. He said that many years ago the newspaper advertiser was looked upon by the public with a certain amount of incredulity. But things were altered nowadays. A salesman who could talk winningly to a dozen customers was worthy of credit; but the salesman who could talk winningly to hundreds of thousands of customers through the newspapers could earn pounds while the other was earning pennies. His firm had spent £200,000 annually in newspaper advertising. Had it not been for the magnificent machinery of publicity supplied by publishers, his business, now worth from  $3\frac{1}{2}$  to 4 millions, would be a very small affair indeed. He could, therefore, never forget the debt he owed to newspapers. A good advertiser would talk to people in plain terms about what he had to supply, and by continuing such a policy would ultimately build up a reputation for his product. Two facts, however, stood out for emphasis. It paid to manufacture articles on strict lines of integrity, courting the investigation of skilled experts. Secondly, the unadvertised article, unknown to the people, might have merit, but it would not sell.

**THE PHOTOGRAPHIC RECORD AND SURVEY OF SURREY.**—The report for 1906 shows that good work has been done by the members, 371 photographs having been added to the collection during the year, making a total of 2,340, many of which have now become exceedingly valuable as being representations of things which no longer exist. At the annual meeting the Chairman stated that from the Secretary's report it was evident that the results of the year's work were most encouraging, and that the work of the survey was appreciated was demonstrated by the fact that during the year no fewer than 7,477 references had been made to the prints in the collection. The reports of the secretaries of the various sections were adopted, together with the financial statement, and the officers and Council for the ensuing year elected. The hon. general secretary is Mr. F. F. Wood, 11, Milton Road, Wallington, who will be pleased to hear from any interested in the work of the Association.

"THE EXPERT" is the title of a new illustrated weekly for collectors and connoisseurs which is announced to appear shortly; whilst possessing many of the characteristics of a magazine, it will be essentially a newspaper containing topical information interesting to the collecting public. The number of collectors is large and the objects collected varied, but the aim of "The Expert" is to include them all, and the preliminary details as to the scheme of the paper forecast its hearty reception by those for whom it is specially designed to cater. The price will be 3d. per week, or 15s. per annum, post free, and a presentation portfolio, containing four signed original lithographs by R. W. Macbeth, R.A., of pictures after Sir Joshua Reynolds, Romney, J. M. W. Turner, and Tintoretto is offered to early annual subscribers. Further particulars may be obtained on application to the Secretary, "The Expert," Ltd., 1, Albemarle Street, London, W.

## Correspondence.

- \* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
 \* \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### BLISTERS ON BROMIDES.

To the Editors.

Gentlemen,—With reference to the letter from Mr. C. Winthrop Somerville, in your last issue, the following cutting from the "English Mechanic," of January 12, 1906, is interesting.

This is a case of "Look on this picture and on that," for now he pipes a different tune.

"The second question is that of blisters. There are three principal chemical causes for blisters:—

- "1. The use of a caustic alkali in the developer.
- "2. Frequent changes into solutions and washing water of wide variations in temperature.
- "3. Very prolonged immersion.

"But there is a fourth cause, and to it fully 98 per cent. of the cases are due—the paper itself. The preparation of the paper for the adequate prevention of blisters is a comparatively expensive matter, and some manufacturers do not consider it worth while.

"I believe I have tested every make of paper in this country, and know of only one case where the manufacturers make satisfactory efforts to prevent blisters. I cannot, of course, give the name of the firm here; but in all cases where I have recommended it privately on this account it has given satisfaction."

I cordially agree with Mr. Somerville that it is "a pity that such a beautiful and comprehensive printing process should ever suffer from unjust criticism."—Yours faithfully,  
 SCRUTATOR.

### THE VARIATION OF TIME OF DEVELOPMENT WITH TEMPERATURE.

To the Editors.

Gentlemen,—We are all of us, I think, indebted to Mr. Ferguson and Dr. Sheppard for their replies on the above subject, which have cleared the air very much.

With regard to my calculated result of  $4\frac{1}{2}$  minutes, I did not find the correct temperature co-efficient for the developer, and I am much obliged to Mr. Ferguson for pointing out the error.

May I be so bold as to suggest that there are a great many photographers to whom logarithms are a sealed book, and who are therefore precluded from utilising such calculations, and that Mr. Ferguson would be doing very valuable service if he would put into plain words how such calculations could be done by ordinary arithmetic, and, if possible, the necessary formula for every developing agent.

I am aware that this would mean considerable work and necessitate the simple definition of K for each plate, but I think this might be done within reasonable limits, and it would be certainly very useful to those who really want to make sure of good negatives, and I think this would include the majority of workers, except possibly those who are followers of the advanced pictorial movement.—Yours faithfully,  
 PAUL M. CRANSTON.

### THE ETCHING OF THREE-COLOUR BLOCKS.

To the Editors.

Gentlemen,—I have been much interested in Mr. A. J. Newton's article in your last Colour Supplement, wherein he frankly avows that upon a certain test in three-colour work, "the proofs without any fine-etching were actually closer to the original than those that had had four days' work of skilful fine-etching upon them." I wonder whether you, gentlemen, or Mr. Newton, can call to mind an article I had the honour of writing for you last year, when I penned this passage: "Fine-etching is the confession of a theoretical breakdown. Moreover, in this country it is the bane of artistic work." I thought at the time I was right, and now Mr. Newton confirms me. Oh, if I only could have turned Mr. Newton on to a certain "Photo-Engraver" whose phials of his wrath had been upset by my article! "Photo-Etcher," indeed! Why he actually replied saying that Continental firms turn out satisfactory work because of "the longer time they can spend patiently fine-etching," and he



up racial characteristics and racial moral standards to prove wrong. Truly, "the whirlygig of time brings in his revenges." I sleep the sleep of the just to-night! My champion hath red! "Photo-Etcher" writhes in the dust!—Yours, etc.,

F. C. TILNEY.

## Answers to Correspondents.

Matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered less the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 7d. each photograph, to cover cost of registration fee, form, etc. No unmounted copies of each photograph must be sent with the

### PHOTOGRAPHS REGISTERED:—

Sutton, The Parade Studio, High Street, Wellingborough, Northants. Photographs: A View of Midland Road, Wellingborough, Covered in Snow. A View of Broad Green, Wellingborough, Covered in Snow. A View of Market Hill and the Hind Hotel, Wellingborough, Covered in Snow. View of "The Walks," Wellingborough, Covered in Snow.

and, 92, Bolt Street, Liverpool. Photograph of the Liverpool Cotton Station, 1907.

arratt, 9, Station Road, Ashley Down, Bristol. Three Photographs of a Babes, entitled: "The Argument," "A Discard," "Reconciliation."

tion, 9, Cross Street, Aberavenny, Mon. Three Photographs: A View of Bridge and River. A View of Ciydach Falls. A View of Aberavenny Hospital.

3, 30, High Street, Connah's Quay, Flintshire. Photograph of Connah's Twenty Football Team with Three Cups.

ampton, 440, Old Kent Road, S.E. Photograph of the Chelsea Football Playing Last Match in the Second League.

at, Park Road, Bingley, Yorks. Photograph of the Bingley Association Ball Club with Bradford Charity Cup (Won 1906-07) and Committee.

ENLARGED NEGATIVES.—Will you kindly tell me why it is that my negative enlargements are so badly fogged? They are made by electric light applied from three carbons. I use a screen holding the transparency and tissue paper, as you will see sketch herein. Exposure about one minute,  $f/32$ , development very slow. (2) Are enlargements made by electric light as good those made by daylight?—F. H. K.

If, as appears to be the case, you have screened off all extraneous light, the cause of the fog would probably be in the developer, the plate, or both together. We suggest you try the addition of additional bromide to the developer, giving more exposure if necessary. (2) It depends on the character of the negative. If long, arc light is preferable; if soft, a more diffused light, such as daylight, is better. Many enlargers who do not use daylight still keep an oil enlarging lantern for flat negatives.

O.—The general conditions are about the same as here, and though wages are higher, so is the cost of living, and we doubt if you will be any better off. The best journal for an advertisement is "The Photographer," of 21 and 26, East Twenty-first Street, New York. Mr. Dundas Todd, of the Photo Beacon, Security Buildings, Chicago, might be able to advise you.

STON AND SONS.—We recommend "Retouching," by Arthur Tait, 1s. We do not supply books. We suggest you apply Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C., who can execute your order.

USE OF NEGATIVE LENS.—In a telephotographic lens the focal length of the positive is easily measured, but it is difficult to find the focus of the negative. I have not succeeded with the perforated card ("Answers to Correspondents" column, Vol. 53, p. 1039). Will you kindly suggest another method? The negative is a single triple-cemented lens, about  $\frac{1}{8}$  in. thick. Which surface, concave or flat, is the focal length measured from?—W. S.

The probable source of failure is that the distances between age and object were too short; they must obviously be not less than four times the focus of lens. Another simple plan is

to cut a one inch by quarter inch slit in an opaque card, place in front of a candle or lamp, place the lens two feet from card, and behind the lens place a white paper, and shift the latter till a sharp image is obtained; then measure the distance from lens to card and divide the distance from object by this, and the result will be focus. The following method was given by the late T. R. Dallmeyer for finding with accuracy the focus of the negative combination of a telephoto lens: Focus accurately the image of some well-defined object with any ordinary positive lens, and measure the size of the image. Place the negative lens a short distance within the convergent beam from the positive lens. Then accurately focus the image formed by the combined lens, and measure its size. Note the distance of the screen from any fixed point on the mounting of the negative lens; call this D. Note the magnification that has occurred to the image formed by the positive lens alone; call this M. Now move the negative lens a little nearer to the positive lens, keeping the latter in a fixed position, and focus accurately a second time upon the screen, and, as before, note the distance of the screen from the same fixed point on the mounting of the negative lens; call this D1. Note the magnification of the image now formed by the positive lens alone; call this M1. The focal length of the negative lens is  $(D1-D) \div (M1-M)$ . This method avoids any question as to the exact nodal point to measure the focus from, but practically the concave surface may be considered to be the point to measure from.

OVAL TRIMMING.—Will you inform me, through the medium of your valuable paper, the best and usual method of trimming enlargements in ovals and circles.—PHOTO.

The usual and most satisfactory method is to use a metal template of the required size and shape, and a pivoted wheel trimmer. Any of the large dealers can supply you.

CINEMATOGRAPH.—(1) Would you please to tell me what are the latest books, and the price, on the cinematograph? (2) Also, if there is any special paper published which deals with animated photography?—LANCASHIRE.

"Living Pictures," by H. V. Hopwood (2s. 6d.), and "Animated Photography," by Cecil M. Hepworth (1s.). (2) See p. 337 of the "B.J." last week, May 3.

TRANSPARENCY.—(1) Accompanying this you will find a transparency made contact by electric light. It is of a very hard green colour, and I would be greatly favoured if you could tell me the cause of the green stain? I can remove it by immersing in sulphuric acid after washing, but I do not know why my negatives and transparencies should take this colour. It is an Imperial ordinary plate, very slightly over-exposed and developed with a normal pyro-soda developer. Until recently I got none of this stain, but a nice pure black, and I cannot tell the reason. The transparencies are made for reproduction work, and give very hard results, and I think the transparency plates are even worse than using ordinary plates. When the negatives are first fixed they are not green, but turn so in washing. I am very anxious to get softer greyer results in the transparencies. (2) Is not a slow plate, as a rule, best for a transparency? (3) Would it be possible to make these contact transparencies by daylight? (4) Can you give me the name of a good standard book on developing and the making of dry plate negatives, and transparencies? Is "Burton" as good as any? I do not mind a decent price for a really good professional book.—DARK ROOM.

(1) The chief cause would appear to be deterioration of the developer. Pyro-soda, which has become stale, is particularly liable to give this greenish stain. Try a new stock solution, with, say, half as much again or double the quantity of sulphite. If you have been using the Imperial pyro-soda formula, we advise you simply to omit the sulphite solution from No. 2 and use a 10 per cent. sulphite solution instead of water in making up No. 1 from the stock solution. We should prefer to use a developer like metol-hydroquinone, or kachin if we required soft grey transparencies. Pyro-soda is not the best for the purpose. (2) That is our own experience. (3) Only by having some shutter device for the short exposures which would be necessary. (4) None better than the "Watkins Manual," and "Developers and Development," by G. E. Brown. There is none on the transparency work.

CARBON PICTURES ON IVORY.—Would you kindly let me know as to

the following? Instructions for transferring carbons (double transfer) on to ivory or ivoryine—CLARENCE.

First make the print on flexible support in the usual way and dry. Soak one ounce of Nelson's No. 1 gelatine in a pint of water till soft, and then dissolve by heat. Then add twelve grains of chrome alum in two ounces of hot water, stirring well the while. Immerse the print in the warm solution till soft, then introduce the ivory, bring the two in contact, and squeegee together. When dry, strip off the flexible support. The ivory should be well cleaned with soap and water, to remove any trace of grease, before the print is transferred to it.

ALAN CRAIG.—It is against our rule to recommend individual goods.

There are a great number which answer to our description. Why do you not get a list, such as Fallowfield's (146, Charing Cross Road, W.C.)? As regards lens, we should advise an anastigmat of f/6 aperture by one of the leading makers.

W. WASHAM.—A very weak Farmer's reducer, best applied with a tuft of cotton-wool. In the case of very harsh negatives we should not consider this treatment necessary.

D. STUDIO.—If the whole of the end (No. 2) was of glass, and given a good slope, it would be an advantage, as you would then get a somewhat nearer approach to a side light. As you do not state the dimensions of the building, we cannot advise you further.

SWELLED GELATINE PROCESS.—(1) Can you tell me if there are any working details published of the swelled gelatine process? I have your last two annuals containing outlines of the process. The chief difficulty is in getting a film  $\frac{1}{4}$  in. thick to dry with a level surface for printing. Usually the surface is convex, higher at edges.—WM. J. B. BLAKE.

(1) Nothing much in the way of details has been published of late years on the subject, as the swelled gelatine practically has become an obsolete process. However, very full details of it, by Mr. Thos. Bolas, were published in our volume for 1879, p. 428. If the glass is quite flat and placed perfectly level there should be no difficulty in getting an even surface, although you appear to require an unusually thick film. (2) We know of no work specially devoted to the subject. (3) We cannot say.

L. TURGILL.—1. Out of business. 2. Osborne and Co., Red Lion Square, W.C.

BAS RELIEF.—We advise you to print from a positive transparency by the method given on p. 304 of our issue of April 19.

W. H.—1. It appears harmless. 2. We can see nothing of the kind. 3. Not in our province. Apply to a comic contemporary. 4. Any printer could get the matter up with suitable display. Try St. George's Press, Brentford; or Hood and Co., St. Bride Works, Middlesbrough. 5. You can copyright it as a literary work.

STUDIO.—If the sun is troublesome, ground glass is preferable. Instead of either, we should prefer to have two or three light wooden frames, covered with thin tracing linen, to slide along the roof to stop out the sun when necessary. Then you would be able to get an unobscured light in dull weather. For the blinds almost any colour will do, but dark blue or a light green are perhaps the best, as they yield a light that is comfortable to sitters. For the material, serge is as good as anything. So far as the photograph shows it, we should say that you have an unnecessary amount of glass towards the ridge of the studio—a foot or two less would suffice. A French grey colour would be less glaring to the eyes of sitters than the bright varnished wood.

BOOKS.—The only books we can recommend are "The Pose in Portraiture" (No. 1 of "The Photo-Miniature" Series, 6d.); "Light in Photographic Studios," by P. C. Duchochois (1s.); and "Artistic Lighting," by Jas. Inglis (2s. 6d.).

S. DHUNJEEBOY AND Co.—(1) The artistic has some slight aberration left (either chromatic or spherical), with the result that the definition is not perfectly sharp, or, rather, is a mixture of sharp and unsharp. (2) The making of the negatives is the same for all three. As regards printing, we should say the carbon film (Rotary) process comes nearest to your requirements. (3) The most certain plan is to make separate transparencies of the negatives, and, after registering them in position, to make a new negative by copying. Except for simple work, such as clouds and skies, combining on the enlarging easel is out of the question. We can

best refer you to "Enlargements: Their Production and Finishing," by C. Rodwell Smith (1s.). It is published by Hazell, Watson and Viney, Ltd.

INFRINGEMENT.—We should first, through your solicitor, ask the patentee what he proposes doing in the matter, pointing out to him the clear proof of infringement. If he refuses to make any offer, you should be guided by your solicitor as to what you should do. COLOUR PATENTS, ETC.—(1) Would you tell me the date of the patent of the process you describe in this week's journal as the Du Hauron one-plate process of colour photography, described as a screen consisting of a fatty matter and water dyes? Also in what country the first patent was taken out? (2) Would you please also tell me whether I can obtain material for Dr. Traube's colour diachrome process, also mentioned in this week's journal at the end of an article headed "The Bleach-Out Process"? Would you also tell me what date of THE BRITISH JOURNAL OF PHOTOGRAPHY would give me particulars of Mr. Ives' patent stereoscope, done by lined screen?—F. W. DONISTHORPE.

(1) Reference should be made to the "Colour Supplement" February 1, 1907, p. 14, where a review of one-plate colour processes is given. We believe that A. Baumgartner (English Patent No. 22,158, 1895) was the first to use the idea of fatty and aqueous dyes. (2) Perutz and Co., plate makers, Munich, are to be consulted as to Dr. Traube's process on the market; but, so far, no advertisements have appeared in the German press as to the actual introduction of the materials. (3) Particulars of Mr. Ives' patent stereoscope will be found on p. 8, "B.J.," January 1, 1904.

PRISMATIC PROCESS.—Would you kindly answer the following questions: (1) (reference, page 849, "B.J.A.," 1907) Is the ruled screen referred to in line 6 in a single-line or cross-line screen? (2) Is a grating of 500 lines per mm. superposed on the five-line screen, should it be placed so as to cross the lines of the latter, or parallel with them?—E. Y. E. N.

(1) The screen is a single-line screen. For fuller details of what similar processes see "Colour Supplement," "B.J.," January 1, 1907, p. 5; March 1, p. 18; April 5, p. 32, in "Patent Chronology"; and May 3, p. 38. (2) No. The grating must be absolutely parallel with the screen lines, so that clear space in the latter may act like the slit of a spectrograph, which, in fact, the arrangement practically becomes.

BABY SHOW.—I have started a baby show, which will run for months—May, June, and July—and the four babies who have the best photographs I am awarding money prizes. You advise me as to whom I can employ as judge, and what will be charged? If the entries do not exceed 100 I shall gain nothing or lose even if every customer purchases one photograph each at 7s. 6d. per dozen. Will it be wise to them to purchasing not less than one dozen at the said price? I might mention that the cause of so little profit on our hundred photographs is that the cost of advertising and of absorbing all the net profit.—BABY SHOW.

We suggest that you obtain a local personage—lady or gentleman—to judge the photographs, and either one would not do it without fee. Or, why not place an advertisement in your show in your local paper and beg the editor to act as announcing him as such, coupling his name with that of the paper on all the circulars you issue.

\* \* NOTICE TO ADVERTISERS.—Blocks and copy are received by the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears on the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

—The exhibition by members of the National Photo-Record Association will be closed on Monday next (Whit). It will be open at the usual hours until May 29.

hibition of reflex cameras and of photographs illustrating will be opened at the house of the "B.J." on June 13.

hibition of M. Demachy's oil prints is to be held at the next month. (P. 377.)

J. Wall commences on page 365 a series of articles on modern progress in orthochromatic sensitising.

'Professional Photographers' Association reports satisfactory results for the insurance of employees under the new Act.

raw attention to some notes on the selection and use of accessories which the professional photographer may well at the commencement of the summer season. (P. 363.)

teresting case involving the question of wages or notice ced in "Commercial and Legal Intelligence." (P. 376.)

s of two enlargement canvassers have been made in Scot-land at Wimbledon a canvasser was summoned for the unlaw-ation of a photograph. (P. 370.)

cho of the humour of collecting accounts comes from (P. 371.)

T. Holding at the R.P.S. on Tuesday discoursed on some means employed in his photography of figure studies

ey and useful application of platinotype and ferro-prussiate papers was recently shown to the Croydon Camera Club W. H. Smith. (P. 371.)

Robert James Wallace, of the Yerkes Observatory, has out a system of daylight sensitometry for photographic he first details of which appear on page 368.

## EX CATHEDRA.

### An Exhibition of Reflex Cameras.

We have to announce that an exhibition of reflex cameras at present on the market and of photographs illustrating the capabilities of reflex cameras will be opened at the house of the BRITISH JOURNAL on June 13. The following makers of reflex cameras have already signified their intention of exhibiting instruments of their design, which will be in the charge of an experienced attendant engaged by the BRITISH JOURNAL to explain their movements to visitors:—

Adams and Co.  
City Sale and Exchange.  
J. H. Dallmeyer, Ltd.  
Kodak, Ltd.  
J. Lizars.  
Marion and Co., Ltd.  
Newman and Guardia, Ltd.

Ross, Ltd.  
Sanders and Crowhurst.  
A. E. Staley and Co.  
Talbot and Eamer.  
Voigtlander and Sohn.  
W. Watson and Sons.  
Charles Zimmermann and Co.

The examples of reflex camera work will, it is anticipated, be representative of the facilities provided by cameras of this type and of the skill of well-known users. We desire at the same time to invite the co-operation of any into whose hands our letter of invitation may not have come. Within the limits of the available space we are anxious to hang meritorious work submitted to us, and for the information of our friends who intend to support the exhibition in this way we would say that prints should be mounted but unframed, and should reach us not later than June 5, to allow time for the preparation of a catalogue.

### The P.P.A. Handbook.

The seventh "Handbook" of the Professional Photographers' Association, issued to the members during the past few days, has been commendably revised and amplified in the portions which deal with the legal and commercial matters which are of importance to the photographer. Rights and liabilities in respect to copyright are here explained in a few notes, which, though short, yet convey the facts clearly and incisively. Insurance matters in relation to the recent Workmen's Compensation Act are discussed, and the satisfactory announcement made that by arrangement with one of the insurance companies members of the P.P.A. may insure their staffs on a scale based on the total wages paid annually. These and other items in the "Handbook" show the energy and discretion with which the committee have conducted the affairs of the Association, and the steps which they have taken to advantage every photographer joining its ranks. The benefits of membership are now too obvious for us to dilate upon them: those who may wish to consider them at leisure are advised to address the Hon. Secretary, at 89, Albany Street, London, W.

### Pinhole Photography of the Sun.

Writing in the current issue of "Knowledge," Mr. C. Ainsworth Mitchell narrates his experience in solar photography with a pinhole, in which application of the stenopaic method in photography he has taken a hint from the use of the pinhole as a screen for the eye when looking at the sun. The absence of strong light in a camera provided with a pinhole instead of a lens is doubtless responsible for the absence of veil from parts of the plate on which the image of the solar body does not fall, and so Mr. Ainsworth gets several exposures on a different part of a single plate. The most suitable diameter of pinhole is about 1-50th of an inch, at which aperture an exposure of 1-25th of a second (plates not stated) was sufficient for the unveiled sun. A simple form of long box pinhole camera might be used as a useful exercise in making photographs of the sun of fair size, though the definition cannot equal that of a telescope.

\* \* \*

### Full-Size Focussing.

Not long ago we referred to an American patent taken out for a camera in which a focal plane shutter with a white-faced blind was used. The image was focussed on the front of the blind and was viewed in a mirror fixed in the lower part of the camera at an angle to the blind, but out of the line of rays from the lens. The release mechanism of the camera brings the plate-holder forward the necessary distance before the exposure takes place. If we may judge from a recent advertisement in an American contemporary, a camera of this type has been placed upon the market by the Hales Camera Company, of Ridgewood, New Jersey, by whom it is advanced for high speed focal-plane work. The construction should permit of the employment of wide-angle lenses and in this respect may compare favourably with a reflex camera of the ascending mirror type. An examination of it should be interesting to any who have returned still unsatisfied from the now well-explained fields of camera construction.

\* \* \*

### The Arithmetic of a Convention.

Mr. Pirie Macdonald, just retired (with honours) from the Presidency of the Professional Photographers' Society of New York, has been giving an account of the stewardship, which he also took upon himself, to our contemporary "The Photographer," which has at last induced him to contribute regularly to its pages, only on the "terms" that he writes gratuitously. In the current issue Mr. Macdonald tells how, in organising the recent convention of the P.P.S. of New York, he set his face against the customary attraction of junkets, fêting, and pretty girls, and would have none of the revenue to be obtained from trade exhibitors. His budget, put in a nutshell, is as follows (we translate approximately into British money):—

	s.	d.		s.	d.
Subscription .....	12	6	Dinner .....	4	0½
			Employment Bureau less than .....		3½
			Certificate of Membership .....		9
			Prize for the best practical idea .....		3
			Studio demonstrations, single-picture exhibition advertising .....		8
Balance .....	4	1			5

Surely, concludes Mr. Macdonald, we do consider this a good record, and when it is beaten we want to know about it, quick—for it will prove that some one knows more about the business than we do, and we want to get in line. But, remember, it must be a better meeting, for less money expended.

### Distortion in Photographic Lenses.

Dr. Wandersleb, of Jena, has recently published a pamphlet\* on this subject and in it has given a most valuable résumé of the theory, and a review of previous works in which the matter has been discussed. He also gives a series of charts showing the amount of aberration present in each of sixty-four different types of lenses for varying distances of the object. In these charts the distances are expressed by the magnification, and he uses the symbol  $N$  for the reciprocal of the magnification, when  $N=1$  object and image are equidistant from the lens, while when  $N=\infty$  the object is at an infinite distance. The following is a summary of his conclusions, and we draw special attention to the fact that, though these conclusions may seem to be at variance with popular and popular text-books, they are, nevertheless, quite in accord with modern theoretical optics. He points out that distortion depends on the spherical aberration of the rays as well as on the so-called "tangent condition," consequently, the constructor can only correct for a definite value of  $N$ . For other values of  $N$  distortion remains, and, in general, it varies with the relative aperture. He then makes a special point of the following: "It is especially emphasised that, contrary to popular opinion, distortion is not, as a matter of course, absent in symmetrical objectives in the practically most important case of distant objects; when, however, it is corrected, the result is that the sharpness is [adversely] affected to an increasing degree with the size of the relative aperture. This adverse condition does not necessarily hold good in unsymmetrical objectives. The charts show that in the case of distant objects the majority of the rapid rectilinear exhibit notable departures from orthoscopia, while a few of the unsymmetrical lenses show very complete orthoscopia."

\* \* \*

### The Conditions of Orthoscopia.

Reference to the charts shows that the conditions appear to be rather remarkable in relation to the rule laid down with regard to rapid symmetricals, but, theoretically, this rule appears to be a sound one. We touched on this matter in an article on "The Correction of Lenses and the Petzval Condition," published on March 22. If a lens is to be free from distortion and also capable of giving a critically sharp image, then it must be free from spherical aberration both at the pupils and at the image foci. In other words, to say, it must be corrected for two different pairs of conjugate points at the same time. According to Seidel this can only be done by infringing the Fraunhofer or sine condition, or second Von Seidel condition, and must be fulfilled to eliminate coma, hence focus varies in the attempt to correct distortion. In the particular case of a symmetrical objective employed to on a scale of full size, all the ray paths are symmetrical and if the pupils are not spherically corrected the one is counteracted by that at the other, so that the image is orthoscopic. All such objectives are, therefore, naturally free from distortion when  $N=1$  and the aberrations referred to above only occur when the attempt is made to render the objective distortion free for great distances of the object, the most difficult case being  $N=\infty$ .

\* \* \*

### Aperture and Distortion.

It should not be forgotten that aperture affects the questions, and that the aberrations are greatest with apertures of  $f/4$  and over. The charts show some excellent results given by symmetrical lenses of apertures a little under

\* "Über die Verzeichnungsfehler Photographischer Objektive." By Dr. Wandersleb. 1907.



While some remarkable diagrams illustrate the effect of wide-angle lenses. It is interesting to see that N's "Panoramic" lens, at  $f/18$ , was actually free from distortion for distances from  $N=1$  up to  $N=\infty$ . At the distance this is run very close by Harrison's "Globe" at  $f/25$ , by Busch's "Pantosop," at  $f/30$ , Steinheil's angle "Aplanat," at  $f/16$ , and the Goerz "Hypergon," at  $f/11$ . The much abused wide-angle lens is thus remarkable in its drawing. Whatever faults it may have in drawing is not one of them, and the so-called distortion that it is supposed to produce is the fault of the not of the lens.

\* \* \*

**Barrel Distortion.**

The charts show that the distortion given by symmetrical lenses is almost invariably of the cushion variety. In non-symmetrical doublets the distortion for  $N=\infty$  is really of the cushion form, and when it is nearly correct the distortion for the nearer distances is of the barrel variety. In some cases the lens shows only the barrel type, but, as a general rule, it appears that the type of distortion varies from barrel to cushion as the focal length of the object increases. Frequently the type varies with the angle of view, the centre of the field showing one type and the margin the other. The amount of distortion is very slight in the great majority of cases, but, for a few instances, it has alarming proportions. These are mostly well-known lenses, and the chart therefore gives valuable information with regard to the reliability of these lenses for certain purposes.

## OUTDOOR ACCESSORIES.

Indispensable items in the photographer's equipment are more difficult to write about than those designed for interior use, for, in the nature of things, open-air scenes and scenic backgrounds used in the studio are necessarily indoor lighting, are bound to smack somewhat of the artificial. At the same time, very beautiful results are obtained with outdoor surroundings, and so the accessories look really natural, the results pleasing to one's clients. Indeed, an elaborate arrangement of accessories, representing a scene in an old or something of that sort, will more probably please than the more restrained and true pictures which other artistic photographers prefer. Of course, many famous painters used outdoor scenes as backgrounds, pictures of which the lighting was palpably that of the outdoors, and they are referred to as great artists; but it is still advisable for photographers to avoid as far as possible, consistently with gaining a livelihood, the criticisms of those who are always ready to sneer at the work of the professional photographer. Many good results can be made with no accessory but the background. A few leaves or flowers thrown on the foreground, here and there, and occasionally, or when needed, the sitter can be made to look more natural—add reality. If the background and foreground are not in one piece, some foliage may be used to advantage to break the line where they meet. A good stone pedestal, time-worn and stained, comes next useful; this accessory is a favourite with the artist. If you can arrange some flowers growing at its base the effect is good. It is a good plan to have some on arum lilies and one or two small rose trees, and with a small spike which may be placed in the foreground where required. A grass mat is useful for hiding the feet, if one may use the term. The old balustrade, out of fashion, probably as much because of its appearance as anything else, though it certainly has been

shamefully treated. Stone steps are favourite articles nowadays, and they tend to produce good poses. Some very elaborate set-pieces can be made with good step pedestals and outdoor furniture, but all must be really good imitations, and, except for their location in the studio, indistinguishable from the genuine article. The steps may very easily be designed to fold up, even if the full length of the background, or each step may be made complete in itself, so that one can be laid over the other. These do not take so much room as might be expected, for the average imitation step is too high for studio work. Four inches from tread to tread will be found ample. Imitation creepers add greatly to the realism of these pieces.

A sundial has always been a favourite object for introduction into outdoor scenes. Though occasionally beautiful, it is extremely unserviceable. The same may be said of elaborate gateways and imitation water, though a child's gate and fence, made easily with a saw, hatchet, and some nails, is well worth the making.

Some of the theatrical property makers could supply some excellent objects for our use. Should the reader frequent the theatre, he will continually covet some property and wish it were in his gallery. The introduction of a tree trunk—properly made, of course, and not a flat cardboard one—often goes well with a suitable background. The branch of a tree, not necessarily showing the trunk, if fixed a few feet in front of the background, and of the same description as those depicted in the latter, make the scene much less artificial. The bough must be an extremely good imitation, however, and the same must be said of anything else that is introduced to suggest reality. If one must use artificial grounds they should be made to appear as natural as possible by the introduction in a more prominent position than that which they occupy of something which looks perfectly genuine, so that the mind having said "This is true," will be more inclined to believe in the obviously sham.

Garden seats or furniture, unlike furniture for indoor use, should not be bought as if intended for its natural use, for the real thing would look too new and fresh when photographed. The commercial accessories are in this case better than they; indeed, everything connected with the representation of outdoor scenes is much more satisfactorily catered for by the trade than are indoor ones. Do not purchase too elaborate seats; a simple one painted to imitate the decorations of Father Time is all that is necessary. A wooden garden seat—all wood, of course, and not iron and wood—is a welcome change from the more usual stone ones. These may be made by the local carpenter or purchased from a garden sundries' establishment. After all this talk of imitations, it is a relief to advise that a plentiful supply of real flowers be at hand when possible. They brighten up the gallery and freshen things up generally as nothing else can.

We have up to the present forgotten the seascape in our anxiety about the landscape, but it is scarcely necessary to say that imitation leaves, however, profusely used, will not heighten the realism of the seashore. A few pebbles should be used instead, with a rock or two, either real or imitation if one shirks work. An old piece of fishing-net, a crab-pot or corks are good additions. We may have also some wooden sand-pies and a small sand castle for occasional use. There are many pitfalls in the way of accessories, and the photographer must be careful to see that nothing incongruous mars his effects, though he is scarcely likely to make such idiotic blunders as were common in the early days of photography. One example we recently found amongst the first of the negatives of an old studio constitutes a record. The sitter, in evening dress, is represented as standing in front of an open

landscape, church spire in distance, the foreground being a loud-patterned carpet, upon which was built a large, solid stone wall and pedestal, and growing over it, with roots in the carpet, was a piece of ivy. Hanging from the sky and carefully drawn over the ragged stone pedestal was a curtain. After giving this true example of what to avoid, we might once again refer the reader to the study of Academy pictures. He will be surprised to note, if he has not before done so, how frequently the artists introduce accessories. They are properly subdued, of course, and fall naturally into their place in the composition, but the fact remains that the best educated men in art

have not by any means discarded the accessory, as have many photographers.

After all, the dismissal of the accessory from a photograph is but a poor means of overcoming a difficulty, we wilfully do without that which might be of great advantage and pictorial value to us. It must be remembered, too, that the public upon whom we depend for our existence are not yet educated up to the art standard which the plain background attempts to set, but have a sneaking fondness for detail, brilliancy, and still no preference for simplicity and accentuation of the figure and the figure only.

## THE SINGLE PRINT AND THE BAKER'S DOZEN.

[The question of prices, ever with photographers, is reviewed in the following note from the current issue of "Wilson's Magazine," in the form of a suggestion that the "single print" system may be found of advantage, not only to leaders like Hollinger who have made reputations on it, but to every photographer who is aiming at distinction in the eyes of his public.]

We have never been able to understand the true inwardness of the number twelve. Why is it that we buy our rolls and eggs, pencils and portraits, by the dozen? Will the negative only give off a dozen prints, or has the sitter only a dozen friends and relatives?

Talking with a well-known Fifth Avenue photographer on the subject of the average portrait, he said: "I put into every portrait I make the best effort I am capable of; I have to, for all my work is sold on its merits—not by the dozen, but by the print."

What does this mean to the photographer and his patron? The photographer, not having had the word passed up from the receptionist that "the party wants a dozen 5 by 7 platins," proceeds to make the best possible negatives he can of his subject. His judgment will guide him in the matter of size and number of plates to expose. Several negatives of different sizes and poses are printed from, and the customer is invited to take as many as he wishes, or as few—the price for the first print from each negative being somewhat higher than that for reproductions.

Assuming that the portraits are good, customers will invariably

take more if they know that they can order them in threes, or fours, just as they need them, gauging their inclination by the condition of their pocket-book.

Of course, this method could not be adopted with advantage for every gallery, but there are many galleries where a change from the dozen idea to the single print would result in much better work for much better pay. A more or less extension of this idea would very soon begin to elevate photography in public estimation. There is under present conditions a close relationship between the tintype "artist," who makes "ping-pongs" at twenty-five cents a dozen on the Bowery, and the Fifth Avenue "society photographer," who "for this month only" will make platinum cabinets for six dollars per dozen.

Portrait photography has for too long been bound and held down by a too narrow conventionalism, too much imitation and too little originality. The most successful men, artistically and financially, are the men who broke away from the old-fashioned and worn-out methods into new and original lines like Core, "the children's photographer"; Macdonald, "the only"; Hollinger, "the single print"; Pierce, "home portraits"; Falk, "celebrities"; to mention but a few of them.

## PHOTOGRAPHY OF THE INFRA-RED SOLAR SPECTRUM.

(A paper read before the Paris Academy of Sciences.)

DURING the year 1906,<sup>1</sup> whilst experimenting with the method<sup>2</sup> employed, practically, first by Waterhouse in 1875, I noticed that the action of the infra-red rays was superficial. This observation led me to employ plates strongly dyed with a colouring matter which absorbed the actinic rays. I recommended chrysoidine and erythrosine as giving good results.

Since then, in the course of experiments with other dyes, I have obtained very much better results with malachite green, and I have been able to prepare plates the sensitiveness of which to the extreme red and infra-red rays is about ten times that of the ordinary commercial plates treated according to Waterhouse's method.

The plates are prepared as follows:—

Extra-rapid gelatino-bromide plates<sup>3</sup> are placed for about 10

<sup>1</sup> Comptes Rendus, June 18 and July 9, 1906.

<sup>2</sup> This method, based on the previously ascertained fact of the reverse action of infra-red rays on exposed plates, consists in fogging an ordinary photographic plate and exposing it to the solar spectrum.

<sup>3</sup> I used the  $\Sigma$  plate of Lumière.

minutes in distilled water containing a few drops of acetic acid. They are then immersed for the same time in an alcohol-saturated solution of malachite green, and are then rinsed quickly and dried. These operations are performed in the dark.

The plates thus prepared are exposed for 30 seconds at 75 c.m. from an electric lamp of four candle-power and then exposed in the spectrograph. If the preliminary exposure is done with the plates behind a violet screen (with exposure of three to five minutes at 30 c.m. from the lamp), the plates are still more sensitive.

As a result prints have been obtained of the solar spectrum from  $0\mu 750$  to  $0\mu 950$  in which one Angström unit has a length of about 1-10 of a millimetre, also photographs obtained of the A. band in the third-order spectrum, which show that the structure of this band is identical with that of the B. band.

The ray Z, which I described in my note of July 9, 1906, a short band degraded towards the infra-red, is resolved into



in the photographs made with the spectrum of the second order. These results were obtained with the Mont Blanc spectrograph, consisting of a collimator and a photographic camera, provided with achromatic lenses of 30 c.m. diameter and 60 c.m. length, and with a Rowland flat grating. This apparatus, only one at my disposal, obviously does not supply the most favorable conditions for the study of the infra-red spectrum. Nevertheless, with the plates above described, when the atmospheric conditions were good, an exposure of ten minutes sufficed in the region A and thirty minutes for the extreme region, and a second-order spectrum as photographed. Results also made with a spectrograph of weak dispersion (a carbon bisulphide prism) show that the reverse action produced by the

solar spectrum, on the malachite green plates previously exposed, extends to about  $\lambda$  6,000, to the extremity of the infra-red not absorbed by the optical parts of the instrument. The exposure necessary with this spectrograph was only thirty seconds.<sup>4</sup>

The highly red-sensitive panchromatic plate of Wratten and Wainwright, which have given the band B with an exposure one-fifth or one-sixth that permitted by the plates above described, allow of A being obtained only with a rather greater exposure, and are not sensitive in the infra-red beyond this ray.

G. MILLOCHAU.

<sup>4</sup> The sensitiveness of these plates has suggested to me that it might be possible to use them for monochromatic photographs of the sun in the extreme red, and even for the first portions of the infra-red spectrum, if a convenient spectroheliograph be available. This justifies the sentence in my note of February 18 last, criticised by M. Deslandres in a note of March 11, 1907.

## A REVIEW OF RECENT WORK IN COLOUR SENSITISING.

### I.

At the present time when the use of colour-sensitive plates has increased so much, it may not be out of place to give a brief summary of our knowledge of the action of "colour" or colour sensitisers, omitting as far as possible technical details.

The subject is an extremely difficult one, and complicated by many factors that one may well shrink from a systematic investigation, although such is much needed, notwithstanding the considerable amount of work which has already been done. Much of the work is too contracted, too limited in scope, and too remote from a definite plausible theory on the subject. It has been done with materials, both in the shape of emulsions of dyes, of practically unknown composition—that is, known to the experimenter. For a complete elucidation of the subject it would be essential, I think, for the experimenter to be first a dyer or dye chemist, secondly an emulsion maker, and thirdly a chemist. The last is, I think, the least important of the three.

#### Kieser's Experiments with Phthaline and other Dyes.

There is much literature on the subject particularly in Germany, which has attracted but little attention in England; of which, apparently, is in danger of being entirely overlooked or ignored, and some has apparently never been translated. To the latter class belongs a paper, "Beiträge zur Kenntnis der Optischen Sensibilisation von Silbersalzen," published in 1904, by Dr. Karl Kieser, a summary of which has not yet appeared in English. In order to render this paper accessible for English readers, the author's conclusions or results of his work is given. It may be advanced against the work that the investigation is restricted to but few and only two classes, and that the old adage, "Ex uno omnes," does not apply to colour-sensitizers. No one is ready to admit this than I am, but Dr. Kieser's work is characterised by two important features: first, he prepared silver halides himself, and secondly, purified the dyes at secondary bye-products and adulterants had no action. The first good feature may be, however, in my opinion, a negative one, because, as will be seen later, one must consider the dye as a sensitive salt, as used in dry plates at least, as a gelatinous salt and not as a pure halide. The reasons for this belief will appear later, although at first sight it may seem absurd to suggest that we obtain our images on gelatine. The two classes of dyes examined by Dr. Kieser were the phthaline derivatives, the negative ions of which combine

with silver ions to give almost insoluble silver salts, and the triamidotriphenylmethane dyes, of which no silver compounds are known, and which have, contrary to the phthaline derivatives, a strong basic character.

The silver salts employed were the chloride, bromide, iodide, and oxalate, and were used without any vehicle. Whilst it was desirable to examine the action of the dyes on the highly sensitive varieties of the halides, it was not possible to prepare these without gelatine, and, as Eder has pointed out, it is impossible to remove the last traces of this, by about 0.5 per cent., and this would complicate matters. The halides were precipitated from aqueous and alcoholic solutions, the former with the corresponding acids and the latter from pure salts. With all the halides both excess of silver and the halides were used, and the precipitates thoroughly washed.

The dyes were most carefully purified, in order that no bye or secondary products should complicate the results. Of the phthaline derivatives, fluorescein, tetrabromofluorescein (eosine), and tetraiodofluorescein (erythrosine), were used in the form of solutions of the anhydrous acids, the sodium and silver salts. The potassium salt of the methyl ether of tetrabromofluorescein (spirit soluble eosine) was also used.

Of the basic dyes, pararosaniline and hexamethylparosaniline (crystal violet) and triphenylparosaniline (diphenylamine blue, spirit soluble) were used.

It is impossible to give in detail the numerous experiments carried out by Dr. Kieser under all possible conditions, but merely his conclusions. The dyed silver salts were tested visually with the spectroscope for their absorptions, and also photographically for their bands of sensitiveness.

#### Separate Sensitising by Several Dyes.

One fact which the author discovers and patents is of importance. Hitherto it has been found that except in particular cases, mixtures of dyes are by no means satisfactory for colour sensitising, the action of one dye masking that of the other, and the resultant mixture being inferior to either alone. Dr. Kieser, however, finds that if the silver halides are dyed separately and then emulsified, the full sensitising power of each dye is obtained. The relative intensities of the individual regions of the spectrum behave in proportion to the percentage composition of the dyed halides, and to the absolute sensitising powers of the individual components of the emulsion. The chemical nature of the dyes is of no moment, and basic and acid dyes can be simultaneously used without interactions.

With the phthaline dyes there are two kinds of staining. The first consists in the formation of a compound of the dye and silver, and is as such subject to the laws of mass action, and therefore dependent on the solubility of the silver salt that is dyed, on the concentration of the dye solution, and the solubility of the silver dye compound formed. In accordance with this, the silver halides arrange themselves for this kind of staining in the order chloride, bromide, and iodide, which is the order of their capabilities of being stained; and the dyes are arranged according to their staining powers in the order tetraiodofluorescein, tetrabromofluorescein, and fluorescein. Analytically this method of staining could not be proved for silver iodide, for silver bromide only with tetraiodofluorescein, and for silver chloride also for tetrabromofluorescein.

This last result is what one would naturally expect, for it is well known that iodide will replace both bromide and chloride, and bromide replace chloride in the silver halides. The author does not point this out, but it is a well-known fact in emulsion making.

#### Methods of Dyeing.

The second kind of dyeing is independent of the solubility of the silver salt, etc., and the quantity of tetraiodofluorescein taken up by the silver halides is in the inverse order of the solubility of the halides. The quantity of the dye absorbed is therefore dependent on the negative constituent of the silver salt, but exclusively a function of size of the surface of the various modifications of a silver salt. This also applies to those varieties of the silver salts containing absorbed halides or silver nitrate, only in these cases the secondary action of the absorbed salts is frequently most prominent.

The quantity of dye taken up is within wide limits almost independent of the dye concentration; but this independence is connected with the character of the dye. It increases with the phthalines, it increases with the acid character, or, what is of equal importance, with the molecular weight of the anions. With tetraiodofluorescein it is completely constant below the possibility of the formation of a silver dye compound. The adherence of a dye to the silver salt grain during washing is dependent on this property of the dye. The fixed point, that is, the final degree of colouration after washing, is, however, with the same modifications, not independent of the original amount of colouration; as a rule, however, a final high degree of colour corresponds to an original high degree of staining.

With the basic dyes only the second kind of staining exists, and there is no essential difference to that of the acid dyes. As with the latter, the silver halides are arranged as regards the amount of dye absorbed in the order iodide, bromide, and chloride, and, as with the acid dyes, the amount of dye absorbed is, with the various modifications of the same salt, a function of the amount of surface. This fact explains why in the ordinary way the fine-grained washed collodion emulsion is more suitable for staining and optical sensitising than the coarse-grained gelatine emulsions. Even the strong giving up of the dye with pararosaniline is only a gradual, and not a principal, difference from the acid dyes, for the staining with tetrabromofluorescein, and still more with fluorescein, increases up to the fixed point much more strongly than with tetraiodofluorescein.

The rapidity of the staining is naturally to a great extent dependent on the concentration of the staining solution. With concentrations of about 1-1,000 mol. to the litre the principal quantity of the dye is taken up in a few minutes, and for greater dilutions measurements show that this is also the case within a few days. Qualitatively it appears as though the maximum of the intensity is attained more quickly with the basic dyes; measurements, however, prove that the reverse is the case.

The nature of the cation is, in the case of the acid dyes, without influence on the staining process; the only exception is the H ion, in the presence of which there is less intense or decreased rapidity in the attaining of the maximum staining. The silver dye salts are no exception, only formed with absorbed halide are more intensely coloured than other salts. Very finely divided or even colloidal silver salts are thus formed, which are both more ready for staining than the coarse-grained kinds. The more favourable action of the silver salts in the practice of sensitising should be due to a similar action.

With the triamidotriphenylmethane dyes no difference of action could be detected between the salts and the ammonium bases.

The shifting of the maxima of sensitiveness observed with many dyes in the dry state when compared with the wet state is certainly frequently explained by similar changes which occur with silver halides stained with aqueous hexamethylenepararosaniline on drying. Against the assumption that the absorbed dyes are in a hydrated form there is the fact that in the staining with an absolute alcohol solution of the dye there is a similar, though weaker, change of colour in drying. One must then assume a function of the alcohol as crystalline alcohol.

The staining from alcoholic solutions with both classes of dyes is very similar to that with aqueous solutions. With the acid dyes the first method of staining should be more difficult to observe, on account of the lower solubility of the silver halide in alcohol and the much higher solubility of the silver dye compound. As regards the second method of staining, that obtained with alcoholic solutions only differs from that with aqueous solutions in so far as the initial and final staining is slightly less.

#### Staining with Acid and Basic Dyes.

There is a remarkable coincidence of staining of the above mentioned acid and basic dyes from ethereal solutions of the dyes. Both, in opposition to the staining from dilute aqueous solutions, show an increase with the increase of solubility of the silver salts. Whilst for the basic dyes the cause of this behaviour was found in the existence of the dyes as undissociated carbinol bases in the solutions, no proof of reaction was found for the acid dyes, although the abnormal position of the absorption maximum was similar to that of dilute aqueous solutions.

There was considerable difference between the acid and basic dyes with respect to the action of additions to the solution. The alkaline halides, even with very low concentration, prevent the first kind of staining, which is due to the condition of equilibrium. As the ordinary gelatino-bromide emulsions always contain, and must contain, excess of alkaline bromide, it is obvious why the sensitising according to the first kind of staining has been so seldom observed. From the behaviour of the alkaline halides towards silver dye compounds Zettnow<sup>1</sup> had already concluded that the silver and dye salt could not sensitise as such.

#### Kiesers's Work on the Effect of the Silver Halides

The influence of the haloid salts can be deduced for sensitising of the second kind. But the similarity is only superficial. For instance, potassium chloride acts on the colouration of silver bromide much less than on the staining of silver chloride, and still less on that of silver iodide, whilst its action on the staining of the first kind can, on account of the increase of the concentration of the silver ions, increase in the reverse direction. Moreover, here the action of the halides is independent of the concentration of the halogen ions, which points to another kind of action. It appears very

1. "Phot. Korr.," 1889, p. 30.



le that there is some connection between the solvent of the additions for the silver salt that is stained and range of surface energy; but the existing tables of the solubilities of the silver halides in salts are insufficient to this point up, independently of the fact that they are drawn up for highly concentrated salt solutions.

h the basic dyes no action of the halogen salts could be proved, and that of potassium thiosulphate was reduced to a minimum, so that this fact is not opposed to the above-mentioned assumption.

It is clear that absorbed silver salts cause an increase of intensity of the staining with acid dyes in the ordinary way as it facilitates, even with dilute dye solutions, the action of silver dye compounds.

h the basic dyes the addition of silver nitrate differs little to the dye; whilst with pararosaniline it is very strong with the hexamethyl derivative it is very strong. This is in agreement with H. W. Vogel's statement<sup>2</sup> that methyl violet is a good sensitiser for gelatino-bromide and washed collodion emulsion, but is a very bad sensitiser for wet plates—s, for collodion plates rich in silver nitrate.

monia lowers the intensity of the staining with acid dyes, its efficacy probably lies in its solvent powers for the silver for it is greatest with chloride, less with bromide, and with iodide of silver. The favourable action of ammonia in chemical sensitising is ascribed by Eder to molecular changes in the silver bromide.<sup>3</sup>

2. Ber. Deutsch. chem. Ges., 1894. 1196.

3. Beiträge zur Photochemie und Spectralanalyse. Part III.

Sensitising is not connected with the staining of the vehicle.

Also with dyes which are generally sensitisers for silver salts the appearance of staining is no proof of sensitising. An example of this is to be found in silver iodide; as a rule this absorbs large quantities of dyes, and yet, in the absence of soluble silver salts, cannot be optically sensitised. An important function of the sensitising appears, therefore, to be the easy reduction of a silver salt by chemical developers.

As regards the non-sensitising action of triphenylrosaniline no explanation can be given; as regards staining, the dye behaves normally.

The following fact is not without interest: It is well known that coarse-grained, ripened silver chloride is vigorously sensitised by fluorescein. Now, the amount of dye taken by a gramme of silver chloride is only 0.03 milligrammes, and this amount is divided, with a size of grain of 2.5  $\mu$ , over a surface of not less than 40,000  $\text{cm}^2$ .

From microscopic examination it was proved that within the times of observation there was no marked penetration of the staining into the silver grain; it was entirely superficial, although the spectroscopic behaviour of the staining requires the assumption of a solution of the dye or its silver salt in the silver grain.

The assumption that the absorption stripe corresponding to the staining of dilute solutions of the eosines or the maximum of sensitising agrees with the maximum of absorption of the silver salt dye compounds must be considered as improbable.

E. J. WALL, F.R.P.S.

(To be continued.)

## WAYSIDE NOTES.

is a Russian, a M. Mastrukoff, now in this country, offering the particulars of a method he has discovered of applying dyes to photographs. The results are good, judging by the portraits of specimens shown, but how far they are due to M. Mastrukoff's artistic skill and how far to his process, only those who have used his information can tell. His plan is to sell exclusive rights to one studio in a town, but I rather think that he will find it more difficult to effect sales in England and Scotland than on the Continent. Among the letters of recommendation from Continental photographers that he carries is one from Gerschel, of Paris, addressed to "Dear Brother Strauss" in St. Louis, commending to the care of that gentleman. One imagines a festive evening under the protection of "the dear brother"!

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his critique of the exhibition now open at the New Gallery, C. Lewis Hind has a certain passage which is well worth citation by photographers. It runs: "A journeyman painter forges his style and technique and always employs the same method. Master looks at a sitter with a fresh eye, and lets the appearance of the sitter suggest the style and technique of the painting." I should like to hear Mr. Hind's opinion of some of the show-cases of the "masters" in photography.

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wonder how many readers of the "B.J." read the article in "Colour Photography," Supplement of May 3, written by Mr. William Gill. For myself, I must confess that, although I take very keen interest in colour photography, every word of Mr. Gill's article was like a breath of the bracing East Anglian air of old Roman town in which Mr. Gill has his studio. If any reader of this article I most heartily recommend him to hunt up his "B.J." and read it—not once, but over and over again. And having done so, it and noted the transparent sincerity of it, he shall say to himself that any profession of which a man can write in terms such as these is no mean one, and that any association of its members of which such a man is on the Council is well worth joining. Then, perhaps, he will feel inclined to measure up how far his work is

below that of Gill of Colchester, rather than how far it is superior to that of the "backyard" man of whom we have been hearing lately. And perhaps, also, he will think that he ought to send his five-shilling subscription to the P.P.A. Perhaps!

\* \* \*

Take any town you will in which there are half-a-dozen professional photographers, and ask each of them what is the state of business, and the chances are that every one of them will tell you that it is bad. Inquire further, and granted, of course, that you are on fairly intimate terms with them, ask to what do they attribute it, each will advance an explanation that to him seems all sufficient, but which, in reality, is incorrect. The proprietor of the old-established studio will very likely tell you that it was the introduction of the dry plate and ready sensitised papers that spoiled photography. He forgets that no small part of the profits of those early years was derived from the premiums he received from pupils and the low wages at which his apprentices worked. When those young people had acquired a fair knowledge would they not naturally set up in business for themselves? And in so doing, they would have increased competition whether photographic processes had been simplified or not.

\* \* \*

Another favourite argument is that the amateur has materially injured the professional. But close investigation convinces me that such is not the case. There are, of course, instances where it can be traced that definite losses of business can rightly be attributed to the amateur, but they are the exception rather than the rule. The amount thus lost is nothing compared with that which is gained by those professionals who have added a dealing department to their studios. I know a man in a Midland manufacturing town, the appearance of whose premises betokens him to be not only an artistic, but a successful photographer, who makes a big feature of amateur work. He even advertises in his local newspaper and gives his own long experience in photographic work as a reason why the amateur should come to him rather than to the chemist.

No. It is neither the dry-plate nor the amateur that makes each of those six photographers less prosperous than he would like to be. The real reason is that while the population has only increased by about one-third there are six studios, instead of one, to be supported by it. It must be admitted that more money has to be spent by the public on photographs to maintain six studios than would suffice to enable the proprietor of one to make the big profits to which the old-timers so regretfully refer.

\* \* \*

And it is not only in professional photography that the pinch of competition is keenly felt. Look at the brass plates of the doctors, the lawyers, the dentists, and remember that in their case they are debarred by professional etiquette from advertising, and that they can do nothing more than wait for their clients to come. Then there are the shopkeepers, grocers, chemists, and so on, confronted with the competition of the many-branched Liptons, Boots, etc., a competition that it is practically impossible to withstand. With company branches and shopping by post increasing all the time the average shopkeeper is face to face with keener competition than any photographer.

It is consoling to reflect that neither shopping-by-post nor the company can hurt the photographer. The latter has been tried but has not proved permanently successful. Too much depends on the personality of the man running a studio; once a manager that the success of his branch depends on himself and not on employers, he will very soon get into business for himself. I know studios under managers whose work has been quite satisfactory to the employer at a distance, and yet when those managers have come proprietors they have done far better than they ever did before.

\* \* \*

One expects anything that is sent out from Elstree to be good, and the Wellington Carbon Bromide well sustains the firm's reputation. Doubtless the Carbon P.O.P. will be equally good, but could not Messrs. Wellington and Ward have chosen better names? If I were a maker of carbon tissues I should feel that carbon work was being indirectly recommended, and it is quite certain sooner or later the dealers and trade printers will find the name lead to confusion. There is also the possibility that in a few instances the Carbon P.O.P. prints will be shown as genuine carbon in the same way as platinum-matt bromides have been dishonestly substituted for plantintypes.

THE MAN ON THE ROAST

## THE DAYLIGHT SENSITOMETRY OF PHOTOGRAPHIC PLATE AND A SUGGESTED STANDARD DISPERSION-PIECE.

[A paper in the "Astro-physical Journal."]

THE universal adaptation of the modern dry plate, and the varying demands which are made upon its service, have resulted in an increase of knowledge relative to the imperfections of the photographic plate as a means of recording anything save the actual form of the object photographed. In many cases even that is doubtful. These imperfections have compelled the "testing" of the various plates by many individuals, the object of such tests being principally the determination of the relative colour-sensitiveness and comparative speed.

Many methods have been suggested for this purpose, the enumeration of which need find no place here. It is sufficient to say that methods depending for their results upon the use of coloured glasses and pigments are now generally recognised as incomplete, and as leading to erroneous conclusions where the work is in any degree quantitative. What one desires to know is the sensitiveness of the plate to pure colour, not admixture, because, if one knows this sensitiveness, it is a comparatively easy matter to calculate the action of mixtures. For example, a patch of red-pigment-stained paper may be photographed, and a strong impression of the same developed upon a plate; but it does not follow that because such an impression is obtained the plate is "red-sensitive." For although the patch reflects red, it also, in less degree, reflects all other hues of the spectrum, and the developed impression is just as likely to be due to the combined action of such other hues as to the red, when we take into consideration the fact that the plate is relatively many times more sensitive to those hues which are secondary in reflection.

Discarding these various makeshifts, a great number of photographic workers have of late acquired various forms and types of spectroscopes, and have literally flooded the journals devoted to that subject with all sorts and conditions of spectra. This, while to be welcomed as a move in the right direction, is yet liable to give rise to many very grave errors in interpretation. The gravity of these errors has been commented upon by sundry writers at various times, and a brief notice was given to the subject by the present writer in a former paper.<sup>1</sup> It may, however, contribute to the clearness of this whole subject if such errors are described here at somewhat greater length.

The possession of a "spectroscope" does not imply results of value unless its possessor understands his instrument, and is acquainted with the laws of light and colour. Much excellent material is readily available, and there is little excuse for the heterogeneous results

which are unhappily so common in photography, in which almost every worker appears to be a law unto himself.

The three constants which govern the definition of colour are hue, purity, and luminosity. By "hue" is meant what is ordinarily termed "colour," for when we speak of an object as having such a colour, we are referring to its hue. The next constant, purity, concerns the admixture of the colour with other colours, or with white light; while luminosity refers to the brightness of the colour under consideration. Of these three constants the photographic plate is chiefly concerned with the last.

The entire value of the spectrum for this class of investigation work lies in the fact that in it we obtain a standard of pure colour from the verdict of which there is no appeal, and to which everything coloured must inevitably be referred. But there are many wide differences in the forms of spectroscopes available, from the small direct-vision prismatic instruments to the concave diffraction grating, each of which has its own particular value for different lines of work, but which are, generally speaking, ill suited for sensitometric work of pure photography.

### Prismatic and Diffraction Spectra.

First dividing the subject into its two great classes of prismatic and diffraction spectra, let us consider each separately. In the first instance, we are dealing with a spectrum formed by the passage of light through a prism (or prisms), as the name implies. In the direct-vision instrument, of which the Browning may be taken as a type, we have an element of dense flint glass combined with an element of crown glass. In instruments of angular deviation type, we have generally an element of flint glass alone, used on account of the greater dispersion obtainable from a glass of comparatively high refractive index. In all prismatic spectra the error arising from irrationality of the unequal distribution of intensity (luminosity) is not so apparent, however, although rendering the results by one prism not comparable with those from another. A very serious cause of error lies in the fact that the absorption of the glass composing the prism has a strong influence upon the results; generally speaking, the higher the refractive index of the glass employed, the greater the absorption. Again, two prisms of identical refractive index may give photographic results diametrically opposite to each other, because of varying absorption in the prisms themselves, aside from density; for example, two prisms could have identical refractive indices, and yet one be composed of colourless glass, while the other was composed of grey or blue glass.

<sup>1</sup> "Astro-physical Journal," 23, 153, 1906, and 24, 268, 1906.



### Conversion Formulæ.

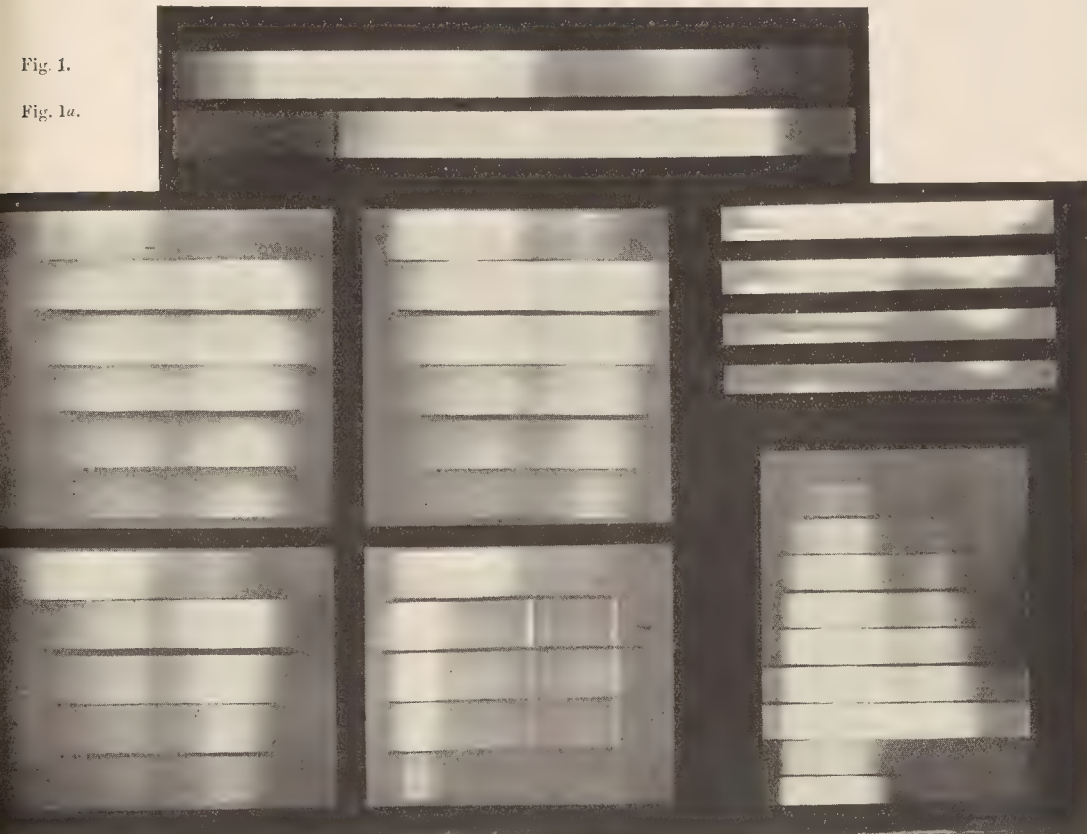
Various formulæ have been advanced from time to time, designed to bring those discordant results into harmony with one another; unfortunately they do not satisfy the conditions demanded in sensitive plate-testing. They are all principally concerned with dispersion of the spectrum, and not with its relative luminosity. What one wants to know is, not merely whether or not a plate is sensitive to red, but in what degree that sensitiveness exists. All plates are sensitive to the least refrangible hues, if they get sufficient exposure, but that plate which requires relatively the shortest exposure,

when a wave-length scale being then prepared, this curve was reduced by means of the above formula, the result of which is shown in Fig. 3, *a*. On the same scale are plotted the measurements from a spectrum negative obtained by a replica-grating upon a similar plate, the value of whose region of highest density was practically identical with that of the reconstructed curve of the prismatic spectrum. The woeful lack of agreement is strongly in evidence. Not only is the reconstructed curve deficient in the ultra-violet, but the maximum of sensitiveness is seen to be shifted bodily toward the red end. Further words are unnecessary on this point. What is wanted is a formula

Diffraction (Fig. 1) and Prismatic (Fig. 1*a*) Daylight Spectrum on Cramer Trichromatic Plate.

Fig. 1.

Fig. 1*a*.



COMPARISON OF LIGHT-SOURCES USED IN SENSITOMETRY.

- |                            |                                 |                               |
|----------------------------|---------------------------------|-------------------------------|
| b. Candle Flame.           | e. Incandescent Electric Flame. | a. Acetylene Flame.           |
| c. Scheiner Benzine Flame. | d. Magnesium Flame.             | f. Cramer "Inst. Iso." Plate. |

Other things being equal, is the best plate for work in that line; or, in other words, that plate which will show the greatest amount of the spectrum with normal exposure is the best plate for all work.

The formula most commonly in use by photographic workers is  $m = \frac{a}{b}$ , where  $a$ =prismatic dispersion,  $b$ =normal dispersion,  $m$ =ratio of prismatic spectrum, and  $n$ =density of normal spectrum;  $am = bn$ .

In order that we may clearly understand the value of this formula, a measurement was made of the prismatic spectrum ( $\mu_D = 1.6994$ ) shown in Fig. 1*a* and its curve plotted in the usual manner (Fig. 2). A

which will take into consideration the loss in luminosity by absorption and the shift due to density of the material used in the construction of the prism.<sup>2</sup>

### Reflection Diffraction Grating.

Turning now to diffraction spectra, it is well known that the speculum metal on which the original grating is ruled possesses in itself a selective absorption which again varies with different "meltings," and which influences the distribution of colour-intensity throughout the spectrum. As the grating ages it becomes tarnished by exposure to the air and the various fumes of the laboratory, and

<sup>2</sup> A search for a formula fulfilling the requirements specified is now in progress with prospect of a successful result.

this tarnish is in itself a strong factor in unequal colour distribution. Again, the nature of the groove made by the cutting diamond not only determines the distribution of spectral intensity, but influences also the luminosity of the individual hue, amounting in exceptional cases even to abnormality, so that the spectra of no two gratings are definitely comparable one with the other, in so far as spectral luminosity is concerned.

### Replica-Grating.

It may be objected that several of the complaints just cited do not amount to much in practical photographic sensitometry. Granted that this is so, they are disadvantages, and have been treated as such. Not all have been mentioned, however, but merely those which can be remedied by the adoption of the replica-grating as a standard dispersion-piece for investigative work in sensitometry, when used without the addition of a prism.

Inasmuch as anything is a "standard" if we know what it is, we may begin first with the material of which the replica-grating is manufactured. We have a definite compound, collodion, resulting from the mixture of amyl acetate and pyroxylin, which is always prepared in the same way. The replicas themselves are composed

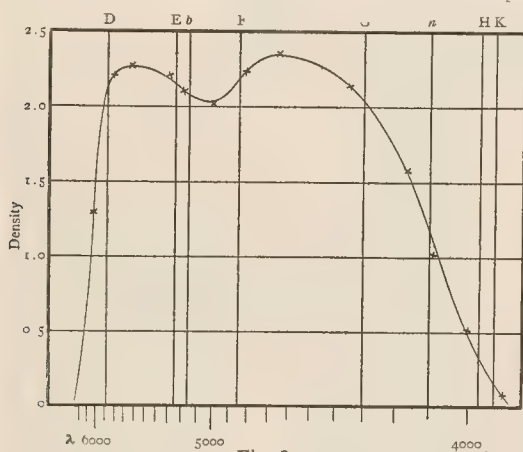


Fig. 2.

of the same amount of solution, dried under similar conditions, and give a film of the same thickness. These replicas are made from the same original, and are therefore practically identical, while the grating from which they are made gives a fairly even distribution of light throughout the various orders. These films are mounted upon glass of similar thickness, quality, absorption, and refractive index.

There is no possibility of surface oxidation of the replica, nor does selective absorption enter into the account<sup>3</sup> for all the methods necessary to a complete test of photographic plates.

Inasmuch as the distribution of intensity is greatly dependent upon the shape of the groove made by the cutting diamond, it may be argued that equally minute differences in the grooves of the replica-grating would have the same effect. While this is undoubtedly true, yet, as a matter of fact, such differences, although looked for, have not yet been detected. In a spectro-photometric examination of a number of replicas, all made from the same original, at different times throughout the course of five years, which had been prepared under temperatures varying about 8 deg. C., the results were gratifyingly exact. The method of manufacture, however, would indicate such results, when we consider that the shrinkage in the drying would be identical, provided the conditions and materials were similar. Obviously the same argument applies to the method of mounting.

While it is not claimed that the replica-grating is perfectly suited for all classes of work, yet it is believed that its adoption in sensitometry would avoid the great lack of accord between the results of one worker in photography and that of another, with the unprofitable discussion which inevitably ensues.

<sup>3</sup> "Astrophysical Journal," 22, 129, 1905.

After many experiments, and consultation with authoritative scientists, the writer offers this form of grating to the photographic investigator for adoption as a standard dispersion-piece in sensitometry, in the hope of establishing uniformity in photographic results. In order, furthermore, that this standard may be disseminated widely and be of universal application, the writer has decided to present to each known investigator in photography of any nation

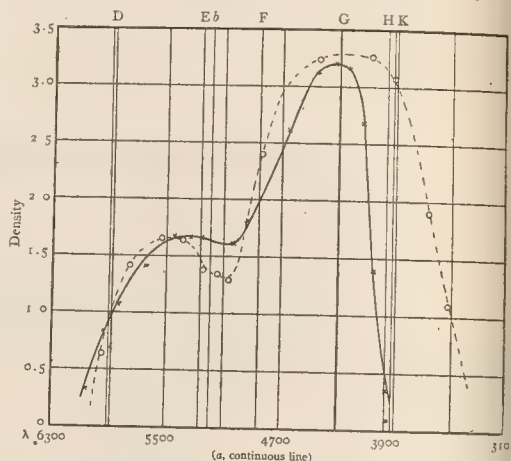


Fig. 3.

ality, who may apply, one of these standard replicas of a size suited to his needs.

It may be argued that no replica-grating can be compared for defining power with an original ruling. Argument upon this point is unnecessary, inasmuch as what is wanted for photographic investigation is not critical definition of spectral lines, but the correct definition of spectral hues. In most of the negatives the Fraunhofer lines are purposely obliterated, because they interfere with the measurement. It is, however, now a matter of common knowledge that good-quality replica-gratings leave little, if anything, to be desired on the score of definition, and, except for the spectroscopy of position, even those of secondary quality define far in excess of the requirements of the work in hand.

ROBERT JAMES WALLACE

(To be continued.)

### CANVASSING FRAUDS.

During the month of April a large number of complaints were received by the Ayr police regarding a number of canvassers who were calling on respectable people in the town and representing that they belonged to the Scottish Art Company, 48, Shamrock Street, Glasgow, that that company was about to open a branch at Newmarket Street, Ayr, and that in order to advertise themselves they were giving away free 150 enlargements of photographs. The recipients were to be at no expense whatever, their only obligation being to hang the enlargements in a conspicuous place in their houses. In almost every instance the canvasser succeeded in getting a photograph to be enlarged. Usually about ten or twelve days later a second representative of the firm would call with an unfinished enlargement, but without the original photograph. After exhibiting to the persons in question samples of frames, he asked which one they would choose. He was invariably met with the answer that framing was not in the bargain, and that the first canvasser had distinctly told them that they would not be called upon to hang the enlargement framed by the company. In most instances the parties refused to have anything to do with the enlargements, and demanded back their original photographs. There, however, the company's representative had the whip hand, as he refused to return them the original back unless they stuck to what he called the bargain. The matter was taken up by Detective Inspector Craib, the Ayr Burgh Police, and he obtained a warrant for the arrest



members of the firm. He went to Glasgow on Friday last, accompanied by Detective Kirk, in possession of the warrant, with the result that one was arrested at 48, Shamrock Street, Glasgow. The other two, however, could not be found, but after a little inquiry they were traced to Edinburgh. The Edinburgh men were then brought into connection by telephone, with the result that it was learned that the firm had a branch office at 10, Street. About an hour later word was received that the first of the trio had been arrested. The third man has not yet been discovered. The final issue was that two of the three men in question appeared before Bailie Vincent at the Burgh Police Court on Tuesday, charged with formulating and carrying through a violent scheme, but their case was adjourned for a week, bail fixed at £5 each. For many years the public have been canvassed by these so-called Art Companies, and it is creditable to the police to be the first force to take the matter in hand.

The Wimbledon Police Court last week, Eliza Payne, Barnes Lane, summoned C. J. Sweetman, 7, Ridley Road, for unlawful detention of a photograph. Prosecutrix, a witness box, said that some weeks ago a young lady came to her place and asked for an order. She gave her a photograph of her eldest daughter, which was taken away for an enlargement, on condition that there was no order given, and that the photograph with a proof was to be returned in three days' time. About a week later Mr. Sweetman came to her shop and laid down a photograph in an elaborate frame. She told him she did not want one, and it was only a proof she desired with the photograph. Sweetman insisted upon the photograph being handed back to her at once, and defendant told her he would burn the photograph if she refused him. Defendant stated that he had called upon prosecutrix several times with the proof, and she would not look at it. A young man in the employment of Mr. Sweetman spoke to canvassing for her, and told her that unless the proof satisfied her she need not order a picture. The Bench ordered the photograph to be returned, and allowed 7s. 6d. costs.

#### REQUESTING SETTLEMENT OF OUR ACCOUNT."

A dull round of business must not be so dull in a country where there are people such as the writer of the following letter, received from an American professional photographer, Mr. C. L. Lewis, of Toledo, Ohio, and rescued from oblivion by our contemporary Son's Magazine." Mr. Lewis had applied for settlement of an account, and the line on his stationery, "Artistic Photographer," provoked the inscription of the witty letter.

Lewis, Toledo, Ohio.

"Artistic Photographer."

DEAR SIR,—Like a blessing and a benediction, or a breath of life from those enchanted isles where waving palms lifted their tops in air, and airs that breathe from Paradise upon a land of crime—and like many other things which I can't quote—your bill and annotation. I like the naïve originality of your bill and annotation. I like the naïve originality of some on red paper and some on blue (a most appropriate) and yellow and white, but be the colour scheme what it may, it is always that freshness, a new surprise, an exhilarating new-thing to one world-weary and sick of the sameness of things—a cooling draught of frappé wine to a man in Hades. Heaven bless us! (I cannot at this moment recall any other place from which they do not come, now.) They are the bright beacons that pierce the dark days and pierce the gloom of nights from month to month. Who would be without them? (Who on earth can be?) say, Blessings be upon the head of whoever it was that invented and triple garlands of blessings upon the head of him who discovered a method of paying them. What would life be without the busy Bill. One might be tempted (were this not ruled necessary) to write a roundelay to Bills:—

Bills in the morning,  
Bills in the evening,  
Bills in the afternoon,  
Same old tune—

Please pay soon, etc.

I am surprised beyond measure at your very sordid attitude towards the little Alice-blue slip with which you so kindly favoured me this week. Not at your sending the bill—ah no! I would not

have it otherwise—but at your memoranda concerning such things as rent (vulgar custom—rent), groceries (consider the lilies, they toil not, neither do they spin). Remember, you are an artist. Go to George Bernard Shaw and read "Man and Superman" and what he says—a great artist—says of the artist—(for fear you won't go, I'll give it to you)—and then be ashamed:—

"An artist, if he be a true artist, will starve himself; will allow his family to starve; will permit his old mother to work to support him and will see the wife of his bosom die of want, rather than that he will desert his art or do anything but his work."

Now, you know you're not a real artist. You're a sordid, mercenary machine. Instead of an artist you ought to be manufacturing Chromo-litholeo-Margarino crayon portraits "for the trade." But if you persist in shutting your eyes to the wonderful stars and your ears to the far peaks of song—all right, your blood be on your own head, and to further increase your damnation I'll send you \$100 (please pardon me for mentioning money in a letter) next Monday.

"Just for a handful of silver he left us,

Just for a ribbon to stick in his coat.

Found the one gift of which fortune bereft us.

Lost all the others, he left us devotion."

That's the way the late Mr. Browning sizes up your apostasy. Now aren't you sorry,—Yours very sorrowfully,

#### PHOTOGRAPHIC TILES.

WHEN the name of Mr. W. H. Smith is down for a lecture, or demonstration, whatever may be its nature, an interesting and invariably instructive evening is assured at the Croydon Camera Club. There he recently chose for his principal theme, "Photographic Tiles," not the ceramic variety necessitating firing and furnaces, but another sort excelling the real article in many respects, if not in indestructibility. Briefly, prints are made in any process not exceeding the regulation size of 6 inches square, and stuck down with glue to slabs of wood, or even stout cardboard of the same dimensions. They are then sized and varnished, and mounted up in much the same way as tiles in juxtaposition, or with slips in between. The best effects, perhaps, are obtained by making the picture 4 inches square, with a border of one inch. This may be left blank, or separately printed with a design cut from a paper stencil, or simply shaded, a graduated tint looking well. Such tiles can be made use of in the home in a variety of ways: for the decoration of overmantels, panels, and the like. A small table, or a tray, with a neat moulding added for the reception of the tiles—which for protection should be covered with a sheet of glass—would also be novel and attractive. In the case of panels, a tall flower like a lily might be photographed in sections, and would form a graceful and highly decorative subject. Generally speaking, the best subjects for the purpose would be of bold and simple design, and care must naturally be exercised to select them in harmonious relation to each other. In whatever way the idea is carried out it would, Mr. Smith said, serve to propitiate the feminine members of the household, too apt to sum up the science and practice of photography in one comprehensive word—viz., "mess." The truth of this remark evidently struck his hearers forcibly, for out of the large number of specimens passed round, very few returned to the lecture table, and many members must have left that evening with a tile loose somewhere.

#### BLUE PRINTS.

Blue prints are very effective and realistic. The formula suggested, the lecturer said, might be all wrong theoretically, but it worked, and certainly this was borne out by the extremely fine blue prints shown. [We can confirm this.—Eds. "B.J."] A hard-sized paper, such as Rive's or Steinbach's, is preferable, but if not obtainable, a 2 per cent. solution of Nelson's No. 1 photographic gelatine should be made up, and allowed to set. The jelly is placed in a small muslin bag and rubbed over the paper until it lies flat from absorption of moisture. With a very little practice a very even coating can be obtained in this way. Other sizing mediums, such as starch, might be substituted, and no doubt would work well. The sensitising formula is:—

Potassium ferricyanide ..... 10 per cent. solution.

Ferric ammonium citrate (green scales) 20 per cent. solution.

Take equal parts of each, allowing 3 cc. of solution for each square

foot of paper. The solution can be conveniently applied by means of a stout strip of celluloid covered with one layer of sateen, both being bent over into U form, the free ends being secured.

The sensitive paper, which will be found even more rapid than platinotype, should be printed until a full strength image is apparent, though its initial appearance lacks the brilliancy of the finished product. The print is then developed, and simultaneously fixed in a faintly acidulated bath of hydrochloric or acetic acid for a few minutes, rinsed, and dried. Hydrochloric acid tends to give a blue inclining to purple, acetic acid a purer tone. An alternative and tentative method may be adopted by first dipping the print in plain water, in which it will go back; immersion in an acid bath (about 1 in 100) will bring an access of vigour, which if too pronounced may be weakened by again transferring it to plain water, and so on.

#### JAPANESE TILES.

The "Japane" platinotype papers lend themselves readily for the purpose, and owing to their colour and quality they will, generally speaking, harmonise better with their surroundings. No sizing before varnishing is required, and should a semi-matt surface be preferred, the varnish can be omitted. Any accumulated dirt is easily removed from time to time, by rubbing over the surface with a clean moist rag. As illustrating what the paper will stand in this direction, Mr. Smith liberally smeared over a villainous-looking compound of soot and oil, and subsequently removed it without leaving a trace behind.

The evening concluded with a practical demonstration of minor workshop practice, and the manipulation of platinotype fabrics.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between April 23 and May 4:—

ETCHED SURFACES.—No. 10,047. Improvements in the art of producing etched surfaces, more particularly printing surfaces. Spencer Carleton, 7, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 10,078. Improvements in cinematographs or the like for preventing accidents through fire. Emil Gottlieb Homes, 40, Chancery Lane, London.

IMPROVEMENTS.—No. 10,212. Improvements in or applicable to photographic productions. Sam Langier, 321, High Holborn, London.

CAMERAS.—No. 10,236. Improved photographic camera. Lodewyk Jan Rutgers Holst and Louis Borsum, 18, Southampton Buildings, London.

DARK ROOM.—No. 10,247. New or improved portable dark room for photographic purposes. Thomas James Griffiths, 88, Chancery Lane, London.

PRINTS.—No. 10,258. Improved process for converting photographic silver prints into coloured prints. Arthur Traube, 7, Southampton Buildings, London.

CAMERAS.—No. 10,269. Improvements in cameras or finders for cameras. The Thornton-Pickard Manufacturing Co., Ltd., and William Booth, 6, Bank Street, Manchester.

DAYLIGHT LOADING.—No. 10,359. Improved camera and daylight loading device. Samuel Henry Crocker, 37, Chancery Lane, London.

PRINTING LAMPS.—No. 10,358. Improvements in photographic-printing apparatus with mercurial lamps started by being tilted. Thomas Thomassen Sabroe, 65, Chancery Lane, London.

PLATES.—No. 10,400. Improvements relating to photographic plates. Edwin Ebenezer Burnett, 57, Chancery Lane, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

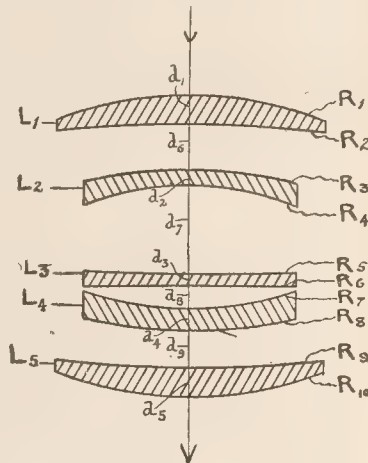
*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

ANASTIGMATS.—The invention relates to a lens in which the chromatic, spherical, and opaque astigmatic and other errors are corrected by a novel method. It consists in the combination of

two positive and three negative lenses, with air-spaces between each lens arranged in two combinations. One of the combinations consists of two meniscus lenses, the outer one being positive and the inner one negative. The other consists of three lenses, one of which is a positive meniscus, another of which is a concave negative lens, and the third of which is a meniscus negative lens. The two combinations are of greatly different focal power when used alone, and the perfect correction is obtained by using the two combinations together, each of five lenses being essential to perfect optical performance. The air-spaces between the lenses are of the shape of two negative meniscus lenses and of two positive lenses. The two meniscus-shaped air-spaces are nearest the outside of the lens, the two positive air-spaces are in the interior of the lens.

The three negative lenses are constructed of glasses, one of which has a greater refractive index and dispersion than the positive lenses, another has a smaller refractive index and greater dispersion than the positive lenses, whilst the third has a smaller refractive index and a lower or approximately the same dispersion as the positive lenses. The positive lenses ( $L_1$  and  $L_5$ ) are made of a barium crown with relatively high refractive index. The meniscus lens  $L_3$  used as the negative element of the combination which consists of a pair of lenses is constructed of a dense silicate flint glass, whilst in the combination which consists of three lenses the negative meniscus lens  $L_4$  is constructed of a light silicate flint, and the other negative lens  $L_2$  is constructed of a silicate crown.

By careful calculation of the curves and separations of the series of five lenses arranged in this manner an objective can be constructed which is unusually well corrected for the errors of central spherical and chromatic aberration, and at the same time is corrected for astigmatism and oblique spherical aberration for a very large angle of view. The invention permits of the construction of an objective of this type with lenses whose individual powers are all very low, the initial aberrations,



of which are comparatively small, and therefore the complete lens is not so sensitive to small variations in the thickness of the lenses and air-spaces as those in which individual lenses of high power are employed.

Fig. 1. is a drawing showing the optical portions of a lens.  $L_1$ ,  $L_2$ ,  $L_3$ ,  $L_4$ ,  $L_5$  represent the five lenses, the lens  $L_1$  being the nearest from the photographic plate,  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$  present the radii of curvature of the various surfaces. The central thicknesses of the five lenses are denoted by the letters  $d_1$ ,  $d_2$ ,  $d_3$ ,  $d_4$ ,  $d_5$  respectively. The axial thickness of the air-space between the lenses  $L_1$  and  $L_2$  is denoted by  $d_6$ , that between  $L_2$  and  $L_3$  by  $d_7$ , that between  $L_3$  and  $L_4$  by  $d_8$ , that between  $L_4$  and  $L_5$  by  $d_9$ . We append below the optical data for constructing a lens according to our invention, for



cal length being ten inches and the effective aperture about one-fifth of the focus.

Radius of Curvature in Inches.	Glass Constants.	Thicknesses of Lenses and Air Spaces in Inches.
$R_1 = + 2.19$	barium crown $\mu_d = 1.6065$ $\nu = 58.1$	$d_1 = .18$
$R_2 = + 7.4$		$d_2 = .236$
$R_3 = + 2.69$	dense silicate flint $\mu_d = 1.6193$ $\nu = 37.4$	$d_3 = .097$
$R_4 = + 1.62$		$d_4 = .569$
$R_5 = - 29.7$	silicate crown $\mu_d = 1.5193$ $\nu = 58.7$	$d_5 = .076$
$R_6 = + 35.3$		$d_6 = .118$
$R_7 = - 1.59$	light silicate flint $\mu_d = 1.5703$ $\nu = 41.1$	$d_7 = .139$
$R_8 = - 2.705$		$d_8 = .215$
$R_9 = - 7.4$	barium crown $\mu_d = 1.6065$ $\nu = 58.1$	$d_9 = .18$
$R_{10} = - 2.19$		

It will be evident that the curve  $R_8$  is capable of alteration to a flat surface or even a slightly convex curve by suitable modification of the refractive powers of the various glasses. In a similar manner  $R_2$  and  $R_9$  may be made either flat or slightly convex, and we do not limit ourselves to the above arrangement of the refractive indices; it is a well-known fact that the oblique spherical corrections of a lens are very rapidly affected by the shapes of the individual lenses, and in our present case the essential feature lies in the general shapes of the lenses combined with the dispersive ratios of the four most powerful lenses. Considerable variation in the refractive indices may be made, the necessary compensation being made by slight variations in the focal powers and separations of the individual lenses without departing from the general shape. As an instance of this—lens No. 2 may be made of glass with a refractive index of 1.64, and the compensating alteration in the curvature required will be that the curve  $R_3$  should equal 2.8 inch and the curve  $R_4$  should equal 1.64 inch combined with a slight alteration in the distance apart of the surface. As another instance, the refractive indices and curves of lenses Nos. 2 and 9 may be interchanged and the compensating corrections are made by altering the distances between the surfaces and altering the power of lens No. 3.

The claims are for:—1. A compound photographic lens, spherically, chromatically, and astigmatically corrected, consisting of two positive and three negative lenses all separated by air spaces, two of which air spaces are of the shape of a positive lens and two of which are of the shape of a negative lens, the two more powerful of the three negative lenses being meniscus-shaped and being made of a glass with greater dispersive power than that used in the positive lenses, the two positive lenses being either meniscus, plain convex, or double convex, the curvature of the surfaces facing the negative lenses in the last case being very slight.

2. A compound photographic lens spherically, chromatically, and astigmatically corrected, consisting of two positive and three negative lenses, all separated by air spaces, two of which air spaces are of the shape of a positive lens and two of which are of the shape of a negative lens, the lenses being arranged in combinations with a diaphragm between them—one combination consisting of a meniscus negative lens with a higher refractive index and a higher refractive index than the meniscus positive lens, the other combination consisting of two negative lenses, one at least of which is meniscus, both of which have a higher refractive index than the meniscus positive lens, and one of which has a higher dispersion, and the other approximately the same or a lower dispersion than the meniscus positive lens, substantially as described. Conrad Beck and Thorace Thorpe Beck, 68, Cornhill, London, E.C.

## New Trade Names.

RAINBOW.—No. 288,346. Photographic dry plates. Geo. Nelson, Dale, and Co., Limited, Emscote Mills, Wharf Street, Warwick, manufacturers of gelatine. November 28, 1906.

ALBAGLOSS.—No. 291,687. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Joseph Chater and Sons, 2, St. Dunstan's Hill, London, E.C., glass, lead, oil, and colour merchants. March 27, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

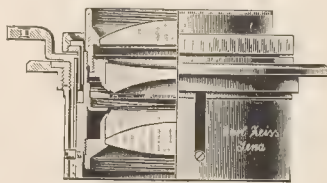
### The Chemistry of Ozobrome.

A diminution of the proportion of bichromate in the pigmenting bath (writes Mr. Raymond E. Crowther in "The Amateur Photographer") yielded prints which were relatively steeper in gradations and took longer to print than when using a normal bath. This is exactly the same result as that obtained in "light" printing under similar conditions. An increase of the proportion of bichromate in the pigmenting bath produced the opposite result. This explains theoretically the results obtained by Rev. H. W. Dick. To obtain strong prints he recommends the addition of a small quantity of ammonia to the working pigmenting bath. This ammonia simply has the effect of converting some of the bichromate into the chemically inactive chromate. (As far as could be judged by the experiments, the use of an alkali chromate in lieu of a bichromate is not permissible, and in this respect the chemical action seems to differ from the "light" action.) Conversely, the addition of an acid or alum to the pigmenting bath reconverts the chromate formed by the action of the hydrogen on the bichromate back into bichromate, and thus the proportion of bichromate in the bath is increased, fulfilling condition two above. It is possible, on the one hand, to completely check any action by the addition of sufficient ammonia, and on the other hand to so accelerate the action by the addition of acid that densely fogged pictures result.

## New Apparatus, &c.

The Tessar, Series I.C. (f/4.5) Anastigmat. Made by the Zeiss Works, Jena, and 29, Margaret Street, London, W.

This lens is one of the latest specimens of the Tessar type, and is specially designed for rapid hand camera work, for which purpose we could hardly wish for a better lens. At full aperture of f/4.5 it gives most excellent definition over a half-plate, though only intended to cover a quarter-plate. With the full aperture the illumination



naturally falls off towards the edges on the large plate, but the good definition at the margins shows that the lens is very highly corrected. Coma and astigmatism can barely be detected by a critical test on a small point of light, while on natural objects there is no evident sign of the presence of these defects. The field is almost absolutely flat, and there is no difficulty in securing good definition all over the plate when a near plane object is focussed upon, hence it would seem that the lens should be well adapted for projection purposes.

The objective is unsymmetrical and non-separable, and is composed of a powerfully convergent back combination and a negative front. The aluminium mounting is very highly finished and shows fine workmanship, and an unusual but useful feature is marking the diameters

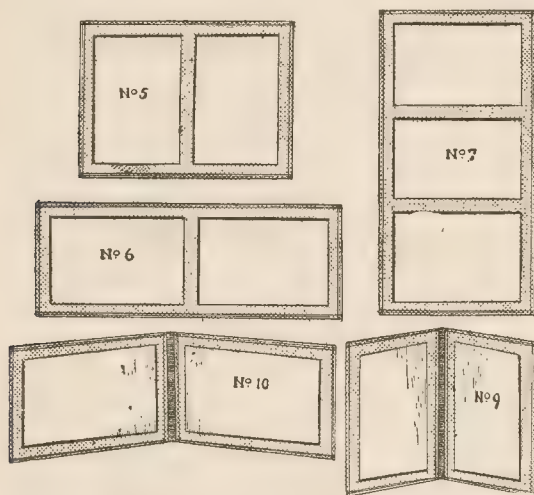
of the various apertures in millimetres as well as by *f*-values. This Tessar should be of exceptional value for focal plane work, on account of its high correction, great rapidity, small size, and lightness. Many very rapid lenses that we have come across lately have been far too bulky and heavy to be at all convenient in use.

These new large aperture Tessars are made in two series, *f*/3.5 and *f*/4.5 respectively. The first are intended chiefly for cinematography and portraiture, the second for portraiture and instantaneous photography. These *f*/4.5 lenses are obtainable in foci from  $4\frac{1}{2}$  to 20 inches, the quarter-plate instrument which we have reviewed above being priced at £6 10s. The *f*/4.5 lenses are also made in focussing mounts, in the case of foci from  $4\frac{1}{2}$  to  $8\frac{1}{4}$  inches.

## New Materials.

"Ideal" Postcard Frames. Sold by O. Sichel and Co., 52, Bunhill Row, London, E.C.

This line of goods, which deserves to command the attention of the professional photographer, has been introduced by Messrs. Sichel in a very attractive form. The frames are in red or green leatherette, with struts to support them, either portrait or landscape way—that is to say, the single frame can be stood in both positions. The draw-



ings show a few of the patterns obtainable at prices which are certainly most moderate indeed. The line is one, in our opinion, which may be profitably worked in conjunction with the postcard portrait which, as offered to the public at the present time by many photographers, is not highly remunerative, to say the least. Messrs. Sichel's "professional" list should be consulted for sizes and prices.

**HALF-TONE POSTCARDS.**—Messrs. Hood and Co., St. Bride Works, Middlesbrough, send us some examples of their half-tone postcard work in reference to an offer now announced to supply a first-class card of this kind at a reduced price (8s. 6d. per 1,000) if the purchaser will allow 10 to 14 days for the execution of the order. This item of "tariff reform" does not affect the regular prices of 10s. 6d. per 1,000 for one or more thousands delivered in four or five days. Messrs. Hood, we are glad to see, preserve their standard of quality in work done at short and long notice, as instanced in a set of cards of the "Yeomen of the Guard" done last week when the "Mikado" was suddenly withdrawn at Middlesbrough. We say this after having seen cards shown to us by friends in the profession, who had commissioned Messrs. Hood to prepare cards from their originals.

Messrs. RAITHBY, LAWRENCE, AND CO., LIMITED (printers, of Leicester) have removed from 1, Imperial Buildings, Ludgate Circus, to Thanet House, 231-232, Strand, W.C. (opposite the Law Courts).

## CATALOGUES AND TRADE NOTICES.

"FRISIAN, LONDON."—The telegraphic address of Mr. S. H. Frisian, the trade enlarger and printer, of 5, Highbury Grove, London, is surely fixed in the minds of professional photographers. If it is not, the new catalogue just issued should compel its recollection from the brilliant and idealised three-colour view of Mr. Frisian's premises, which leaps from the cover. The price-list is a sign of order which pervades the Frisian firm, and ensures, as we know from our own inspection of its working, the rapid and economical output of high-class work. One convenient feature of the list is the use of red ink for all sepia-bromide work, a preventive of mistakes in ordering, which is good for both parties. We heartily commend it to the perusal of all needing enlarging and printing of all kinds.

"HANDY GUIDE TO PHOTOGRAPHIC REQUISITES" is the title of the latest price-list of photographic apparatus, materials, and chemicals issued by Messrs. Reynolds and Branson, Limited, of 14, Commercial Street, Leeds. The list is well arranged in an easily consultable form, and, each speciality being numbered, makes ordering by post an easy matter. Messrs. Reynolds and Branson will send a list to any of our readers, post free, on receipt of postcard to the above address.

**SECONDHAND APPARATUS.**—The monthly list of the City Sale and Exchange, 81, Aldersgate Street, E.C., which reaches our table, is a publication which may be recommended to anyone desirous of purchasing a new outfit and of disposing of his old one in part payment. With its three other establishments at Lime Street, Fleet Street, and Sloane Square, the "City Sale" has unrivalled facilities for quickly suiting customers' requirements, in proof of which the list reaches us before us or the weekly announcement in our advertisement page may be studied by the prospective buyer or seller.

MESSRS. GRIFFIN, Kingsway, London, send us the price list of chemicals made by the famous Berlin firm of Kahlbaum, for which they are agents. The chemicals are conveniently priced, per ounce and per pound, and the very comprehensive list should be useful to those needing substances of great purity.

MESSRS. RAJAR, LTD., of Mobberley, Cheshire, have issued a price list, containing the latest additions to their specialties, amongst which may be noted the new "Rajar" quarter-plate folding pocket camera, the special features of which render it particularly suitable for cyclomotorists, etc. There are also several new lines in paper and postcards, specially suitable for use by professional photographers. Messrs. Rajar, Ltd., will be pleased to send a copy of the list, post free, to any of our readers upon request.

MESSRS. BISHOP, of 466, Holloway Road, London, N., send us a copy of a supplementary list of their season's novelties, containing latest additions to their photographic stock, which is intended as a completion to the firm's large catalogue, issued a short time since. Messrs. Bishop state that they will be pleased to send a copy of the catalogue and list to any of our readers free on receipt of postcard to the above address.

**DEATH OF MR. CHARLES FERGUS.**—Many will regret to learn of the death of Mr. Charles Fergus, photographer, a well-known figure in many years in Greenock, which took place at Dunoon on May 10. Born in Ascog House, Bute, in the year 1835, Mr. Fergus was nephew of the well-known engineer of Greenock Waterworks, James Thomson. He went to America when twelve years old. Return twelve years later he started business as a photographer in Millport, and afterwards he joined his brother, Mr. John Fergus, in Largs, partner in the firm of Fergus Brothers. In 1863 Mr. Fergus opened the well-known business in Greenock, still carried on by his son, W. R. Fergus. He included among his customers the Duke of Argyll's family, Lady Crossby, Countess Roden, Drs. Norman George Macleod, Dr. Story, Dr. McGregor of Edinburgh, Mr. Sankey, etc. Possibly the best tribute to his memory as an amateur and photographer lives in the albums belonging to the Greenock Burns Club, which were executed from negatives mostly taken by him. For many years he was a member of George Square U.F. Church, now Greenbank U.F. Church. Of late years Mr. Fergus devoted himself to his Dunoon business, which he opened in 1891, finally going there to reside. He leaves a widow and four sons to mourn his loss.



# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

**SATURDAY, MAY 18.**  
 gham Photographic Society. Outing to Ashbourne and Dovedale.  
 en Photo Art Club. Outing to Glen of Dysa.  
 Photographic Society. Outing to Kirksmeaton.  
 Polytechnic Photographic Society. Outing to Amberley.  
**SUNDAY, MAY 19.**  
 Staff Camera Club. Outing to Richmond Park.  
**MONDAY, MAY 20.**  
 worth Photographic Society. Outing to Tong.  
 Middlesex Photographic Society. Outing to South Ockendon.  
 rd Photographic Society. Outing to Stanford-le-Hope and Fobbing.  
 ton and District Photographic Society. Outing to "King and Tinker."  
 London Photographic Society. Outing to Christchurch Priory.  
 ng Camera Club. Outing to Bosham, via Chichester.  
**TUESDAY, MAY 21.**  
 y Photographic Society. Members' Open Night.  
 wrie and District Photographic Association. "Intensification and Reduc-  
 a." J. D. Petrie.  
**WEDNESDAY, MAY 22.**  
 London Photographic Society. "Theory and Practice of Self-Toning  
 ers." John J. Griffin & Sons.  
 Middlesex Photographic Society. "Shutters." Messrs. R. & J. Beck.  
 Camera Club. "F.O.P." Demonstrated. Thos. Gascoigne.  
**THURSDAY, MAY 23.**  
 London Photographic Society. "City Churches." Thos. White.  
 uth Photographic Society. "Short Papers." Messrs. Baker, Bill,  
 ins and Cope.

## PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

ETING of the General Committee was held at 66, Russell  
 e, W.C., on Friday, 10th inst. Present: Messrs. H. A.  
 an (Swansea), H. J. Comley (Stroud), A. Ellis, H. S. Fry,  
 n Jacolette, A. Mackie, H. S. Mendelssohn, D. Prodger, E.  
 ll, Lang Sims, C. H. Skillman, H. C. Spink (Brighton), and  
 lloWS Willson—Mr. H. C. Spink (president) in the chair. The  
 ecretary announced that the arrangements with the Fine Art  
 General Insurance Company for insuring members' liabilities  
 the Workmen's Compensation Act (1906), the Fatal Accidents  
 (1846), the Employers' Liability Act (1880), and at common law  
 now complete. The delay in the settlement of the matter arose  
 the fact that the principal insurance companies had only just  
 up their minds as to the tariff rate. This had been fixed at  
 each hundred pounds of salaries and wages payable. The  
 art and General Insurance Company had adopted this rate for  
 ordinary policies, but members' insurances would be subject  
 same allowance as that made on fire insurance—a discount of  
 cent. The hon. secretary also reported that the new hand-  
 ad been issued to the members. It had been found necessary  
 arge it by four pages. The legal and general information con-  
 ng matters incident to the carrying on of photographic busi-  
 ad been revised and considerably added to, and every effort  
 en made to make it an indispensable work of reference on all  
 of professional practice. It was agreed to repeat the full-  
 advertisement, which appeared last year in the BRITISH  
 AL OF PHOTOGRAPHY, of the Association and its aims and  
 ages. Experience had shown that the cost had been repaid by  
 ession of new members. The hon. secretary was authorised to  
 se any reference books necessary to enable the committee to  
 with questions that members might put concerning the laws  
 g to employers' liabilities. A letter was read from Mr. T. C.  
 (Hull) relating to the growing demands of the theatrical pro-  
 for free photographs. After discussion the president under-  
 convey the sense of the meeting to Mr. Turner.

## ROYAL PHOTOGRAPHIC SOCIETY.

re held May 14, Mr. J. C. S. Mummery (president) in the chair.  
 airman announced the presentation to the society of a camera  
 the late Colonel Gale; the thanks of the meeting were recorded  
 donor, Mr. Berell. The gift also of a collodion positive on a  
 material, by Mr. T. Horne Redwood, was acknowledged with

E. T. Holding then delivered a lecture, entitled "The Camera  
 e," in which he dealt with the making of the photographic  
 studies with which his name has been associated at the  
 ions. Mr. Holding prefaced his subject proper with some  
 s on photography and art, in the course of which he said that  
 main of figure study work offered even more difficulties than

did landscape, a fact which perhaps accounted for its being less taken  
 up by amateur photographers, although the attraction of the outdoor  
 life necessary to landscape photography was no doubt responsible for  
 the large proportion of work of that kind which was exhibited. Still  
 he could say that, as regards expression of form, tone, and composi-  
 tion, the photographer was less handicapped in figure work than in  
 landscape, because he had the power to adjust his conditions to a  
 greater extent than in landscape. Yet however good the technique,  
 continued the speaker, the result was without particular merit if it  
 lacked imagination or if it evidenced no possession of that innate good  
 taste which was well described as "the cultivated appreciation of the  
 beautiful."

Mr. Holding commended the study of Mr. George Clausen's "Aims  
 and Ideals in Art," where it was stated that taste in a picture was  
 much the same kind of thing as naturally good manners in a man,  
 and the true artist looked for qualities in a picture corresponding  
 to those which he would look for in a friend. Passing to the views  
 of Mr. Bernard Shaw on photography, Mr. Holding could not attach  
 any meaning to Mr. Shaw's inaccurate aphorism which exalted the  
 telephoto lens above "that clumsy tool," the human hand. If  
 Mr. Shaw's dictum meant anything at all it meant that there was  
 no more art in the use of a pencil or a brush than there was in  
 projection by a lens. Mr. Holding condemned the drastic improve-  
 ment of the photographic rendering of a subject by hand, a practice  
 which, he said, led one to assume that there was nothing beautiful  
 in Nature; as a matter of fact, it was usual to see many photographs  
 of actually beautiful scenes spoilt by inartistic tinkering. Passing  
 to the practical side of his subject, Mr. Holding first dealt with  
 portrait and figure study work out of doors, for which he recom-  
 mended a white background against which it was possible to show  
 up the light tones in the drapery of a figure. For indoor work either  
 a light or a dark background might be used. He used one white on  
 one side and dark on the other, supporting it, with either face  
 towards the camera, by means of a bamboo frame about six feet  
 square, which was strong enough to support a picture or ornament  
 should such be required in the composition. He illustrated the  
 methods of dealing with indoor lighting by means of a number of  
 altogether charming examples of studies of women and children. An  
 interested audience marked their appreciation of these studies in  
 light, tone, and posing by frequent applause.

In the subsequent discussion, which wandered from the subject of  
 Mr. Holding's paper, Messrs. Maclean, P. Bale Rider, Dr. Evershed,  
 and the chairman, took part.

**CROYDON CAMERA CLUB.**—The president (Mr. A. E. Isaac) last  
 week gave an interesting little chat on hand cameras, several new  
 models by Messrs. Houghton and Messrs. Butcher being examined  
 with much attention. The lecture concluded with an animated  
 discussion.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—On Wed-  
 nesday, May 8, Mr. Clougher read a most interesting paper on  
 "The Cinematograph," Messrs. L. Kamm and Co. having kindly lent  
 one of their cinematographs. A practical demonstration was given.  
 The author said that probably the earliest form of slide in which an  
 attempt was made to show movement was the "slipping slide," in  
 which one part of the figure was obscured while another part was  
 shown, and *vice versa*, by means of a painted glass moving behind  
 the picture slide. In 1860 Desvignes invented the zoetrope, or  
 "wheel of life." Although now regarded as a plaything, it was at  
 first a decidedly scientific instrument, which opened up a line of  
 investigation ending in the intricate instrument of the present day.  
 The fundamental truth on which the zoetrope was designed, and  
 which underlies the whole of cinematography, is the persistence of  
 vision, which, as applied to this subject, means that if an object or  
 picture is seen in the same place 8 to 24 times a second it will  
 appear as if seen continuously. Hence, if in each successive picture  
 a certain spot is reproduced as having moved a small distance, and  
 the pictures are shown in rapid succession, the spot will appear to  
 be moving across the plane of the screen. The author next ex-  
 plained how the pictures were taken and projected. The film had to  
 be stationary during exposure, and the light cut out while it is  
 moving. Several methods of intermittently rotating and stopping  
 the wheel which drives the film were then explained by lantern  
 slides. The film is wound on a spool above the machine. From

here it passes through the "film gate" and then around a sprocket wheel, which is intermittently moved by one of the arrangements described. Gearing to the driving wheel is a shutter, which cuts off the light while the film is moving. A sprocket is now also fitted above the gate to take up the pull required to unwind the film. Since the film is inflammable and the picture small, the heat from the illuminant is concentrated over a small area, and there is danger of fire if the machine is stopped and the light left on. Therefore, an automatic shutter, worked by a governor, is often fitted to obscure the light from the film when the machine is stopped. The Edison gauge film is practically the standard now. It is 2 11-32 in. wide, and the picture lin. by ¾ in. There are four perforations to each picture. An arc or lime light is the usual illuminant, but it is essential that the light be more than 1,000 c.p. Mr. Clougher then explained Mr. R. T. Haines's method of duplex projection for doing away with the flicker. The film is printed in a double column, alternate pictures being in the right and left columns respectively, the successive pictures not being opposite each other. There are two projectors, although only one light, and by this means there is always one complete picture on the screen. Other branches of cinematography referred to were stereoscopy and moving pictures in colours. A very successful two-colour machine was one invented by Mr. Freese Green. The film has two pictures side by side, each being taken through a proper coloured filter. A positive is made from the negative thus obtained, and the two pictures projected through suitable filters and superimposed on the screen. There is only one instance in which glass has been successfully substituted for film, and this is in the case of Messrs. Kamm's kammatograph, in which the pictures are taken in a spiral form on a circular glass plate. Mr. Kamm kindly lent a machine for demonstration purposes. The usual speed of taking pictures is 16 pictures—i.e., 1 ft. of film per second—but this may be varied, and therein lies the difficulty. It is very seldom that the same person takes the film who exhibits it, and thus an altogether untruthful idea may be produced. The author therefore suggested that all taking and projecting machines should be fitted with speed indicators, so that by recording the rate at which the film was taken it could be exhibited at the same speed. The author laid great stress on the scientific value of the cinematograph for educational purposes, and said that every technical college should possess a machine. He also referred to the extremely interesting work done in microcinematography by Mr. Martin-Duncan, and also the works of Mr. Chas. Urban. The following films were shown: (1) The life of a bee (Chas. Urban and Co.); (2) The manufacture of steel rails (Chas. Urban and Co.); (3) Across the Alps; (4) Climbing the Alps.

## Commercial & Legal Intelligence.

**EASTMAN KODAK COMPANY, OF NEW JERSEY.**—The usual quarterly dividends of 1½ per cent. (being at the rate of 6 per cent. per annum) upon the outstanding preferred stock, and of 2½ per cent. (being at the rate of 10 per cent. per annum) upon the outstanding common stock, have been declared by the Eastman Kodak Company, of New Jersey, payable on July 1, to stockholders of record on May 31, 1907.

**CERIO PHOTO PRINTING COMPANY, LTD.**—Lien registered May 1, for £2,700 six per cent. debentures, part of £5,500 authorised; no trustees charged on the business and assets, present and future.

**WAGES OR NOTICE.**—At the Clerkenwell County Court last week, before his Honour Judge Edge, an action was brought by Robert Melville, accountant and foreign correspondent, of 50, Crayford Road, Holloway, against Messrs. Underwood and Underwood, stereoscopic publishers, of 103, High Holborn. The claim was for £72 11s. as damages for alleged breach of contract. Mr. Ward was counsel for plaintiff and Mr. Thomas for defendants. The case came before a jury.

Plaintiff said that in May, 1905, he was engaged by Mr. Ross, defendants' general manager, as book-keeper and foreign correspondent. He was engaged at a salary of £180 a year, to be increased to £200 at the expiration of three months' trial if his services proved satisfactory. He commenced his engagement on May 23, and threw his best energies into the work, which entailed a lot of overtime. In three months there was an increase of 94 per cent. on the sales of

agents compared with the corresponding three months. On the sale of photographs this was 15.9 per cent., and on the sales to which the increase was something like 500 per cent. Mr. Ross expressed himself thoroughly satisfied with his work, and paid him up to the rate of £200, and later on his salary was increased to £240. August, 1906, he spoke to Mr. Ross about his private letters being opened, and Mr. Ross said that in future his letters should not be opened. Continuing, he said that on December 22, 1906, he received a letter from Mr. Foote, one of the agents in Berlin. That letter contained a present of a £5 note. It had been opened by some one in the office, and Mr. Ross, on handing it to him, said, "You ought to divide that with other members of the staff," or words to that effect. On carefully considering the matter, he informed Mr. Ross that though the £5 was intended for himself, and he should keep it, January he had been working hard and was feeling unwell. He finished up his work and took a day's rest, but on the following Friday he found that 15s. had been deducted from his wages, so he declined to take it. On the Saturday he was informed that his salary would be reduced from £20 per month to £4 per week. He declined to accept the reduction, and on the Monday morning he tendered his services on the old basis. Mr. Ross said he could not agree to that, and told the cashier to give him £4 10s. as the balance of salary. He declined it, because there was more due to him.

Mr. Ward: Did you receive any notice from Mr. Ross at that time? As a servant at a yearly salary what notice ought to have been received?—I consider I was entitled to three months' notice. It is a post such as you fill a difficult one to obtain?—Yes, I think it is.

How long were you out of work?—Six or seven weeks. For the defence Mr. Ross, the defendant's manager, said that when the engagement was made it was agreed that plaintiff should receive £3 10s. per week for two months and £4 per week afterwards. He never agreed upon £180 as a yearly salary. Plaintiff was paid week like the other employees. When plaintiff complained about overtime his wages were increased, and he was also given tea and Letters were constantly being addressed to plaintiff on the firm's business, and in the ordinary course these were treated as business letters and opened. Mr. Foote, the Berlin agent, was one of the leading customers, and as letters were frequently received from him witness knew his handwriting well. With regard to the letter in question, he had no idea that there was anything private about it, and thinking it was on the business of the firm, he opened it. When he handed it over, plaintiff seemed very much surprised to find the £5 note had been sent him, and asked witness what he had been doing with it. Witness informed plaintiff of the firm's rule regarding gratuities, and said it would be better to divide it all round. Continuing, witness said that when plaintiff made more complaint about the overtime, he told him that he should not work any more overtime, but that in consequence of his lessened services his wages would be reduced to £4 per week. On the Monday plaintiff wished him to sign a paper, reinstating him on his former wages, but refused to do so. Plaintiff then left. As to the increase of business all the employees contributed to that.

The jury replied as follows to questions submitted by the Judge: Was the plaintiff's engagement a weekly or yearly one?—Yearly. Having regard to plaintiff's position, what notice would be a reasonable notice?—One month. Did Mr. Ross refuse to continue plaintiff in defendants' service on the terms agreed upon in February, 1906, viz., £4 10s. per week and 10s. extra per month?—Yes. The jury added that they awarded no damages.

The Judge: But you must award something on this finding. Upon his Honour's direction the jury awarded the plaintiff £20, one month's salary in lieu of notice, and £4 15s. as money due to him.

Mr. Thomas: That is £24 15s. We have paid £25 into Court, I ask that the verdict be entered for defendants.

### NEW COMPANIES.

**J. HALDEN AND COMPANY, LTD.**—Capital, £40,000, in £1 shares. Objects: To acquire the business carried on in Manchester, London, Newcastle-on-Tyne, and elsewhere, by J. Halden, G. F. Pringle, & J. R. Ball, as "J. Halden and Company," and to carry on the business of manufacturers and sellers of drawing materials and papers, mathematical instruments, and specialties, photographic copying apparatus, engineers' photo and copying process materials, photographic materials.



and cinematograph instruments. No initial public issue. The directors are: J. Halden, G. F. Pringle, and J. R. Ball (permanent governing directors), W. A. Halden, W. Monkhouse, W. V. n, H. R. Watts, R. F. Moir, L. Wordsworth, and E. W. M. r. Qualifications of permanent governing directors, £1,000; of directors, 50 shares. Remuneration of governing directors, £400 per annum. Registered office: 17, Altrincham Street, Manchester.

DDOCK, LTD.—Capital £500, in £1 shares. To take over the ess of photographers carried on by A. Lewis and P. Lewis, at Whiteladies' Road, Clifton, as "Abel Lewis and Sons," and to an agreement between the said vendors and R. E. Ruddock. Initial public issue.

NDON AND PROVINCIAL STORES, LTD.—Capital £3,000, in 10s. s (3,000 preference). To carry on the business of clothiers, tailors, al outfitters, jewellers, watch and clock makers, photographers, rs in photographic requisites, optical and scientific instruments, ccessories, cycle and motor dealers, booksellers, etc. No initial e issue. The number of directors is not to be less than two nor than five. The first are: E. E. Farmer, A. W. Thomas, and A. Thomas. Remuneration (except managing director) as fixed e company. Registered office: 44, Gray's Inn Road, Holborn,

## News and Notes.

TOGRAPHER AS "PASSIVE RESISTER."—The sale of certain effects r. H. A. Chapman, J.P., photographer, and an ex-mayor of sea, last week, by the Swansea collector of income-tax, rendered sary by the determination of Mr. Chapman to protest against his ment, went off without the anticipated fun. Mr. A. J. Gear, hief official, attended the sale himself. There were 30 or 40 ns present in the studio when the sale took place. Mr. Gear y read the conditions of the sale, and then asked for bids for merican organ which had been seized. It was a handsome e organ, which years ago figured in a Swansea chapel, and has een used by Mr. Chapman as an accessory to his studio. It ppraised by a local music dealer at £10. The bidding reached t which it was knocked down to Mr. John Hansard, who, it aid, was acting for another person. Mr. Chapman was present, dpressed several remarks to the reporters, and after the sale he ted that someone should play the Doxology on the instrument, aid he, "I feel inclined to sing 'Praise God, from Whom all ngs flow.'" It is rumoured that certain brother tradesmen of Chapman intend to restore to him the instrument and reimburse gainst loss.

DEMACHY EXHIBITION.—M. Robert Demachy, we learn as we press, is holding an exhibition of examples of his work by the ocess at his Studio, 45, Rue Hegesippe, Moreau. The exhibi-as open Tuesday and Wednesday last, May 14 and 15. The s are to be seen next month at the Royal Photographic Society's . In connection with their exhibition an address by M. chy will be delivered.

LEPHOTO HOOD.—In reference to the notes on Captain Owen ler's hood in last week's issue, Messrs. R. and J. Beck, Limited, ornhill, E.C., inform us that they will shortly have ready for market a neat aluminium extending hood for attaching to the e of a lens when used for telephotography.

NET CASH PRIZE COMPETITION.—The results of this competition, in connection with the issue of the sample packets of the new ter-shell" gaslight paper, was as follows: 1st prize, 21s., John l, The Bungalow, Woodhall Spa; 2nd prize, 10s. 6d., Miss l Ferguson, 23, Heathfield Road, Oxtou, Birkenhead. Awil prizes of 5s. each to Harold Blades, Brow Hill, Leek, Staffs; . Gales, The Poplars, Dartford; Herbert E. Grigg, 31, Neal t, Spon Lane, West Bromwich.

RO-PRUSSIAN PAPER.—In reference to the paragraph on "Ferro- late Printing" last week, the British Photo-Paper Company, ed, Guildford Street, York Road, Lambeth, S.E., write us: should like to say that if Mr. Josiah Martin would care to try t of our ferro-prussiate paper for daylight printing he would hat such an appliance as an actinometer is quite unnecessary y any conditions, whether a dull and cloudy or a bright sunny

day. He would also see that it is in no way difficult to determine the proper exposure."

NEW GLASSES.—Mr. F. A. Lindemann and Mr. C. L. Lindemann, writing to "Nature," describe a new glass which is transparent to rays of very short wave-length. They have found that lithium biborineum,  $\text{Li}_2\text{B}_4\text{O}_7$  (ordinary borax in which the sodium is replaced by lithium), when fused produces a clear glass which shows no appreciable absorption in the ultra-violet spectrum above  $2,000 \text{ \AA}$ . In order to determine the absorption below this a vacuum spectrograph would naturally be required, as the air absorbs any lines shorter than  $1,856$ . The refractive index for the D-line  $n=1.5389$ , the dispersion  $\Delta$  between  $e$  and  $F$ ,  $\Delta = 0.00847$ , and  $v=n-1/\Delta = 63.7$ . As might be expected, owing to the large percentage (82.5) of boric acid, the dispersion toward the red side of the spectrum is fairly large, whereas that toward the violet side is very small. The glass is extremely transparent to Röntgen rays, which it lets through, roughly, ten times as well as ordinary glass. The specific gravity is 2.2; the hardness, 6. The glass can be cut and polished without difficulty. The cubical expansion coefficient (calculated from the constants of Winkelmann and Schott) is  $118.10-7$ , about half that of ordinary glass. It has been found that, as a general rule, the transparency for rays of short wave-length increases in analogous salts as the atomic weight of the metal decreases, but sufficient experimental data have not yet been obtained to warrant the publication of a definite opinion.

It is announced from the Carnegie Geophysical Laboratory in Washington that quartz glass can be successfully manufactured, but the authorities of that institution decline to commit themselves as to its feasibility from a commercial viewpoint. The chief value of quartz glass over ordinary glass is found in the fact that it can be heated to a temperature of about  $1,000 \text{ deg. C.}$  without softening, and its expansion under ordinary heat is so small as to be almost a negligible quality. It thus can be heated red hot and plunged into cold water without in the least cracking. It has the distinct property of permitting the passage of ultra-violet light rays, making it remarkably valuable in photographic uses.

At the Carnegie Laboratory many methods of preparation were tried before definite satisfactory results were obtained. If the quartz was intensely heated, free silicon was deposited on the inside of the air bubbles, and the glass was spoiled. The final solution of the problem was found in heating the quartz to the melting point, about  $4,000 \text{ deg. Fahr.}$ , and then subjecting it to an air pressure of between 400 and 500 pounds. After this it was allowed to gradually cool. The air pressure squeezed out the air bubbles, and the result was a solid and clear mass of quartz glass. The plates so far made at the laboratory are only about three by five by half an inch in size. The bubbles are few, not over one-half a millimeter in diameter, and are not frequent enough to interfere with the use of the glass for lenses, mirrors, and other optical work. With more skill and experience the glass can be made without the flaws which confronted the workers.

THE IMPERIAL "HANDBOOK."—In issuing the 1907 edition of their "Handbook" the Imperial Dry Plate Company, Limited, has adhered to its previous policy of providing a variety of technical information, much of which is old, yet cannot be too often repeated, for each year must witness the entrance into the photographic field of many whose neglect of these elementary precautions is the sole cause of their photographic failures. Therefore we can warmly recommend our dealer-readers to use the Imperial "Handbook" as a rapid and satisfactory method of answering questions, and the same recommendation may be given to all who are consulted on the elementary matters which are very clearly treated in the 1907 issue. Among these are "Notes on Exposure," "Dark Room," "Solutions," "Development," "The Fixing Bath," "Washing and Drying Negatives," and "Backing." It is not too much to say that complete digestion of the hints conveyed in these chapters would relieve the troubles which overtake the beginner in negative-making. There are two other articles—on "Bromide and Gaslight Printing," and on "The Making of Pictures."

THE LONDON SKETCH CLUB.—A very choice little exhibition is open at the New International Gallery in King William Street, W.C., where the members of the London Sketch Club have placed their annual show of work. The reception last Saturday was so well attended that anything beyond the merest glance at the pictures

was impossible. The heat and the crush shortened our visit; but we were well impressed that the little display is one of high merit and unusual interest.

**COMBINED OUTING OF THE LONDON PHOTOGRAPHIC SOCIETIES.**—The South London Photographic Society are this year taking the lead in the annual outing. The date fixed is June 8. Train will be taken to Claygate Station, proceeding thence to Oxshott and Esher, where tea will be served, finishing up with a concert and conversazione. It is hoped that all London societies will be represented, and as many members as possible attend, so as to make the function a success. All information may be had of the secretaries of the various societies, and further particulars will be announced in the photographic Press in due course.

**COALVILLE PHOTOGRAPHIC SOCIETY.**—At the National Schoolroom, last week, Mr. Walter Lindley, C.C., presided at a well-attended meeting convened to consider the formation of a photographic society for Coalville and district. After some discussion Mr. Thomas proposed that a society be formed. This was seconded and unanimously carried. About 30 joined the society. Mr. Walter Lindley, C.C., was elected president, and Dr. Jamie, Mr. R. Blower, and Mr. B. G. Hale vice-presidents, Mr. Thomas hon. secretary, and Mr. G. Gutteridge treasurer. Arrangements will be made for monthly excursions in the summer, and lectures and demonstrations in the winter. The society will be affiliated to the Royal Photographic Society.

**HOW TO LOOK ONE'S BEST IN A PHOTOGRAPH.**—A booklet bearing this title has been issued by Messrs. H. J. Gover and Co., photographers, of 53, Piccadilly, Hanley, evidently for gratuitous distribution among the public in that district. The booklet contains some useful advice to sitters, and we are interested in noting a prominent announcement that proofs "are charged for, whether ordered from or not." Such a stipulation on the part of the photographer is only right, though it is a matter for each to decide for himself whether the sitter should not be given the option of returning the proofs instead of paying for them.

**FROM THE HEALTH RESORTS DEVELOPMENT ASSOCIATION,** 29, John Street, Bedford Row, London, W.C., we have received copies of guide books which have been issued for the Town Councils of Bournemouth, Tenby, and Weymouth. These booklets contain illustrations of the towns and surrounding districts, together with information as to the chief features of the neighbourhood and the facilities for reaching them either by sea or land. Particulars as to hotel and boarding-house accommodation are also included, and intending visitors may be glad to know that they can obtain a copy of the booklet, post free, by sending a postcard to the respective town clerks.

**THE CROYDON CAMERA CLUB EXHIBITION** will be held November 20 to 27 next at the Art Gallery, Park Lane, Croydon. There will be open classes as usual, and free carriage will be provided from the Hackney Exhibition for exhibits entered at both shows. The exhibition secretary is Mr. H. T. Dodsworth, 93, Woodside Green, Croydon.

**TELEGRAPHIC PHOTOGRAPHY.**—It will be of interest to our readers (writes "The Inland Printer"), after having read the comments in relation to the recent experiments with the Korn method of picture transmission to know that the system as explained therein in fundamental principle is practically the same as was described by N. S. Amstutz, who is now principal of the "Inland Printer" Research Department, in London in 1899. This feature, among others, is also disclosed in a United States patent issued to him in 1899. Mr. Amstutz has not surrendered the field of photo-telegraphy. He is engaged in carrying forward private researches that have to do with the greater perfection and the automatic receiving of the result in the shape of a medium that will at once lend itself to direct relief engraving reproduction without the intervention of complicated photographic processes.

**THE FOURTH AMERICAN SALON** is now in active preparation, and the pictures contributed to the Third Salon will be despatched from the States about the middle of July. The success of the Salon has strengthened the Federation of Photographic Societies to such an extent that the managers are arranging for the exhibition to go to a number of new cities, and therefore to have a longer season. The result of this is that the entries will close in America on September 15, therefore we presume (though the date is not actually

fixed) that the British entries must close about August 15. Before, the pictures will be collected and forwarded by H. Snow Ward, 6, Farringdon Avenue, E.C.

**THE "ZIGAS" PROFESSIONAL COMPETITION.**—We may draw attention to the competition of Messrs. Illingworth and Co., Limited, Willesden Junction, N.W., in which a first prize of £20 and others, amounting in all to £40, will be awarded for the examples of professional work on the "ordinary" and "portable" grade of this gaslight paper. June 30 is the closing day for entries. Messrs. Illingworth's circular gives full particulars of competition, in which amateurs are ineligible.

**APPARATUS SALE.**—Messrs. John J. Griffin and Sons ask to notify the closing, on May 30, of the stocktaking sale of cameras and other apparatus at great reductions. "Crytho" cameras, at 38s. are offered for 8s. 9d., and the leaflet obtainable from the premises, Kingsway, London, discloses other low prices.

## Correspondence.

- \**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \**We do not undertake responsibility for the opinions expressed by our correspondents.*

### A WAVE OF ORTHOCHROMATISM.

To the Editors.

Gentlemen,—May I be permitted to reply to your editorial remark of last week, and to sincerely congratulate you on the appropriateness of the quotation referring to "Truth new-born"? Taking cardinal virtue in the restrictive sense applied, on your own show it is well over age, and, if still "mis-shapen and of untimely growth," a little more time should yet be allowed for the poor "rule-of-thumb man, the man who makes 'hopeless infantile caricatures' of ordinary plates, to appreciate its full beauty.

Throughout your special pleading I cannot help noticing that my observations, which might be construed as inimical to orthochromatism, to put it very mildly indeed, were accentuated by you, my hearty appreciation of colour-sensitive plates and their possibilities were not even referred to. I fully and cordially agree with your statement, and my paper clearly inferred that "orthochromatism" is "merely a reserve power," and, I would add, a valuable one; but I must confess I feel at a loss to understand how you should apply this limitation, considering the denunciation of ordinary plates, owing to the wrong values obtained by them. These are so bad then it would, or, rather, ought to, be possible in all cases, except when rendering black and white, to say with certainty that such and such a print was the product of a screened ortho plate, or of an ordinary plate. We all know this cannot be done. Again, if the advantages of the former are so patent, the disadvantages of the latter so obvious, what a pile of duffers the great majority of photographers of the present day must be, in not immediately grasping salvation values." Think of the vitiated taste of our exhibition judges who have habitually medalled pictures taken on plates coated with "Ananias" emulsions! May the shade of George Washington ever haunt them.

I join issue when you say that the greater difficulties of working ortho plates are not dependent upon the plate, but on the operator. For one thing, the difficulty of estimating the correct exposure of a screened ortho plate is undoubtedly increased, and one is more likely to meet with failure from under and over-exposure. To argue that this is the fault of the operator is to argue in a vicious circle. There are other points which might be raised, but I refrain from incurring further editorial wrath.

As to the question of gradation, we have been taught, at Croydon Camera Club, that a screened ortho plate gives different gradation to that obtained by an unscreened one, or an ordinary plate. Possibly Dr. Mees might throw some light on this. In reference to the loss of *quality* alluded to by me, I am quite ready to admit that, in attempting to define what may be almost undefined by my words might be reasonably taken as having a more extended meaning than was intended. However, I maintain, and my opinion



by others, even if we cannot "rationally express ourselves," there is a certain loss in some directions when using screened plates. To take another case. It is not easy to define the quality which almost invariably occurs when, say, a pen and ink drawing is reproduced by any mechanical process.

In answer to your pointed question as to whether I should prefer to go on a holiday with an extra five-pound note in my pocket for merely enough money for bare necessities, let me at once say that I should infinitely prefer the addition of the "five." Should I arise, it will give me pleasure to take advantage of the offer of a holiday made and conveyed with the utmost delicacy and nicety. Yours faithfully,  
E. A. SALT.

To the Editors.

Gentlemen,—It is a little difficult to see what is being driven at in your referred to in your last issue, as the writer clearly recommends ortho plates for certain subjects. Personally I cannot say I noticed any lack of "go" in them. Without a screen for landscape work they give, in my experience, rather better results than on an ordinary plate. With a screen the danger seems to lie in loss of atmosphere. There are some days, however, as Ruskin says, "all the air is full of light," and there is practically no land visible, what we usually term atmospheric effect. It was so in the three photographs taken. No. 1, on an ordinary plate (seascape) gives the coast line about three miles off shore. No. 2, on ortho plate, with screen, gives the coast line about 14 miles off through the reflecting blue from sea and sky. No. 3, on ortho plate, with screen, with a nearer coast line, and clouds.

Now I think you will say there is pluck and go in No. 1, I think if anyone could say that Nos. 2 or 3 lack in pluck or have the process look about them. Is it not, after all, a question of your tools?

On wet-plate days for landscape work we purposely made our work slow, and I think it holds good to-day that for distant subjects the slower plates are best, yet there are so many subjects you want distance and yet wish to catch some moving subject in the foreground, perhaps, that one is obliged to use the faster and even of the ortho kind, discard the screen, or else lose the prominent portion of the picture.—Yours, PROFESSIONAL.  
Nos. 1 and 2 very strongly emphasise the advantage of the ortho plate. The second is a good rendering of a brilliant scene.—Eds., "B.J."]

To the Editors.

Gentlemen,—Are we living in the year 1907 or 1873? I am led to this from your report of Mr. A. E. Salt's remarks on page 379 of your Journal, dated the 10th, because, if I am in error, and I can, to a certain extent (only), understand these remarks, for any photographer at this late date to give expression to altogether beyond me. He says there is "some subtle difference, the difference of tone value, and tone value alone," he says, "judged by the usual standards." What, may I ask, are the usual standards? Are they the old false standards, that in a photograph a blue must be rendered white and red a black, or standard of colour rendering? I am willing to grant him that flower studies may be fairly well rendered by the use of the ordinary plate and prolonged exposure, but even these are better when an iso. plate and suitable filter are used. That very professionals use iso. plates may or may not be true; if it is, because they do not yet understand their value, and my experience tells me that professionals are the very last of all photographers to take up any new thing that will vary their working methods ever so little.

Now, I may state distinctly that orthochromatism has not to do with us; would that it had raced a little further than that, and, may I add, that ortho plates, used with ordinary care, everything that the ordinary brands will do, be it copying and white, landscape, or portraiture, and do it better.—Yours faithfully,  
ERNEST HUMAN.

St. Paul's Park, E., May 13, 1907.

My correspondent is to lecture upon a subject cognate to the one in the L. and P. next Thursday, the 23rd inst.—Eds. "B.J."]

## LOCATIONS FOR FACTORIES.

To the Editors.

Gentlemen,—As chairman of the New Industries Committee of the Dunstable Town Council may I draw your attention to the fact that our committee has collected very useful information available for those wishing to remove from congested districts. We have persuaded the land owners to take a low price for land, and there are many other valuable considerations.

As a photographer I am a diligent reader of the "Journal," and it has occurred to me that there may be manufacturers in connection with some branch of photographic materials who may be desirous of finding a suitable locality. If any such will communicate with us we shall be pleased to afford them any information they desire.—Yours respectfully,  
JAMES FIELD.

75, High Street, Dunstable.  
May 10, 1907.

## Answers to Correspondents.

\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.

\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

W. Moline, 9, The Avenue, Clifton, Bristol. Photograph of Door, Laigton Mansion, Bristol.  
P. A. Zullock, 2, South Street, Hucknall Torkard, Notts. Photograph of the Rev T. G. Barber, M.A.  
T. V. Richards, 60, St. John Street, Galashiels, N.B. Photograph of the Rev. A. A. Jenkins.  
C. G. Caldecott, 24, Regent Street, Wrexham. Photograph of St. Giles's Church Tower, Wrexham, North Wales.  
Mowll & Morrison, 45, Hardman Street, Liverpool. Two Photographs of the Rev. J. Watson, D.D., M.A.  
H. D. Wootton, 63, Albany Road, Redruth, Cornwall. Photograph of Scroll and Photograph of Casket Presented to Sir Wm. F. Treloar.

### PAINTING REGISTERED:—

B. T. Hugh, 35, High Street, Chatham, Kent. Painting entitled: "On Every body's Tongue."  
E. G. T.—A thin solution of dextrine is usually used with or without the addition of alcohol, which makes the coating dry more rapidly. A preparation made as follows has also been recommended: Add an excess of powdered dextrine to barley water, stir for a minute or two, allow to settle, and strain through a fine cloth.

VARIOUS.—(1) Is an employer bound to give his employee (an operator assistant) a reference, provided he left honourably, etc.? (2) How long should sulphocyanide bath (gold added) keep in corked bottle—"Solio" formula? (3) Should it be made up fresh and used, or left, say, twelve hours or so to ripen?—SULPHOCYANIDE.

(1) He is not bound. (2) Before use it should keep for at least a month. Its keeping properties depend on the purity of the sulphocyanide and of the water. (3) Unless made up with hot water (when it is ready for use as soon as cold) it should be allowed twelve to twenty-four hours to ripen.

H. W. MINETTE.—The facts which you state do not account for the trouble. A freshly-made hypo bath of the unnecessarily great strength which you use would be a predisposing cause, as it would greatly chill the films. We can find no other explanation of this very uncommon occurrence.

AVOIDING REFLECTIONS.—Could you kindly let me know of anything that would prevent reflection when photographing lace under glass, as it has been done on enclosed proof?—A. FINN.

The only way to prevent reflections is to drape everything which may be reflected in the glass in black—that is to say, the camera itself should be draped with a dark black cloth and a black screen placed on each side of it, so as to shield it from all objects which

might be reflected in the glass. Our own plan is to get a black screen of silesia lining, about 12ft. square, and erect it close behind the camera by means of a couple of bamboo rods. We think if you do this and use a slower plate and a stronger developer than you appear to have been doing you would gain the necessary vigour in the negative.

**COLLOTYPE.**—Could you let me know two or three of the best practical books (in English) on the colotype process, and where I could obtain them?—**PRINTER.**

"Practical Colotype," by A. W. Fithian (11ffe, 2s. 6d.). Also "Photo-Mechanical Processes," by W. T. Wilkinson (Hampton and Sons, 4s.).

**EMULSION WASHING AND COATING.**—(1) How long will it take to wash the gaslight emulsion? (2) I am making a machine for coating the cards in 3ft. lengths of cardboard, for it to travel on rollers. Is it advisable to level it on glass or hang it straight up to dry from the emulsion? I have a good room to work in.—**J. HARRIS.**

(1) The time of washing depends entirely upon the fineness of the pieces of emulsion, the amount of water, etc., but six hours should be enough, provided there is plenty of water to move about. (2) It is advisable to let the cardboard travel straight up for about six feet if a dipping-roller is used, or if it is coated flat on the glass, then it can be hung up as soon as the emulsion has set.

**DAGUERRETYPE.**—Beyond removing with a soft camel's hair-brush any dirt or dust between a Daguerreotype and its protecting glass, is it possible to attempt anything in the way of restoration or the removal of stain?—**W. H.**

Tarnish may be removed with a weak solution of potassium cyanide. The process is a delicate one (see "Almanac," 1907, p. 767), and is best left to skilled hands. One Daguerreotypist who undertakes such work is Mr. E. W. Foxlee, 22, Goldsmith Road, Acton, W.

**ALPINE PHOTOGRAPHY.**—Would you kindly say what is the best plates to use for taking Swiss scenes, ordinary or orthochromatic plates, quick or slow? We want to get some views of the mountains with valleys.—**SWISS.**

We should prefer as rapid an ortho plate as can be got with a medium screen. You will find some useful hints on the development of mountain subjects in "Photography on Tour" (Dawbarn and Ward, 1s.).

**A. J. LEWIS.**—"The Photographer," 21 and 26, East Twenty-first Street, New York. My dear sir, have you not seen the reports of the convention of the Professional Photographers' Society of New York, in our columns of late?

**MERCURY TONING.**—Please let me know if a bromide print, intensified with mercury, and image regained with ammonia, is supposed to be permanent or not.—**M. B.**

It cannot be called permanent. The process is the least satisfactory of its kind. Ferrous oxalate developer or sodium sulphite is better as the darkening bath.

**HISTORY OF PHOTOGRAPHY.**—Will you kindly inform me where I can obtain, either by loan or purchase, a set of prints, photographic or otherwise, illustrating the early history and evolution of photography. I want them for an exhibition, to be displayed on a board, so that a book would not be suitable for my purposes.—**THOMAS B. LATCHMORE.**

There are no prints available so far as we know. "The Photographic Monthly," 6, Farringdon Avenue, E.C., lends a set of slides on the subject.

**INSTRUCTION FOR 2d.**—I bought the enclosed at Morecambe last week from a person selling these instructions. I gave 2d. for them. There was a paper negative and four pieces of printing paper. I could print a good photograph from the negative given with the instructions, but I have tried to print some from some photographs I have of my own and I cannot do them. The person said she would forfeit £10 to anyone who could prove that the instructions were not genuine. I cannot do it. I should be glad if you would inform me whether they are genuine in your opinion, as I should like to be able to claim the £10 offered if they are not. I certainly got a good photo from the one given with the instructions, but I think it must be a fake of some kind.—**DOUBTFUL.**

The instructions are quite genuine, but it is not an easy busi-

ness to remove a print from a mount so cleanly that it is used for the printing of a negative by contact. Still, the instructions are not dear at 2d.

**EXONIAN.**—If you will send your name and address we will reply.  
**STALE PLATES.**—I bought a lot of old large-sized plates (plate to 12 by 10) at a sale as a speculation for experiment with. Some of them are as old as 1890, some in unboxes, some opened but resealed. All are foggy, but some than others; some come out all patchy. Is there any resensitising them and making them fit for use? I have been renovating slightly exposed plates by soaking them minutes in a 5 per cent. solution of potassium bichromate. Would that be any use, or could they be reduced clean and then resensitised?—**P. G. PAYNE.**

The formula given in the "Almanac" on page 996 is used—viz., chromic acid, 30grs.; potass bromide, 60grs.; 10oz.—in which the plates are immersed for five minutes, dried, and dried. They will be slow in use.

**CLEANING MACHINES.**—I would be very much obliged to you could give me any idea of where machines for cleaning chalking glass for glazing P.O.P. might be obtained.—**W.**

We are not aware of such machines being used, but put a firm such as N. L. Scott and Co., 18, Ironmonger Lane could supply them.

**COPYRIGHT.**—If a customer copyrights a photograph and transfers the copyright to me, can I proceed against anyone making cards of it? I take a group, one man gives me orders, takes money, and pays me. I understand it is his copyright. I stop others using my photograph just taken.—**A. SECRETAN.**

Certainly you can if the assignment is in writing and a transference of the copyright registered.

**CHLORIDE OF GOLD.**—I inadvertently emptied a fifteen-grain bottle of dry chloride of gold into about a quarter of an ounce of a solution of cyanide of potassium. The same did not dissolve but a red precipitate. Can I do anything with the same?—**IGN.**

We presume you refer to sulphocyanide solution. The thing you can do is to pour the mixture into a hot solution of ammonia of about 150 grains of ammonium sulphocyanide, which probably you will get the gold precipitate to dissolve whole can then be diluted to a strength of two grains per pint, or whatever strength you employ for toning. It will pay you to use the gold in any other way.

**H. W. G.**—For plush materials, Strong and Co., Ltd., 8, L Street, City Road, E.C.; and Jas. Hy. Masters, Richbell Lamb's Conduit Street, W.C. For the shapes you might letley and Co., Soho Square, W.C., who can refer you to if they cannot supply you.

**WAKEFIELD.**—Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C., can give you particulars.

**HANDYMAN.**—Impossible for us to say. Search at the Stationers' Hall, as required. This can be made on payment of a small fee.

**W. WASHAM.**—Your best plan is to rinse for a few seconds in a strong stream of water from the tap before immersing in tank.

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## The British Journal of Photography

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## SUMMARY.

On the various important questions, such as proof of returns, absence of competition, the value of negatives, etc., which arise in the purchase of a photographic business are the subject of some notes page 382.

Dr. C. E. K. Mees and Mr. S. H. Wratten describe the construction of a wedge spectrograph permitting of much greater rapidity working in sensitometric tests of plates. (P. 384.)

Dr. E. J. Wall, in continuing a review of recent progress in colour-sensitising, discusses the fundamental law of Draper. (P. 386.)

Dr. Lüpke-Cramer, in the course of a comparison of the relative action of reducers, places the permanganate formula about midway between persulphate and Farmer's reducer as regards its "softening" action on the gradation of the negative. (P. 385.)

Dr. Hauberrisser has recorded the results of experiments made to obtain a bichromate sensitising solution which will give a carbon tissue of good keeping qualities under ordinary conditions. (P. 391.)

Patents of the week include a changing-box, enlarger, and "a device for photographing housebreakers whilst manipulating on the door lock." (P. 394.)

Mr. R. J. Wallace has published details of the apparatus employed by him in the daylight sensitometry of dry plates. (P. 388.)

Some peculiarities of intensification and toning with ferricyanide have been brought forward by a German worker. (P. 392.)

## EX CATHEDRA.

### The Reflex Camera Exhibition.

In addition to the names of firms whose instruments will be represented in the forthcoming exhibition of reflex cameras to be opened at the "B. J." offices on June 13, we have to add to the list given last week the name of

Houghtons Limited.

Our invitation to users of reflex cameras to co-operate with us in bringing together a collection of examples of the use of this form of camera has brought us a large number of responses, and, at the time of writing, there is every evidence before us that an exhibition of very considerable educational value to the hand-camera worker will be the result of our endeavours. We would say again that the latest date for prints to reach us is June 1. The prints may, of course, be either direct or enlarged.

\* \* \*

### Soap in Carbon Printing.

In most manuals on the carbon process, when directions and formulæ are given for making the tissue, soap is almost invariably mentioned as one of the regular ingredients, yet as a matter of fact soap is never used by the manufacturers of carbon tissue. It is, however, very useful in the development of the pictures. Everyone has found that when only a few prints have been developed in the same water, air-bubbles and froth are created, and soon become a nuisance. Although it is well known to old workers, it may be news to some that if a couple of fingers be rubbed on a piece of soap and the water then well agitated with them, the froth will at once disappear as if by magic; and, what is more, it will not form again, however much the water may be splashed about. When the developing water contains even quite an infinitesimal quantity of soap, there will be no trouble from froth, as the bubbles burst directly they are formed.

\* \* \*

### On Recording Experiences.

In an article in the Journal of the Society of Arts on "The Present State of Photography," Mr. Chapman Jones suggests that "Perhaps the most obvious and immediate need is the bringing together of the experiences of the everyday worker and the investigations and speculations of the investigators." Unfortunately, the everyday worker, not being a practised investigator, is seldom able to correctly describe his experiences. He misses important small details, and his particulars are so meagre that the investigator is bound to gather his own experiences by personal experiment. It then often happens that the experiences of the investigator and of the "everyday worker" differ seriously. We frequently see samples of

failures that are inexplicable. The perpetrator cannot describe how he obtained them, and the investigator cannot repeat them, so matters come to a deadlock. There is much to be learnt from failures, which may indeed rank as among the most important experiences of the photographer, but if photographers wish to have their failures explained, we suggest that they should, immediately after the event and while all details are fresh in the mind, sit down and write out as fully as possible all particulars, even those of the most trivial character. No detail remotely concerning the operation should be considered too insignificant to note down, and it is impossible to recall everything that should be noted if the memorandum is not made immediately. Similar care should be taken in all cases, whether failures are concerned or not, for the everyday worker's experiences of any kind are of little use to the investigator if they are not accurately and fully described.

\* \* \*

#### Cash at the Time of Sitting.

One may be pretty safe in speculating that photographers, next perhaps to medical practitioners, make more bad debts than most other businesses. This is very much due to a lax system that has gradually crept into the profession. At one time it was customary for sitters to pay for portraits at the time of sitting, and they came prepared to do so. A notice to that effect used to be displayed in the reception room, and when the sitter had decided on the size and style of the portrait selected, the receptionist made out a receipt, and the amount was at once paid. The receipt was then taken by the sitter to the studio, and shown to the operator, who saw from it the kind of picture desired. Sitters then looked upon prepayment as a matter of course, and no demur was made; but nowadays things are quite different, except, perhaps, in some of the third-rate establishments. The notices are still shown in some few high-class studios, but the conditions are rarely if ever enforced, or even put forward, and thus, as many know to their cost, there is frequently a great difficulty in obtaining payment. It is hard to say if there is a remedy for this state of things. If there is, it is in the concerted action of photographers as a body. This matter has more than once received the attention of the Professional Photographers' Association, but nothing practical has come of it, for when once a lax system obtains in any business, it is a very difficult matter to get matters right again. Still, some effort might possibly be successful by the combined action of the profession generally.

\* \* \*

#### Testing Shutter Speeds.

Herr Nairz, in "Photographische Rundschau," has recently proposed a method of shutter testing that is probably far in advance of any of the usual methods of ascertaining the simple duration of exposure. The method involves nothing but an exposure made with a rotating or moving camera on a naked arc lamp fed with an alternating current of known periodicity. The resulting image is a dotted or broken line, and by simply counting the dots or segments the time during which the shutter remained open can be ascertained with the greatest accuracy. This test, though not well known, is by no means new. We have at hand some test negatives made by identically this method some two years ago by Mr. William Short, of the L. and S.W. Railway Company, and since Mr. Short's experiments in this direction first came before us we have felt convinced that the method was a most satisfactory one. Unfortunately, everyone has not an alternating arc available, but those who have will find the test an extremely easy one to make.

#### The Astrographic Chart.

A somewhat disturbing note appeared in Monthly Notices by the Astronomer Royal and Messrs. Eddington and Davidson upon errors in the photographed réseau which was used in the measurements of the photographic plates of Eros, an intra-mercurial planet. It is disturbing, because we believe that all réseaux used for the astrographic chart are made by heavily silvering a sheet of glass, and then ruling fine lines at right angles to one another, so as to divide the plate into squares. After the plate has been exposed on the stars, a réseau is placed in contact with the film and a supplementary exposure given, so that the clear lines are also impressed on the sensitive salts. This naturally gives astronomers an easy and practical method of defining the position of any star, precisely as the lines of latitude and longitude enable us to find the position of any terrestrial city or place, when the latitude and longitude are given. An error in a réseau is therefore a very serious matter, and should it occur throughout the whole of those used by the various observatories engaged in the astrographic chart, it would mean a very serious amount of extra work in recalculating the positions of the stars which have already been catalogued.

#### POINTS FOR CONSIDERATION IN PURSUING A PHOTOGRAPHIC BUSINESS.

The man who is taking steps to acquire a business, photographic or otherwise, has need to be a sceptic in reference to all things which he cannot prove for himself. Although of the many reasons which are assigned for the disposal of a business some are actually the real ones, it is only natural to suppose that in a great many cases a business is sold because the proprietor cannot make it a sufficient source of profit. That is not to say that somebody else could not convert it into a highly remunerative concern, but the fact must be kept in mind by those who open negotiations with would-be vendors of businesses. Hence certain precautions should be observed, and although the precise nature of them varies with every particular instance, and although an item which is of the greatest importance may arise which cannot be considered in a general article, yet we will attempt to deal with a few of the matters which must be looked into before any definite offer is made.

First of all it is important to ascertain if the books have been properly kept—or if they have been kept at all—and if, on the former supposition, they show the returns and profits for the past three or four years. Unless there are good reasons to the contrary, it may be assumed that a decrease in the profits in the last year or two indicates that the business is on the down grade, and while a reason may be forthcoming from the owner which will explain the decrease, such as short time at a factory in the neighbourhood or dislocation of the thoroughfare for several months from the laying down of tram-lines, yet the ominous fact remains, and should be a caution to the buyer. If no regular books have been kept—and it is not infrequently the case that they have not—good proof should be required of the actual business done. To an extent the receipts for goods supplied to the proprietor should be some rough proof, but unless something of the kind is forthcoming it is wise to look upon the concern as a somewhat dubious one from a prospective purchaser's standpoint.

Bearing on the point of receipts, we may quote an instance from Mr. Bromley's excellent book, "How to buy a Business," published by Messrs. Fisher Unwin. The prospective buyer of a tailoring business, in examining the payment returns, found one entry from a certain customer to the amount of £40. Reference to the bank book showed that no cheque had been paid about that date, nor had a



amount been used in paying rent or some account. Nothing about the matter, but making a note of the customer's address, paid him a call, explaining that he had purchased Mr. X's business, and hoped for a success, etc., etc. The man was astonished. He had paid the cheque since he had discontinued his custom two years before the date of the entry. The intending purchaser went on congratulating himself that he had gone to the trouble of making for the cheque.

The only proof which can be given is that of the points for consideration are the class of business which has been carried on, and the expenses which the purchaser has had to incur. It will be manifest to most people that a small business which shows a return of, say, £100 a year, at high prices yields a much greater return than another with similar returns where the prices are low. For the cost of material in the former is less, and there is also less laid out for labour, in both respects the low price business is more expensive. If the business is of the club type it is carried on at a greater cost than the one just alluded to, inasmuch as canvassers' wages and commission have to come out of the proceeds, and there are also discounts to be allowed to the customers of the club type. A few comparisons of this kind will soon enlighten the purchaser as to the difference between businesses with the same gross takings, and it will not be forgotten also that in a cheaper class of trade the selling off of business means a good deal of anxiety for the proprietor from the fact of his greater current expenses. Another important point is the lease of the premises—its length and the terms upon which it is held. The state of the premises should be carefully inspected in conjunction with the terms of the lease, since one of the usual clauses in such documents relates to the premises being left in a state of thorough repair at the time of the expiration of the lease. For instance, if a purchaser takes over an old building which has only a year or two to run he may very possibly have to make good dilapidations which have been made since the lease was granted, and which would have been the subject of a substantial allowance from the price of the business. Neglect of this liability becomes a serious matter to a tenant, particularly if the building is old, and the lease has been a long one.

The usual course of the transfer of a business the vendors are bound over in penalty not to start or carry on another business of the same character within a certain radius, but this does not, of course, bind any of the employees of the business, or who may be as well known to the customers as he is, and it would also be well to ascertain what relatives of the vendor reside in the neighbourhood, since it is easy for a vendor to set a brother or sister up in business, and while this himself does not infringe the letter of an agreement he does so actually by his interest in and direction of another business. The same thing may occur in the case of a managing operator, the opening of a business by whom in the immediate neighbourhood might seriously affect the original one. The purchaser should ascertain beyond doubt the management of the business with this precaution in his mind.

It need hardly be said that the opposition in the locality to the possible increase which may occur should be carefully considered. Attention must be paid, too, to the locality of the work which the other places of business turn out.

Certain it is that if the newcomer who takes over a business which has been turning out fairly high-class work cannot maintain the same standard the patronage will assuredly leave him for his competitors. A keen appreciation is required here of one's own powers of production, or of one's ability to control the work of employees. Then again the character of the population requires to be very carefully considered. The prospective purchasers cannot be

recommended to adopt a better course than to remain in the district for a night or two during which time a little fraternisation with his hotel keeper will tell him more about the district than he might otherwise discover, or at any rate will put him in the way of investigating the facts for himself. In many cases it will be found that the district is in a transition state, and that, although there are many roads which have all the appearance of being occupied by well-to-do people, as a matter of fact the character of the place is changing from a better class to that of the working population. We could point out a number of London suburbs at the present moment which are undergoing a process such as this. A proper appreciation of such a change is, of course, of the highest importance to a photographer commencing business there.

These lines may come before some who, for the first time, are thinking of acquiring a business of professional photography. It behoves them to consider very critically their own qualifications for such a form of enterprise. We are constantly being approached by readers who have had a fair measure of success in portraiture which they have done at the request of their friends and acquaintances for certain good and valuable consideration, and therefore believe that there is a great future for them once they are installed in a regular studio. Let them consider that the photographer's is not an easy business. Apart from its calling for acute supervision of every stage of the work, it demands from the proprietor of a business more tact than those who have approached it from the amateur standpoint could believe to be the possession of mortal man. It is the easiest thing in the world for those who have never had any professional training to rush into a business for which, in certain important respects, they are totally unfitted, and then to find that the custom which they imagined would be theirs, has left their doors. In some cases such as this we have heard of legal proceedings being taken when a business has fallen short of an amateur purchaser's expectations. It should be borne in mind that in the photographic profession, as in the medical, a great deal depends upon the personality of the individual. If a newcomer be not so well liked as his predecessor, the clientele will, for no other reason, transfer itself to another establishment.

We may mention the importance which is frequently laid upon the large stock of negatives which have accumulated in a business. The value of a large number of negatives is very often fallacious. When negatives are more than a couple of years old orders for prints from them are usually very seldom obtained. The frequent changes in fashion has led to a more general practice of having fresh sittings in the latest attire rather than order copies from negatives which show the sitter in out-of-date costumes. The value of a stock of negatives should be estimated from by seeing, from the books, the amount of the orders which it has brought in the course of a year.

In dealing as we have done in the above remarks with the precautions which should be taken in the purchase of a business, we have, perforce, left out of consideration the very personal fact that the purchaser may be a more enterprising and better business man than the seller, qualifications which will usually take rank above the ability to produce high-class work in the management of a business. The existence of such capacity may frequently justify the acquirement of a business which is not doing well, yet contains the germs of a successful concern.

In conclusion, we can do better than refer again to the volume of Mr. A. W. B. Although it does not deal specially with photographic business, its forcible descriptions of the ways in which a purchaser may be "had" should be of use to any one who is about to enter on the responsibilities of proprietorship.

## THE WEDGE SPECTROGRAPH.

It has frequently been noticed by those who use spectrographs for recording the sensitiveness of plates, or the transmission of filters, that it is desirable to obtain a large number of exposures in juxtaposition upon the same plate. Thus, in their first paper (October, 1903) Newton and Bull used a series of exposures which varied from 1 to 100, getting what they termed a "practical" curve, and showing the maxima and minima of sensitiveness very clearly.

E. Belin has improved upon this method by rotating in front of the spectroscope slit a disc having a graduated opening, so that

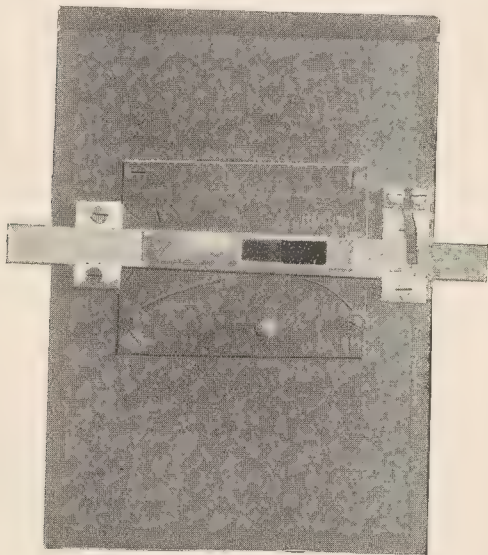


Fig. 1.

different portions of the slit were exposed for different times, and the exposed plate gave a smooth curve forming, so to speak, a range of mountains, the summits of the mountains being the maxima of sensitiveness and the valleys the minima. This method can, with sufficiently accurate work, be adapted for purposes of measurement by using a disc, in which the opening should be cut in steps, either according to the type of the Hurter wheel or of the Scheiner sensitometer. In order

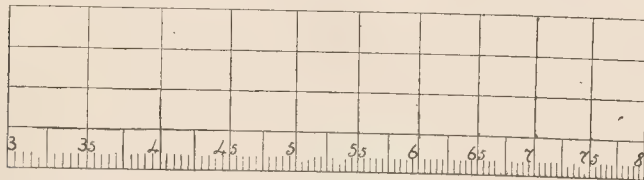


Fig. 2.

to accomplish this very accurate work is necessary in cutting the disc, and it is by no means easy to measure the resultant densities, which are necessarily of very small area. If in a one centimetre slit, for instance, nine sectors be taken (and a smaller number will scarcely suffice), then each sector will only be 1.1 mm. across.

For this reason it seems better for accurate sensitometric work to employ the method suggested by Sheppard and Mees ("Phot.

Journ.," March, 1906), and use the large sector wheel exposing instrument, having a spectroscope as part of the illuminating system. But for practical rapid work in laboratory this method of unequally illuminated slits offers advantages, because with a single exposure and without measurement a comparison can be made of the sensitiveness of different plates by simply observing the comparative heights of the maxima.

Small rotating sectors, however, are difficult to make accurately, and, like all instruments requiring rapid motion, are more or less clumsy in work, and it was clear that a better method would be to use a wedge of blackened glass with selective absorptions or transmissions.

There are three kinds of neutral tint glass which can be obtained. One has a strong transmission band in the middle, halving in density at this point compared with adjacent regions.

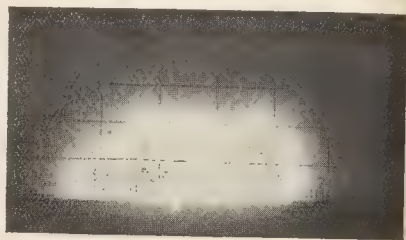


Fig. 4.

of the spectrum; the second has a strong transmission band in the deep red, and the other is distinctly violet in colour.

Fortunately, Messrs. A. Hilger and Co. were successful in obtaining for us a small quantity of glass which can be termed black, as the variation of its density throughout the spectrum is exceedingly small, as the following figures show:—

Wave Length.	Density.	Wave Length.	Density.
6,500	1.00	5,300	1.10
6,100	1.05	4,900	1.14
5,700	1.08	—	—

It will be noticed that not only is the variation small, but that it is regular, and therefore, showing no absorption or transmission bands, merely causes a slight modification of the intensity of the light employed with the instrument.

The first wedge prepared had densities ranging from

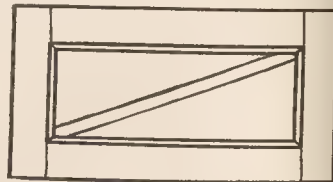


Fig. 3.

2.3, giving a range of exposure of from 1 to 128. But great as this may seem, it was found that in practice it was not sufficient for the range of exposure is not sufficient on the same plate to completely fill up the gap at one part, and yet give clear maxima at others, in the case of an erythrosine plate.

The second wedge prepared was made with densities varying from .2 to 4.2, giving a range of 1 to 10,000, and experience with this has shown that to utilise the largest portion of



the best range would be from 1 to 2,000. At the same time the second wedge was satisfactory, and as these accurately made glass wedges are not inexpensive, has been used. made by working to the same angle the black glass and piece of optical glass of the same refractive index, and joining them together with the apex of one opposite to the other, so that the formation of a refracting prism is avoided. The wedge is then fitted in front of the slit of the



Fig. 5.

scope in a small carrier of the type shown in the first which is convenient, as the wedge can be quickly moved out of position. The spectrograph used was the small instrument, with the opening at the back made much in order to include the whole image of the slit, and a glass giving in its horizontal direction the wave length, its vertical four lines representing 10, 100, 1,000 and times the unit of exposure. This is shown in Fig. 2. In addition to the black glass wedge there was also fitted to

this carrier a very small trough divided by a partition into two wedge-shaped compartments, so that if one of these be filled with the solution of a dye and the other with the solvent, a dye-wedge can be obtained and photographed in the same way as the black glass wedge shown in Fig. 3.

Fig. 4 shows the spectrum of a "Panchromatic" plate with a fully correcting screen. Spectra to acetylene light.

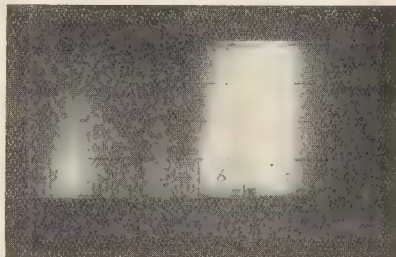


Fig. 6.

Fig. 5 shows the spectrum transmitted by "rapid filter green" on the "Panchromatic."

Fig. 6 shows the absorption spectrum of "picrocarmine" solution in the wedge trough.

C. E. KENNETH MEES.  
S. H. WRATTEN.

## THE ACTION OF REDUCERS.

(A paper in "Photographische Korrespondenz.")

I have already stated in an article in Eder's "Jahrbuch," 1906 (p. 237), that the characteristic action of the persulphate is explicable by the peculiar constitution of the negative emulsion. I then pointed out that previous explanations of the action, except that of a characteristic diffusion process, gave no satisfactory reason. Recently Dr. W. Scheffer\* in his interesting microscopic investigations on the action of reducers has confirmed my conclusions. Dr. Scheffer's microphotographs and graphic representation of the process are extremely instructive, and his explanation of the diffusion process appears very plausible. He reduced similar negatives with the two reducers to the same degree of transparency, and found that Farmer's reducer dissolved all the grains in the upper film, whilst the persulphate had reduced evenly the whole of the grains throughout the film. "From this," says Scheffer, "it follows that Farmer's reducer penetrates comparatively slowly into the film and slowly dissolves the grains, whilst the ammonium persulphate penetrates quickly and slowly dissolves the grains." I have concluded that these conclusions are not correct. As I have proved, silver consists of two substances, the one of more or less pure silver, the other a kind of compound of silver and silver chloride. The latter compound, which is yellow or light brown, is insoluble in nitric acid of a given strength, in chromic acid as well as in ammonium persulphate. It remains undissolved, therefore, even when the persulphate solution is allowed to act for some hours.

In consequence of this is that, even with continued reduction by persulphate, each grain leaves behind a light coloured residue which can be easily seen microscopically, as is correctly shown in Scheffer's drawing. As soon as a solvent for silver chloride, such as ammonium sulphocyanide, is added to the

persulphate, the latter acquires the power of dissolving the whole of the original grain of the negative, and its method of action is precisely the same as with Farmer's reducer. Since the latter, in consequence of the hypo in it, has no difficulty in dissolving the whole of the negative grain, and its reaction rapidity is greater than that of the persulphate, it dissolves the silver very quickly, but naturally it acts like every other solution, such as a developer, for instance, that is on the upper part of the film first. If thus, as Scheffer did, one reduces the density of the negative to the same degree of transparency with different reducers, the results must be as shown by Scheffer, without its being necessary to assume a difference in the diffusion process. At the same time neither potassium ferricyanide nor its mixture with hypo has any tanning action on gelatine.<sup>1</sup>

I have already pointed out in the above cited article that the action of persulphate cannot be ascribed to a specific action of the persulphate. Moreover, Andresen has confirmed a similar action with hydrogen peroxide, and nitric acid also reduces the highlights of a negative first. Further experiments have confirmed my view that any solvent of silver, if only a solvent for silver bromide is present, also acts in a somewhat similar, if not exactly similar, way to persulphate.

1. With chromic acid, 2 per cent. potassium bichromate solution with 1 cc. of strong sulphuric to 100 ccs., the action takes place very quickly, so that one cannot with certainty follow its course. A striking confirmation of this view is given by the addition of bromide or hydrochloric acid to the chromic acid solution, 1 gm. of potassium bromide or 3 ccs. of strong hydrochloric acid to 100 ccs. of chromic acid solution. The result is, then, not only

<sup>1</sup> A tanning action is often incorrectly ascribed to potassium ferricyanide. This has always been ascribed from the tanning action of mixtures of this with other salts, such as uranium, &c. Alone ferricyanide does not tan—Sedlacek has proved in his work on toning bromides.

a bromising or chlorising of the negative silver image, but a regular reduction. Sedlacek has recently observed the same thing, and has explained the phenomenon by stating that the conversion of the silver into silver oxide or the soluble silver sulphate into the silver halide. The high-lights (Warnerke's sensitometer was always used as a negative) are reduced by complete removal of the soluble silver, and consist then of the bright yellow bromide compound if the less dense parts still show absolutely intact silver. A subsequent fixation is not necessary with this kind of reduction.

2. Potassium permanaganate, 0.4 per cent. solution, 3-4 minutes; the manganese peroxide is removed by bathing in bisulphite solution and subsequent fixation. It cannot be observed direct on account of the managanese peroxide, yet there finally results a very "soft" negative—that is to say, the less dense numbers of the scale are still obtained, whilst the "lights" have become very thin. This action of the permanganate has been already observed by Namias<sup>2</sup>, and Eder<sup>3</sup> states that the action of permanganate stands about midway between that of persulphate and Farmer's reducer.

<sup>2</sup> Eder's "Jahrbuch," 1902, p. 124.

<sup>3</sup> Eder's "Handbuch," vol. III., 5th Edit., p. 557.

3. Cerium sulphate, 2 per cent. solution, with 2 ccs. concentrated sulphuric acid to every 100 ccs., acts almost the same as permanaganate, only the effect is easier to observe with cerium, because no reaction products hinder it.

4. Potassium ferricyanide, 10 per cent. solution—that substance which attacks the silver in Farmer's reducer, with the silver bromide solvent. It will often be observed clearly that first the densest parts of the scale are converted into ferrocyanide. After subsequent fixation "soft" scales result as in experiments 2 and 3, and this is very distinctly shown on parallel plates which have been reduced in a solution of cyanide and hypo.

5. Cupric chloride, 5 per cent. solution. The negative bleaches quickly, and is then fixed. In this case also considerably fewer negatives are obtained than with Farmer's reducer.

If the reduction process does not take place in experiments 2 to 5 in as striking a manner as with persulphate, hydrogen peroxide, nitric acid and the chlorising and bromising mixture in No. 1, they give a number of interesting series of intermediate results between the two principal types, the chief difference between them being the presence or absence of a silver bromide solvent which completely explains the differences in action.

DR. LÜPPO-CRAMER

## A REVIEW OF RECENT WORK IN COLOUR SENSITISING.

### II.

THE simplest way of arriving at some conclusive sketch is to give a summary of the theory that is generally accepted and then to examine it in detail. Arguing that the most likely theory is that advanced by him who has done the most work on the subject, one must necessarily come to Eder's work, and his statements are briefly as follows<sup>1</sup> :—

#### Past Sensitizers According to Eder.

1. The dye must stain the silver halide grain.
2. Dyes which vigorously sensitise are all so-called substantive dyes—that is to say, they colour substances direct, and probably by molecular attraction. Staining of the silver halide grain is no proof of colour-sensitising.
3. A dye sensitises for those rays which it absorbs, or, more correctly, for those rays which the dyed silver halide absorbs.
4. The maximum of sensitiveness lies at about the same position as the maximum absorption of the dye, with a general shift towards the red. More correctly stated, the maximum sensitiveness agrees with the maximum absorption of the dyed halide.
5. Dyes with narrow intense absorption bands generally give narrow intense sensitising bands, and those with broad ill-defined bands give broad ill-defined stretches of sensitiveness.
6. The brilliancy of colour of the dye has no special influence.
7. Neither the fugitive character of the dye nor its fluorescence have any action on the colour-sensitising properties.

#### Tests of Staining Action.

Proof of the first requirement is most clearly furnished by von Hübl's experiments.<sup>2</sup> Silver bromide, prepared with excess of bromide and copiously washed, was treated with eosine, cyanine, ethyl violet, and chinoline red, and the coloration produced observed. The dyed bromide was then treated with various solutions, and the results observed. The dyes were then used under similar conditions for sensitising collodion emulsion, were treated with the same solutions as the precipi-

tated bromide, and the sensitiveness measured. It must be understood that the sensitiveness observed applies solely to tests, for the test object was a photometer covered with a yellow and a blue filter, and the light employed magnesium ribbon, so that it cannot be compared with any other tests such as those of Eder or Mees and Sheppard.

Only one of von Hübl's results is given, that with ethyl violet :—

#### COLOUR OF THE SILVER BROMIDE.

1. Alcoholic solution of ethyl violet stains the silver bromide bluish-green.
2. Addition of water made the colour deeper and turned it more violet.
3. Ammonia removed the colour.
4. Potassium bromide removed the colour.
5. Sodium chloride only removed a little of the colour.

#### SENSITIVENESS RATIO V

1. The sensitised emulsion gave  $V = 6$ .
2. The plate bathed in water before exposure gave  $V = 1$ .
3. After the addition of ammonia the emulsion gave  $V = 1$ .
4. After a preliminary bath of bromide,  $V = 3$ .
5. After a preliminary bath of sodium chloride,  $V = 2$ .

Von Hübl says :—"The modern theory of dyeing gives a clear explanation of the staining power of the dye under the different conditions; this theory is that of solid bodies—that is, in the case, dyed silver bromide as 'solid solutions.' Alcoholic and aqueous solutions have different solvent powers for the dye, its condition of disassociation is different in the two solutions, and is thus influenced by various additions. On these conditions depends, then, the state of equilibrium between the dye and the two solvents—that is, the liquid and the silver bromide. Agreement with this law may be upset by chemical action or other phenomena. It is not permissible to ascribe the results obtainable with flocculent silver bromide to collodion or gelatin bromide emulsion, but the above results prove that the

(<sup>1</sup>) Summarised from "Die Grundlage der Photographie mit Gelatine-Emulsionen." Ausführliches Handbuch der Photographie. Vol. III. p. 150.

(<sup>2</sup>) Eder's "Jahrbuch," 1894 p. 189, and 1903 p. 128.



ose connection between the power of a dye to stain silver and its power to sensitise, as all circumstances which the staining also affect the sensitiveness."

#### Direct Action of the Dye.

second requirement is that the dye must be a substance, and colour the halide direct. This must be admitted, I think, and for the following reasons: A substance is one which is absorbed by a material direct from its without the intervention of any third substance, and from an adjective dye in that the latter requires a at or substance which combines with the dye-stuff to pro-staining. It is obvious that the use of a mordant would ce innumerable difficulties when dealing with substances itive to chemical action as the silver halides. Therefore, ordant is excluded, it would be obviously useless to use t those dyes which would stain direct—that is, substan-es.

#### The Effect of Silver Nitrate.

assumption, that the dye must be a substantive dye does clude the use of adjective dyes with substances which as mordants, and this may be an explanation of why a as silver nitrate in many cases acts better than the dye for the silver nitrate may act as the mordant, just in the ay as tannin or the salts of copper, tin, and aluminium al dyeing.

ust not be forgotten, however, that ammonio-nitrate of not only can increase the total sensitiveness of an emulsion e light, but, as proved by Eder,<sup>3</sup> actually increase the eness to the less refrangible end of the spectrum—that is, ers, or conduces to, colour-sensitiveness.

ould not be overlooked that in the use of silver nitrate ay be direct combination between the dye base and the as occurs in nearly every case with the phthaline dyes. of these silver dye compounds are insoluble in water, only insoluble in excess of silver nitrate,<sup>4</sup> but most ble in ammonia. One may, therefore, by bathing a plate lution of dye *plus* ammonia *plus* silver nitrate, introduce hich in itself is sensitive to light, and which may form cleus or germ for the latent image on the silver halide or ible image in metallic silver, and as, according to our heory, the light absorbed must act, it is obvious why we get colour-sensitiveness.

#### The Theory of Molecular Attraction.

a regard to the question of molecular attraction, one must ne or two hypotheses. Either there is direct chemical ation between the silver halides and the dyes, or there molecular or physical combination. This subject is ated by Eder.<sup>5</sup> Briefly, it is assumed that the vibrations sorbed by the coloured compound, and photo-chemical osition ensues.

ther the action be due to molecular attraction or chemical ation primarily, Kieser's researches, and those of Lüppor and Traube,<sup>6</sup> certainly point to some very close and te connection between the dye and the silver halides, as ater, when stained, can be repeatedly washed without re-of the last traces of dye. There is a "fixpunkt"—that is, ain stage beyond which no further dye can be removed by e: this proves either chemical combination or solid solu-and in the latter case beyond the "fixed point" the silver has a greater solvent action than water. This was also y Eder's classic experiment of forming an eosine-stained

emulsion, then washing repeatedly in a centrifugal separator till the washings were absolutely colourless, and still finding the characteristic absorption and sensitiveness of eosinated bromide of silver.<sup>7</sup>

It may be mentioned here that if silver bromide be precipitated in an aqueous solution of a dye, collected and washed till the fixed point is reached, further removal of the dye is at once rendered possible by treatment with gelatine solution. Further, as Eder proves (*loc. cit.*), it is impossible to remove the whole of the gelatine from the silver halides by repeated centrifugation and washing, 0.5 per cent. being tenaciously retained. One must take this into consideration, for the gelatine may act as a mordant for the halide.

#### Analogies from the Dyer's Practice.

Turning, on the other hand, to practical dyeing, one is met with the fact that it is possible to treat raw silk with a dye till deeply coloured, and then "strip" the silk, and the whole of the colour will be discharged and leave the silk fibre itself undyed. This "stripping" of the silk is the removal of the natural "silk gum," which is very closely allied to gelatine, if it is not gelatine itself. If the silk be stripped first, there is no difficulty in permanently dyeing the actual silk fibre. This fact may account for the failure of some dyes to act with a gelatine emulsion, whilst they will with collodion.

Against this we may place the fact that many vegetable fibres absolutely refuse to dye with certain colours, yet will at once do so if "animalised"—that is, treated with an animal substance such as albumen, or gelatine, or the like.

Points 3 and 4, dealing with the connection between absorptions or maxima of absorption and maxima of sensitiveness, may well be treated together, for they are very closely allied.

#### Draper's Law, the Basis of Orthochromatism.

The fundamental law underlying these statements is that enunciated by J. W. Draper—namely, "only those rays act chemically on a substance which are absorbed by the substance." If this law is correct, and I think that it will be seen to be, then it is obvious that what we must measure is the light absorbed by a light-sensitive compound.

I would lay particular stress upon this point, because it has been recently announced that there is distinct reciprocity between the maxima of a transmission spectrum and maxima of colour sensitiveness; in other words, that light which is not absorbed produces chemical action, which is in direct opposition to Draper's law.

This theory may be disposed of at once by a very simple argument. Let us assume that we have a solution of a dye which in a given strength and thickness of solution shows an *absorption band* extending from  $\lambda$  5,890 to  $\lambda$  5,590. If we examine this by an incandescent gas-light we shall see the whole of the visible spectrum with the exception of the above 300 wave lengths. What we see is the *transmission spectrum* of the dye solution; or, in other words, the spectrum of the incandescent gas *minus* 300 wave lengths. If now we place in front of the gaslight a naphthol green filter which absorbs all light of greater wave length than  $D_{\frac{1}{2}}C$ , or about  $\lambda$  6,220—that is, the extreme red—this and the above 300 wave lengths will be missing from the transmission spectrum. Again, if we proceed further and use burning magnesium ribbon as the illuminant, we shall find the three bright lines of that metal 5,183, 5,172, and 5,167 (which form practically the little *b* group in the solar spectrum) in the green, and close thereon a continuous spectrum starting from about  $\lambda$  5,007 to the violet end. The characteristic absorption of the dye is wanting, and the transmission spectrum is limited to the above light. If we push the argument still further and use a

Phot. Korr., 1885. Beiträge zur Photochemie. Part III. p. 13.

eworth. Phot. Quarterly. Vol. II. p. 197, et seq.

Beiträge zur Photochemie." Part III. p. 75. Original communication 1889. References are made to the "Beiträge" because this is a complete on of Eder's, Valentas, and other writers work on the subject, and being d together saves reference to different books.

B. J." 1907.

(7) "Beiträge zur Photochemie." Part III. p. 19.

Bunsen burner and thallium chloride, we find our transmission spectrum limited to one brilliant green line at  $\lambda$  5,350.

Obviously, then, in each case the transmission spectrum of the dye is the spectrum of the light source by which it was examined. If a plate be bathed with the above dye solution, however, the band of sensitiveness extends from, say, 6,120—5,890. In the face of these statements, which can be proved experimentally,

it is difficult to understand why the above theory should be advanced, or how it can be substantiated.

There is also one important fact which we must not overlook and that is, that whether we use colour-sensitive or ordinary plates, we obtain our image, not upon a solution of the dye upon dyed gelatine, but in all cases upon silver halides.

E. J. WALL, F.R.S.

## THE DAYLIGHT SENSITOMETRY OF PHOTOGRAPHIC PLATE AND A SUGGESTED STANDARD DISPERSION-PIECE.

### II.

#### Replica Grating Spectrograph.

THE form of spectrograph suggested for use with the replica has been modelled along lines somewhat similar to an instrument devised by Thorne-Baker,<sup>4</sup> but possesses several modifications. Its plan may be easily understood by reference to the drawing (Fig. 4). Simplicity combined with rigidity was the principal aim in the construction of the instrument. Lenses of greater focal length could be used for the formation of a longer spectrum without any difference ensuing save in the length of exposure time, but the dimensions

the C line ( $\lambda$  6563) in the centre of the plate. To enter here discussion of the resolving power of the instrument is unnecessary when we take into consideration the work for which it is intended. The spectrograph may, if furnished with slit and lenses of good quality, be used for a very high grade of spectroscopic work. A visual observation an eyepiece can be held by means of an adapter at the plane of the plate.

The spectrograph should occupy a definite permanent position in the laboratory, with the collimator pointing to the north.

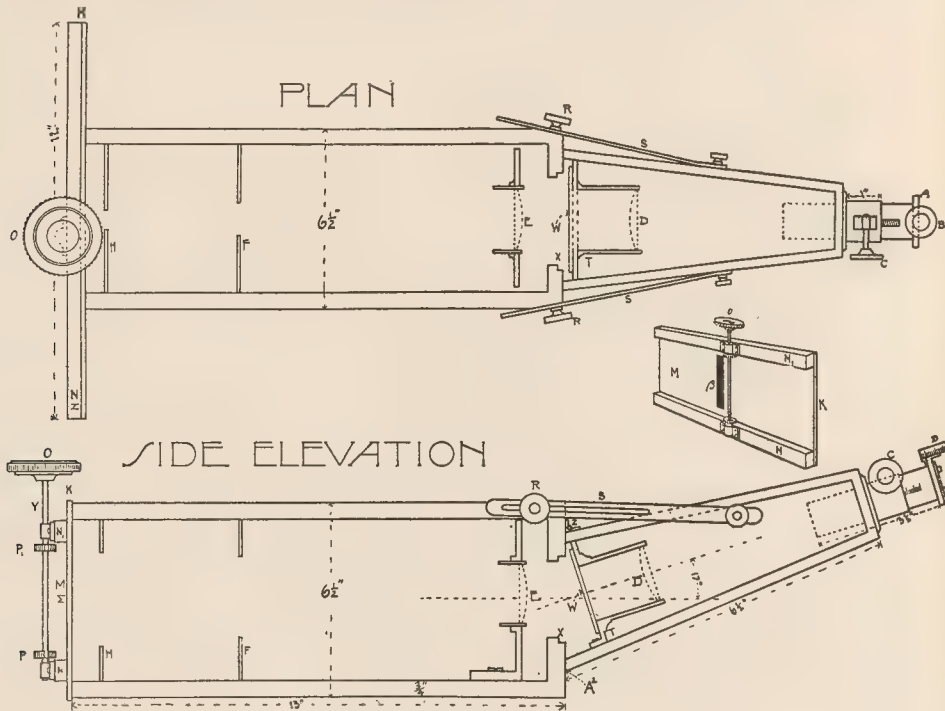


Fig. 4.

A, slit with graduated head B.

D, E, Achromatic plano-convex lenses of 12 in. focus.

W, Replica Grating which may be either in position as shown, or at X when the wedge-frame with  $\frac{1}{2}$ -in. base is inserted at A<sub>2</sub>.

F, H, Diaphragms. K, Metal slide for plate-holder.

N, N<sub>1</sub>, Metal guides for plate-holder which slides between them at M.

P, P<sub>1</sub>, Pinions engaging in rack on plate-holder.

B, Aperture admitting spectrum to photographic plate.

of the instrument would thereby be increased. With the specifications given the spectrum measures 6.2 cm. from  $\lambda$  6900 to  $\lambda$  3550 (B-N), which is of good measurable length. For special examination of the red and infra-red end a narrow brass wedge-frame is inserted at A<sub>2</sub>, which changes the angle of the collimator and brings

always at the same angle. This latter point is provided for in the construction of the instrument. The width of the slit should remain constant, and all the light reaching it should pass through thin milk glass or other diffusing medium, free from selective absorption. Exposures for the determination of selective sensitiveness should not be made unless the altitude of the sun is greater than 15 deg. The length of exposure which constitutes the beginning

<sup>4</sup> "Journal Royal Photographic Society," 46, 161, 1906.



series varies with the speed of the plate—i.e. longer with "slow" than with a "fast" plate. In the case of the Seed plate (as indicative of fast plates) the exposures found most suitable are as follows: 2, 5, 15, 30, 60 seconds, 2, 4, 8 minutes; eight exposures, together with two others yet to be described, giving the entire  $3\frac{1}{4} \times 4\frac{1}{4}$  plate. With a "slow" plate the first exposures are omitted. Obviously it would not be advisable to expose so closely to those times when using sky light under extreme atmospheric conditions such as exceptionally bright on one day and raining on the next.

### Photometer.

It may be proper at this place to consider the instrument connected for the measurement of photographic densities. A very complete bibliography and discussion relative to photometry is contained in this class of work are given by Mees and Sheppard in their paper, "Sensitometric Investigations."<sup>5</sup> Following this, the author had constructed a Hüfner spectrophotometer; but after extending some considerable time with this form of instrument, he discarded in favour of a modified Brace prism instrument, as the former line dividing the two fields under comparison was very objectionable, and prevented a match of as high a degree of accuracy as if the shades actually adjoined one another.

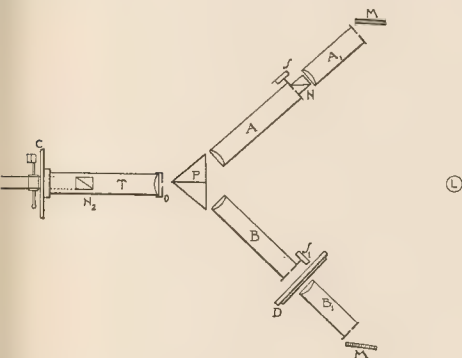


Fig. 5.

Brace's original instrument<sup>6</sup> measurement of differing intensities was made by varying the slit-width on one of the collimators, readings taken being in terms of the screw-pitch (or slit-width), a numerical value of which may be obtained by interpolation upon a curve derived from a previous calibration by means of a rotating disk. In order to make the instrument more particularly suitable for the measurement of photographic plates, a number of modifications and additions were made, which will now be described. Immediately in front of, and in contact with, one of the collimators  $A$  (Fig 5), a Nicol prism  $N_1$  was mounted; while in line with that, and in line with its axis, a supplementary collimator  $B_1$  was carried by a rigid supporting-piece. Collimator  $B$  was also provided with a supplementary collimator  $B_1$ , the function of each being the delivery of a beam of parallel light to their respective slits.

The analysing Nicol  $N_2$  is carried in the telescope tube  $T$  (which can be lengthened in order that the rectangular diaphragm in front of the objective  $O$  might be in distinct focus). The angle of rotation of the analyser is read upon the graduated circle  $C$ . Between the two collimators  $A, B_1$ , two mirrors  $M, M_1$  are fed by a 30 c. p. incandescent lamp at  $L$ .

The plate whose opacity is to be measured is held in a special holder  $D$  between collimators  $B$  and  $B_1$ , where, by means of a sliding mechanism the differing opacities are brought successively into position in front of the bilateral slit.

A dispersion-piece employed is the now well-known Brace prism which is made up of two equal 30 deg. flint prisms of refractive

index 1.64822 for D, and carries on one of its inner surfaces a deposited silver strip 5 mm. in width, the two prisms being cemented together.<sup>7</sup> When first constructed, this cementing medium was alpha-bromonaphthalin, which possesses a refractive index very close to that of the glass used. Constant trouble was, however, experienced on account of the volatile nature of this medium and the difficulty of sealing it in, and eventually the prism was taken apart and recemented with Canada balsam. On account of the difference between the refractive index of the balsam and that of the glass, there is always present a small amount of reflected light; but as this light is proportional to the intensity of the incident light, it introduces no error in the readings worthy of any consideration, and is visible only when measuring very low densities.<sup>8</sup>

In adjusting the instrument for use, the prism table is raised until the beam from collimator  $B$  passes slowly below the centre of the prism, and the field presented when viewed through the observation tube  $T$  (which carries no eye-lens, being pierced only with a 2.5 mm. circular opening) is an illuminated rectangle, which is of even brightness throughout (A, Fig. 6), when all adjustments are made, and the light is equally intense from either collimator. Should one beam be possessed of greater intensity, the field will show two

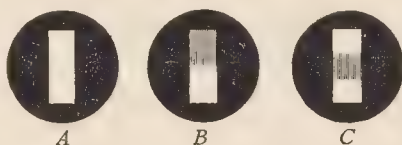


Fig. 6.

squares of differing brightness (B, Fig. 6). This arrangement has been found more satisfactory in practice than that usually employed, viz., when the light enters the prism centrally and the field is shown crossed by the image of the silver strip, as in C, Fig. 6.<sup>9</sup>

When beginning a series of measures upon photographic plates, the slits on their respective collimators are first opened to approximately the same width, the greatest opacity in the plate to be measured is run into position, and a rough trial match is made, the object simply being the assurance of sufficient slit-width to give light enough for the lowest measure without running too close to the extinction point (zero). In practice it is not deemed advisable to read an opacity requiring a smaller mean angular measure than 2.0 deg. (=approximately 30 units of Hurter and Driffield).

The mirrors are carefully adjusted to reflect their light centrally through each collimator. Then, while the eye observes the interface of the prism through the telescope tube, and with the analyser set at 90 deg., slit  $S$  is altered slightly in width until an exact match is obtained between the two halves of the field, which is indicated by the absolute disappearance of the dividing line. From now on until the measurement of the plate is completed, neither slits, light, nor mirrors should be moved or altered.

The varying opacities are now slid successively into position in front of slit  $S_1$ , and the analyser rotated until a match with each is secured. As the zero of the analyser circle indicates the point of extinction, the formula for the expression of the luminous intensity is  $\sin^2 \theta$ , where  $\theta$  = the angle of the analyser, while the degree of blackening when represented in Hurter and Driffield density units =  $\Delta \log \sin^2$  from the "fog value."<sup>10</sup> In practice, readings made from both sides of the extinction point furnish a mean which eliminates any error due to the false position of the zero.

The methods of recording the measures obtained are shown in

<sup>7</sup> This prism was ground and polished by Mr. O. L. Petitdidier, of Chicago, to whom thanks are due for its optical excellence.

<sup>8</sup> Experiments are at present under way toward the adjustment of a balsam or non-volatile cementing medium of similar refractive index to the glass employed in the prism.

<sup>9</sup> It would probably serve the purpose better if the silver strip covered the entire lower (or upper) half of the interface. The beam of parallel light from the collimators could then pass centrally through the prism, and the single dividing line would fall in the centre of the field of view.

<sup>10</sup> A table was constructed giving the value of  $\log \sin^2$  from 0 to 90 deg. in tenths of a degree, thus permitting of rapid work.

Table I., which presents the density measurements of the lower half of plate No. 2, to be given in a succeeding table (Table 4 and Fig. 8).

TABLE I.

No.	ANGLE.		MEAN.	LOG SIN <sup>2</sup> .	$\Delta$ LOG SIN <sup>2</sup> . (= DENSITY).
	Above.	Below.			
Fog .....	76.5	72.8	74.3	9.9691	
1 .....	66.0	67.5	66.8	9.9263	0.0423
2 .....	55.0	54.5	55.3	9.8299	1.392
3 .....	42.0	43.5	42.8	9.6644	3.047
4 .....	32.5	35.1	33.8	9.4906	4.735
5 .....	25.1	28.0	26.6	9.3220	6.671
6 .....	20.6	23.0	21.8	9.1396	8.295
7 .....	15.5	18.5	17.0	8.9318	1.0373
8 .....	12.7	15.6	14.2	8.7794	1.1897
9 .....	9.9	12.3	11.4	8.6918	1.3773

As an example of the agreement in the measures of different observers a large number of settings were made by Messrs. Parkhurst and Jordan and the writer, upon the same opacities, A, B, the results of which are given in Table II.

TABLE II.

OBSERVER.	MEAN ANGULAR MEASURES.		LOG SIN <sup>2</sup> $\theta$ (= DENSITY.)	
	A	B	A	B
J .....	14° 05	9° 205	8.7874	8.4076
P .....	13° 33	9° 250	8.7642	8.4122
W .....	14° 05	9° 220	8.7874	8.4080

(Mean of 13 settings for each value).  
Probable error of average  $\pm$  .0003.

Difference: Density A = .0032.  
Density B = .0046.

It is well known that in visual photometry the position of the star relative to the comparison light exercises an influence upon the measures, and for this reason it was deemed advisable to test the match obtained in the spectro-photometer with reference to the vertical and horizontal positions. As it was not practical to arrange the instrument to show the two squares in a horizontal plane, all measures were made by alteration in the position of the observer. Professor Barnard and Mr. Parkhurst kindly made the necessary settings, and from a mean of ten in each position, for each observer,

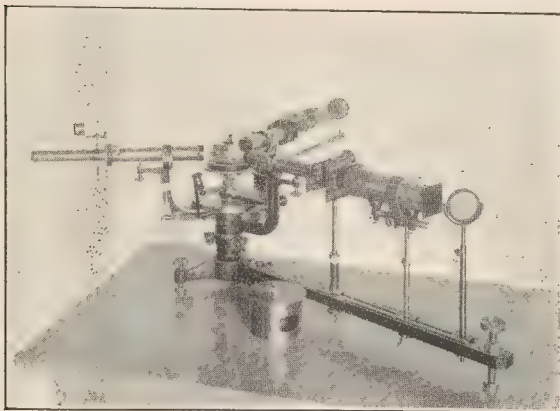


Fig. 6a.

Spectrophotometer for Measurement of Photographic Opacities.  
(A. Natural Size).

the net result obtained was not above the error of observation. The instrument may therefore be regarded as free from error in this regard.

In using the instrument as a spectrometer, special fronts have been constructed for holding colour-cells, etc., while the records are made from readings on the divided circle X, which is carefully graduated on silver, and reads with two verniers direct to 20". The prism table is also graduated. Collimators A and B, together

with the observing telescope T, rotate around the optical centre of the instrument, and are furnished with clamping screws. T and B are also equipped with tangent slow-motion screws for delicate adjustments. It is, however, not advisable to disarrange the instrument when set up and adjusted for photometry, but to make instead of separate instruments for different lines of work. The aperture is 25 mm. with a focal length of 200 mm. Fig. 6a is from a photograph of the completed instrument.<sup>11</sup>

Another important point regarding this instrument is the arrangement to displace the two spectra horizontally relative to each other, so that the red of one spectrum is in juxtaposition with any hue in the other by movement of the single slow-motion screw shown in (Fig. 6a), while direct measurement may be made in any region of the matched spectra by movement of the slow-motion screw B.

The spectrophotometer as just described was constructed upon various lines of work requiring critical measurement, but such an instrument is by no means essential. The extremely simple and ingenious arrangement devised by Pfund<sup>12</sup> should be well adapted to meet all of the requirements in ordinary density measures.

### Influence of Light on Sensitometry.

The next point in order of importance is the nature of the light used for the determination of selective spectral sensitiveness. Upon this point there seems to be as great a diversity of opinion as there is in the spectroscopy employed. It is conceded by every hand that daylight is the illuminant par excellence, but the impossibility of obtaining such light constant in intensity and quality has led to the substitution of almost every known source of illumination.

If the question were one which concerned only the intensity of luminosity, the difficulties could be much more readily overcome. But unfortunately the distribution of spectral intensity is a variable potent factor. One has but to compare the spectra of the various sources, even roughly, to find that they present no agreement at all themselves. Some are deficient in the red rays, while others are deficient in the violet.

In the comparison of the acetylene flame (a), the spectrum was arranged with a Hübner-Albrecht rhomb immediately in front of and in contact with the slit-jaws. One of the rhomb surfaces was illuminated by a beam of diffused daylight, while the remaining surface received a beam from the diaphragmed acetylene flame. The distance of the burner from the slit was altered until the spectra appeared visually equal in the green. Exposures were then made upon a Cramer isochromatic plate for varying lengths of time, the daylight and acetylene spectra impressing themselves simultaneously.

In the comparison of the candle (b), benzine (c), and methyl alcohol (d) flames, and the incandescent electric light (e), the replica glass spectrograph was used without the rhomb, daylight exposures being made at the beginning and end of each series.

The great lack of ultra-violet in a, even with extreme exposure, is readily observed, together with the strong action in the yellow-green, which with a suitable plate would be shown extending with increasing action into the red. In d this effect is reversed, and the maximum action is shown to lie in the ultra-violet (as is also the case in the use of the electric arc-light); b and c are very similar to each other, and show the characteristic deficiency in the ultra-violet, with the corresponding increase at the red end.

Notwithstanding that this is a point to which many workers have directed attention, yet unfortunately in the majority of cases the same workers continue their use and publish spectral comparisons of plates made with the same light-source which they condemn for which they give no correction factor. It is obvious that the five selective sensitiveness of two plates determined by a light source different from daylight cannot furnish any reliable quantitative information regarding the true values of the plates, unless the arc-light be accurately calibrated in terms of daylight (by photographic means), and a formula derived from such calibration which may be used as a correction factor.

<sup>11</sup> Originally the photometer was a three-arm spectroscopic, constructed by Mr. of Chicago with his usual skill. The alterations necessary to convert it into its present form were made by the writer in the instrument shop of the observatory.

<sup>12</sup> "Johns Hopkins University Circular," 4, 20, 1906.



ports have been made to calibrate a light to the spectral value daylight, and though several approximations have been arrived at yet we are still far from a satisfactory conclusion. The latest best work in this direction is due to Mees and Sheppard,<sup>13</sup> who suggested as a standard, acetylene gas, burning under constant pressure, and with special care as to its purification, etc., to ensure constancy in the luminous intensity. This latter point presents no special difficulty. Inasmuch as the flame of acetylene gas is greatly deficient in the violet end of the spectrum, they devised a compensating colour-filter to correct this deficiency, whose action may be fully explained by stating that it was intended to absorb proportionately the excess from the least refrangible end of the spectrum. While this combination was undoubtedly an improvement, yet it was by no means satisfactory, and that this was recognised by these careful investigators themselves is proved by the introduction of

still another make of filter in a later publication.<sup>14</sup> This latter filter can, however, still be considered as no more than an approximation, which is, indeed, what these workers themselves term it.<sup>15</sup>

There are, however, numerous opportunities for the use of a standard artificial light, in which the difference in spectral distribution from daylight does not enter greatly into consideration, and for such the acetylene "standard" of Mees and Sheppard offers decided advantages. The writer has made use of a somewhat similar arrangement with most satisfactory and encouraging results.

The question now is: Does an approximation so arrived at offer any advantages over diffused daylight, if used under certain conditions, when applied to the determination of selective sensitiveness? Briefly, I hope to show that it does not.

ROBERT JAMES WALLACE.

(To be continued.)

<sup>13</sup> "Journal Royal Photographic Society," 44, 298, Nov., 1904.

<sup>14</sup> Ibid, 46, 114, 1906.

<sup>15</sup> "British Journal of Photography," 53, 797, 1906.

## INCREASED KEEPING-POWER OF SENSITISED CARBON TISSUE.

(A Paper in "Photographische Korrespondenz.")

The older formulæ for carbon and the photo-mechanical processes, based on the light-sensitiveness of the chromates in combination with time and other organic substances, there will be found an almost edible chaos of views and receipts. Eder was the first to test these statements and clear up the chemical reactions in his classic book, "Ueber die Reaktionen der Chromsäure und der Chromate auf Atzalkalien, Gummi, Zucker."

Ever since the introduction of the carbon process experiments have been made to increase the keeping property of the sensitised tissue. The best process so far is the use of the calcium chloride box. Even in this the stability is limited and the calcium tube inconvenient, therefore I have tried other chromate compounds.

The salts hitherto used have been potassium bichromate  $K_2Cr_2O_7$ , ammonium bichromate  $NH_4_2Cr_2O_7$ , and ammonium chromate, also ammonium chromate  $(NH_4)_2CrO_4$ , potassium-ammonium chromate  $(NH_4)_2CrO_4$  and the sodio-ammonium chromate. As the chromates of the other metals are either insoluble in water or very slowly, I experimented with organic chromates.

I have been able to obtain a monochromate only by direct neutralisation of chromic acid with methylamine  $CH_3NH_2$ , the formula being  $CH_3NH_2H_2CrO_4$ . The solution is yellow and very similar to that of monochromate of ammonia. Tissue sensitised with this gave excellent prints, proved to be considerably more sensitive, and better than that sensitised with potassium bichromate.

Chromates of other organic bases were next tried. As by the direct method of preparation by the action of dilute solutions of chromic acid the bases, oxidation always occurred even at low temperatures, attempts were made to prepare the monochromates by the indirect action of calcium chromate on the sulphates of the bases. If a solution of calcium chromate is allowed to act on a solution of aniline sulphate, an almost insoluble calcium sulphate is precipitated and a yellow solution of aniline chromate is obtained.



In this experiment can only be performed with very careful work in the cold, and as the resultant solution of aniline chromate decomposes in a few minutes, whilst the colour turns a greenish black, aniline chromate cannot be used.

When this experiment proved valueless for practical work, I tried to make double salts of the monochromate of potash and the organic chromate.

Added to an aqueous solution of potassium bichromate enough ammonia to convert the red colour into a yellow, a solution of potassium-ammonium chromate is obtained, which in combination with gelatine is as sensitive as potassium bichromate, whilst the keeping properties of the tissue is considerably increased in hot weather.

The chemical reactions may be expressed by the following equation:—



If in this reaction the ammonia is replaced by organic bases, such as methylamine, oxamide, pyridine, pyrazol, carbamide, urethane, etc., and tissue be sensitised with the resultant solution, the prints will be as good as with potassium bichromate, neutralised with ammonia. Pyridine, which was added in alcoholic solution, and pyrazol were slowly oxidised in aqueous solutions. Bases such as aniline, naphthylamine, etc., which are easily oxidised, should not be used, as the solution immediately turns green.

The sensitiveness is somewhat increased with some of these new double salts, but not so much as to be of any practical value. After six weeks' wear all the tissue sensitised with these bases was absolutely insoluble in water.

As the addition of ammonia to the bichromate increases the keeping power of the sensitised tissue, a further increase of keeping was to be expected with an excess of ammonia. As the excess of ammonia evaporates in the dry tissue, some which had been sensitised with potassium bichromate and ammonia was dried and placed in a wide-mouth jar with a glass stopper. In the jar also was placed a small vessel, filled with ammonia, so that the tissue was in an atmosphere of ammonia. A second sheet of tissue was placed in a jar without ammonia, and both jars kept in the dark.

After six weeks the tissue which had been kept in the ammonia atmosphere gave a faultless print, whilst the other had become absolutely insoluble in hot water.

Attempts were then made to replace the ammonia by a non-volatile organic base, so as to avoid the inconvenience of having to keep it in glasses. The following experiments were tried:—

1. Stock solution, 100 ccs.;  $\alpha$ -naphthylamine, 1.94 gms.;
2. Stock solution, 100 ccs.;  $\beta$ -naphthylamine, 1.94 gms.;
3. Stock solution, 100 ccs.; pyrazol, 0.92 gms.;
4. Stock solution, 100 ccs.; aniline, 0.92 gms.;
5. Stock solution, 100 ccs.; methylamine, 0.41 gms.;
6. Stock solution, 100 ccs.; pyridine, 1.07 gms.;
7. Stock solution, 100 ccs.; m-phenylenediamine, 1.4 gms.;
8. Stock solution, 100 ccs.; p-phenylenediamine, 1.4 gms.

The stock solution was a 4 per cent. solution of potassium bichromate, with enough ammonia added to give a yellow colour.

The aniline, pyridine, the two naphthylamines, and phenylenediamines were dissolved in a little alcohol, and added to the chromate solution; a part of the  $\alpha$  and  $\beta$ -naphthylamine separated, and was filtered out. With the exception of the two last mixtures, all gave faultless prints; with m- and p-phenylenediamine there was a brown coloration in a very short time; tissue sensitised with these proved when dry to be absolutely insoluble in hot water.

The other sensitised tissues were cut in half; the one half gave perfect prints. The other half was kept in a black envelope in the dark. After six weeks all were insoluble in hot water.

Briefly, the results of these experiments, which are of considerable theoretical interest, are as follows:—

1. In place of the chromates hitherto used, monochromate of methylamine can be used, and the results are not inferior to those obtained when potassium bichromate is used.

2. Sensitised tissue will keep for a very long time in a solution in an atmosphere of ammonia.

3. Potassium bichromate can be neutralised with various organic bases, without the sensitiveness suffering.

4. The addition of non-volatile bases to carbon tissue, which has been sensitised with potassium-ammonium chromate, does not essentially increase the keeping power of the tissue.

GEORG HAUBERISSER

## INTENSIFYING AND TONING WITH FERRICYANIDE.

(A Paper in "Das Atelier des Photographen.")

IN his book on toning development papers,\* Dr. Sedlacek has considerably enriched our knowledge of the theory and practice of toning developed images by his thorough and scientific treatment of the subject. One statement therein, which is in opposition to preconceived notions, caused the author to experiment.

It has long been known and advanced by numerous writers that the uranium intensifier is by far the most satisfactory for negative work. This is not, as has often been stated, due to the reddish brown colour of the precipitate of uranium ferrocyanide, but to the fact that besides chemical substitution there is also a physical deposition of uranium ferrocyanide on the silver grain. This was first proved by von Hübl in his experiments on the uranium toning of platinum-types. He found that there was no substitution for the platinum, as by after treatment with ammonia the platinum was left in its original condition. There must, therefore, have been a physical intensification.

Kaiserling has observed microscopically, not only with platinum, but also with the silver grain, in which there was probably chemical substitution, an extraordinary enlargement of the original grain in consequence of the deposition round it of precipitated uranium ferrocyanide, and thus differentiating the process from other intensification methods.

E. Vogel has also pointed out that there was also physical as well as chemical intensification. Sedlacek assumed that in the process recommended by him there was no abnormal additional deposition, but only a substitution for the silver. Comparative experiments have proved to me that as a matter of fact there is an important difference between most of the older methods of toning or intensifying with uranium and Sedlacek's method. He first calls attention to the remarkable fact that in nearly all formulae for uranium toning equal quantities of uranium and ferricyanide are directed. This ratio, according to Sedlacek, is contrary to theory; "for one may correctly assume that in the reduction of a solution of uranium nitrate containing ferricyanide the normal uranyl ferrocyanide ( $\text{UO}_2$ )<sub>2</sub>  $\text{Fe}(\text{CN})_6$  is formed, therefore theory requires 1.5 molecules of uranium nitrate to 1.0 molecules of potassium ferricyanide, that is 756 to 329 parts—i.e., somewhat more than double the quantity."

A second important difference between the older toning formulae and Sedlacek's is that the former always contained an addition of glacial acetic acid, whilst Sedlacek forms a complex compound with organic salts, such as oxalates, citrates, tartrates, etc., which are then brought into an unstable condition of decomposition. These two conditions are important as regards the characteristic action of the baths.

If a negative is immersed in a solution of the old type *a* as follows—

Uranium nitrate, 10 per cent. solution.....	50 ccs.
Potassium ferricyanide, 10 per cent. solution.....	50 ccs.
Water .....	1,000 ccs.
Glacial acetic acid .....	50 ccs.

And another in Sedlacek's *b* as follows:—

Uranium nitrate, 10 per cent. solution.....	50 ccs.
Potassium ferricyanide, 10 per cent. solution.....	20 ccs.
Potassium oxalate, 10 per cent. solution.....	50 ccs.
Hydrochloric acid, 10 per cent. solution.....	10 ccs.
Water .....	1,000 ccs.

Several differences will be noticed. These are partly due to difference in tanning of the gelatine; but the chief differences noticed after the negatives are dried. The negatives treated with *a* show a considerable enlargement of the grain, and a roughness of the whole film, which those treated with *b* do not exhibit. Microscopic examination of the grain strikingly confirms the assumption that with *b* there is only chemical substitution, and that with *a* there is a physical deposition of uranium ferrocyanide round the grain.

As the uranium ferricyanide solution tans the gelatine to absolute insolubility, the thin films required for microscopic examination are best prepared by dissolving part of the unintensified film in water and coating very thinly on glass, and then intensifying these new films.

The accompanying illustrations show the difference very strikingly. Fig. 1 shows the grain structure after intensification in *a*, and Fig. 2 after intensification in *b*. The grain in Fig. 2 scarcely differs from that of the unintensified negative, whilst in Fig. 1 the gross deposition of the uranium ferrocyanide scarcely permits of the original grain being seen.

Further experiments showed that the difference in action of the

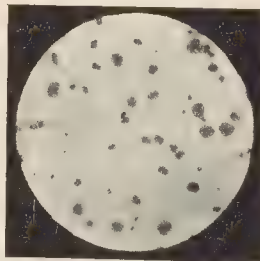


Fig. 1.



Fig. 2.

above solutions cannot be ascribed only to the oxalate in *b*, but also to the great excess of ferricyanide in *a*, for if in this only 20 ccs. instead of 50 be used the physical deposition of uranium ferrocyanide takes place only to a limited extent.

There is a marked difference in the behaviour of the two baths. Solution *a* is brown and decomposes even after one or two hours standing; whilst *b* is a pure yellow and remains clear for a long time. The difference is not in the addition of the oxalate, but also in the increased proportion of ferricyanide in *a*. The spontaneous decomposition of the uranium ferricyanide in a 5 per cent. solution is completed much more quickly with an excess of potassium ferricyanide, and especially if the solution is warmed.

By the introduction of the oxalate complex and the exact equivalent quantities, as used in Sedlacek's formula, there is produced a purely chemical substitution, whilst in the old type of intensifier there is physical intensification, the result of the ready spontaneous decomposition of the solution by the catalytic action of the silver of the negative, an action which increases with the instability of the solution and the time it is used.

The addition of organic salts to regulate the action of ferricyanide toning baths has been repeatedly recommended. Srna used

\* "B. J.," August 10, 17, 1906, pp. 624, 645.



ammonium oxalate for iron blue toning; Namias also used ferric oxalate. For toning with copper ferricyanide, which is insoluble, Namias has used the soluble complex compounds with oxalates or citrates; Ferguson, Eder, and Clerc used potassium citrate for the same purpose. We are indebted to Sedlacek for a systematic investigation of the action of these salts.

The addition of sulphocyanides has great influence on toning with ferricyanides. It was first observed by Namias that ammonium sulphocyanide in the uranium toning bath for bromides hastened the process and gave better results. Payne was the first to state that platinum prints could be toned with uranium. Strakosch used ammonium sulphocyanide for this with success, and the action was more closely studied by von Hübl. He found that ammonium sulphocyanide in the uranium bath acted as a reducer, and that it could be replaced by other salts, such as sodium sulphite, thiosinamine, and even grape sugar. In the iron blue toning process sulphocyanides were used with success by von Hübl, and this aquation was also used for copper toning platinotypes by Menke, and for uranium toning bromides by Welborne Piper, and with iron salts by Eggli.

The strong action of sulphocyanides in the uranium toning baths can be directly observed. Even in the cold after a short time the aquation of uranium ferrocyanide begins. If sulphocyanide is added to the mixture of iron alum and potassium ferricyanide, there appears first of all the intense blood-red coloration of ferric ferrocyanide, which turns slowly into a smutty green, and then a pure Berlin blue.

It was also obtained with the iron blue toning and Sedlacek's formula that a physical intensification of the silver grain, which is easily seen under the microscope.

From the above facts it is obvious that for very vigorous intensification the old solution without oxalate and with equal quantities of ferricyanide and uranium salts is more suitable; whilst for mere intensification of bromide prints Sedlacek's formula is preferable.

DR. LÜPPO-CRAMER.

#### COPPER TONING.

DR. R. NAMIAS, writing in the current number of the "Photographische Korrespondenz," refers to the liability of the red and brown tones given by the copper ferricyanide process to darken after a time. This change is due to the fact that the silver ferrocyanide, when with long immersion, is not completely converted into copper ferrocyanide. If this conversion could be more effectually carried out a quantity of the red compound and the intensity of this colour would be increased.

Dr. Namias finds that this can be attained by immersing the toned print in a solution of

Copper sulphate .....	1 oz.	50 gms.
Salt .....	90 grs.	20 gms.
Water .....	20 ozs.	1000 ccs.
Pure hydrochloric acid .....	50 min.	10 gms.

this bath the silver ferrocyanide is converted into silver chloride, and copper ferrocyanide is formed, which increases the red colour of the print. This is attained in a few minutes, in five at the most.

The prints must be well rinsed in water, and then dipped into a 5 per cent. solution of hypo, containing 5 per cent. of boric acid. In this the silver chloride dissolves. The prints obtained by this process are of much more brilliant red than those obtained with the ordinary nitrate bath.

The tone obtained is very beautiful and useful for many subjects, particularly portraits. As it is important to know that prints, even when exposed for some time to direct sunlight, will not change, a print obtained in this way was half covered with black paper and exposed to intense sunlight. It showed not the least difference between the covered and uncovered parts.

For blue toning, Dr. Namias prefers the use of two baths, the one a 5 per cent. solution of potassium ferricyanide, with 5 per cent. ammonia added, and the other a 1 per cent. solution of ferric chloride, containing 2 per cent. of hydrochloric acid. Only in this way can an intensely blue picture be obtained. After toning the silver chloride

can be removed with hypo. If the copper toning is carried out in this latter way very weak prints are obtained.

## Photo-Mechanical Notes.

### Cleaning the Metzograph Screen.

One of the best ways to clean a metzograph screen on the grained surface, writes Mr. S. Scholes in the "Questions and Answers" Department of Messrs. Penrose's "Process Work," is to take a small bottle of methylated spirit and add a little piece of iodine just to discolour it. A small frame should be used like an inner frame of a dark slide, to keep the screen from touching the bench, the screen is placed in this, and a small amount of the methylated spirit and iodine shaken out of the bottle (which should have a spirit cork) and carefully rubbed over with a small piece of wash leather until it evaporates dry. Now take another small bottle only containing methylated spirit, and rub over again, using a full size wash-leather, and this should be rubbed as quickly as possible; this should be done now and again, while the screen is in use, but if the screen is in continual use it is advisable to clean it each night with a strong solution of potassium cyanide and iodine, with cotton wool, rinsing well under the tap and putting aside until the morning, when it should be cleaned again with methylated spirit and a large wash leather. When not in use it should be put away in an air-tight grooved box without anything touching it on either side. This box should be attached to two strong brackets and put on the wall or in the fireproof safe.

### The Bolt Court Report.

The report of the eleventh session of the London County School of Photo-Engraving and Lithography, which Mr. A. J. Newton and his assistant, Mr. A. J. Bull, have so successfully directed, speaks highly for the quality and the range of the instruction provided at the old City mansion at the end of Bolt Court, Fleet Street, E.C. The report records continued progress in the number of students—565, compared with 488 in the tenth session—and it is satisfactory to find that process firms are constantly applying to Bolt Court to recruit their staffs. We are glad to see, also, that the research side of the school's activity—an important feature of its work—has been strengthened by the completion of several pieces of investigation of value to students as well as to the process trades.

The graphic contents of the report include all the current processes of illustration, and almost all instances are reproductions of originals by students in the art or the "process" school.

### Combined Line and Half-Tone.

According to the recent patent specification (No. 11,975, 1906) of Dr. Edward Mertens, 36, Jäger Strasse, Grosslichterfelde-ost, Germany, a method of obtaining line and half-tone negatives (from an original in which both occur) on the one negative is as follows:—Two or more copies of the model or original are drawn printed, or applied in any other suitable way in a light colour to a black, red, yellow, green, or other non-actinic ground or a ground covered with a mixture of the colours, so that one or more of such copies constitutes a whole-tone component or components of the original and one or more of such copies constitutes a half-tone component or components of the original respectively. Upon the same light-sensitive plate, film, or paper these components are then photographed in succession; first the whole-tone component or components without a screen, and then the half-tone component or components with an interposed screen, or the operation may be effected in the reverse order.

### PHOTO-MECHANICAL PATENTS.

The following Patents have been applied for:—

PHOTOGRAPHS.—No. 6,497. Improvements in the means of making photographs for photo-engraving and similar purposes. Ignaz Herbst and Franz Spalth, 1, Great James Street, Bedford Row, London, W.C.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received between May 6 and May 11:—

**FILMS.**—No. 10,472. Improvements in photographic films. John Edward Thornton, Altrincham, Cheshire.

**FILMS.**—No. 11,054. Improved automatic film exposure checker for photographic cameras. Alfred William Bennett and Charles Colthurst Holland, 21, Great St. Helen's, London.

**DEVELOPING CLOCKS.**—No. 10,538. Improvements in developing clocks for photographic and the like purposes. George Lindsay Johnson, 7, Southampton Buildings, London.

**COLOUR PHOTOGRAPHY.**—No. 10,611. Improvements in methods of, and apparatus for, reproducing pictures or photographs in natural colours. Burton Stearns Philbrook, 8, Quality Court, Chancery Lane, London.

**CAMERA ATTACHMENTS.**—No. 10,695. Improvements in attachments for use with photographic cameras. Ernest George Brown, 30, Belvoir Street, Leicester.

**CINEMATOGRAPHS.**—No. 10,716. Improvements in cameras and apparatus for photographing and exhibiting cinematograph, mutoscopic, and ordinary pictures. Henry William Hamblin Palmer, 43, St. Martin's Lane, Charing Cross, London.

**COLOUR PHOTOGRAPHY.**—No. 10,717. Improvements in direct one-plate natural colour photography. Henry William Hamblin Palmer, 43, St. Martin's Lane, Charing Cross, London.

**COLOUR PHOTOGRAPHY.**—No. 10,718. Improvements in three-colour photography and the projection in natural colours upon a screen in animation. Henry William Hamblin Palmer, 43, St. Martin's Lane, Charing Cross, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**IMPROVEMENTS IN PHOTOGRAPHIC CHANGE-BOXES.**—No. 13,351, 1906. This invention relates to an improved photographic change-box adapted to be charged and emptied in daylight. For this purpose the box, which is provided with a closable charging-aperture, contains an internal rigid frame which is so arranged as to laterally enclose the pile of plates and is provided at the end, adjacent to the charging-aperture, with an aperture for the passage of the pile of the plates, and at the other end with certain slots for the passage of the exposed plate when it is withdrawn by the change-slide and reinserted at the back of the pile.

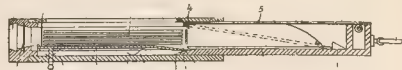
The invention is illustrated in the annexed drawing, which is a longitudinal section.

At the front part of the change-slide abutments are provided, the purpose of which is to remove the uppermost plate each time the slide is withdrawn from the box. The plate withdrawn by this means assumes the position indicated by dotted lines, and then the position indicated by full lines. The back of the slide is provided with projections, against which the plate withdrawn abuts. Two springs arranged within the slide serve to press the withdrawn plate against the back of the said slide. The rigid internal frame which constitutes the principal novelty of this change-box comprises a part adjacent to the discharging-aperture of the box, and is provided with apertures for the passage of the projections already referred to, and is so formed as to leave slots through which the foremost exposed plate may pass out, and be again inserted behind the pile.

The manner in which the change-box is used is as follows:—

The end of the case is inserted into the aperture of the empty change-box so that a light-proof joint is made between the two receptacles by means of the guides. The slide-shutters are thereupon withdrawn, and also the abutment-slide. The change-box is then held in such a position that the plates slide by gravity from the case into the box. When the plates have

entered the change-box the slide-shutters are closed and the box is ready for use. The plates are changed by successively withdrawing and re-inserting the change-slide, so that plates are



successively removed from the front of the pile and conveyed to the back thereof. The emptying of the change-box is effected in a manner analogous to the charging. The word "plates" used herein is intended to cover any form of sensitised layer carrier whether of glass, celluloid, or otherwise. Optische Anstalt C. P. Goetz, Aktiengesellschaft, of 44/46, Rheinstrasse, Friedenau near Berlin.

**AUTOMATIC DEVICE FOR PHOTOGRAPHING HOUSEBREAKERS WHILE MANIPULATING ON THE DOOR-LOCK.**—No. 3,345, 1907. This invention relates to an automatic device for photographing housebreakers whilst manipulating on the door-lock.

In the keyhole of the door a bolt is arranged and provided with two differently sized transverse holes. The bolt is passed through a gaspipe, or through a block inserted in said gas pipe so as to tightly fit said block.

Above the keyhole an opening for taking the photograph therethrough, and again above the same another opening for the illumination of the outside of the door by flashlight, are arranged.

Above the photographic apparatus, which is mounted on the door behind the opening, a cup is arranged which is filled with the flashlight powder. Into this cup the gaspipe is led with its upper orifice, whilst the lower end of the same is connected with a gas supply pipe, which is preferably effected by means of a rubber pipe.

When now an instrument, or the like, is introduced into the keyhole by the burglar, the bolt is pressed back, whereby the lever system is actuated in such a manner as to turn the closing plate away from the openings and thus freeing the latter, whilst the larger hole of the bolt is caused to coincide with the bore of the gaspipe, thus allowing a larger quantity of gas passing therethrough, so that a larger flame is produced in the cup which ignited the flashlight powder. By these means, a photograph of the burglar standing outside the door is taken. Hubert Wessling, of 319, Promenade, Borken in Westphalia, Germany.

**IMPROVEMENT IN CINEMATOGRAPHIC APPARATUS.**—No. 9,370, 1907. This invention relates to portable apparatus for photographing, exhibiting animated scenes, of the kind wherein the photographs are taken upon circular discs that are adapted to be rotated intermittently by mechanism giving a step-by-step motion, so that successive portions of the discs are brought in order in front of the lens or viewing aperture in the outer casing of the apparatus, the exposure or viewing interval being controlled by a revolving shutter.

Each sensitive plate is placed in a closed casing having a shutter whereby the plate can be protected from light when not in use of the apparatus, the shutter being manipulated when the casing is in place in the apparatus to uncover the plate at the position where the photographs are to be taken. Henri Louis Huet, 114, Rue du Temple, Paris.

**IMPROVEMENTS IN PHOTOGRAPHIC ENLARGING APPARATUS.**—No. 15,111, 1906. This invention has for its object a means for strengthening and simplifying the construction of daylight enlargers.

It is well known that the said enlargers generally consist of a light-proof tapered casing, provided with a means for holding the negative and the enlarging lens at the smaller end, and the sensitive material on which the enlargement is made at the larger end.

The method hitherto commonly in use has been to form the said casing either of wood or cardboard, the latter being usually covered with a suitable fabric for the purpose of rendering the joints light proof and giving the apparatus a suitable finish.

The objection to the use of wood for the above purpose is that the shrinkage to which it is liable has a detrimental effect



the focus of the enlarger, and the cost of manufacture is considerable.

With cardboard or similar material the objection arises more particularly from the instability of the joints and the difficulty and cost of construction.

According to our improved system we adopt a combination

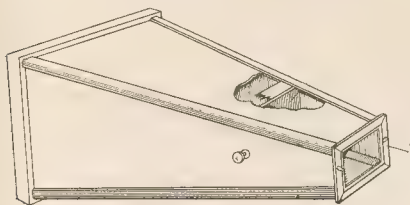


Fig. 1.

of cardboard sides which are glued or otherwise fixed into grooved corner beadings, as will be clearly shown in the accompanying drawings, in which Fig. 1 is a perspective view of the complete apparatus with a part of one side removed to show the lens board and fillets. Fig. 2 is an enlarged sectional detail showing the formation of the grooved corner beadings and the

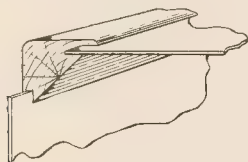


Fig. 2.

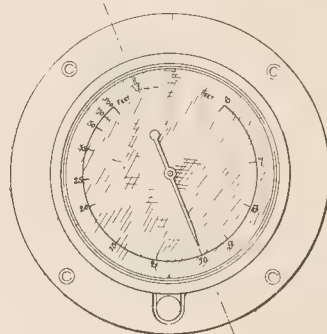
manner in which the cardboard sides are fixed therein. Herbert Holmes, Photographic Apparatus Manufacturer, Tudor Works, Tudor Road, Hackney, London, and Houghtons Limited, Photographic Manufacturers and Dealers, 88 and 89, High Holborn, London, W.C.

**IMPROVEMENTS IN PHOTOGRAPHIC PRINTING APPARATUS.**—No. 16,390, 1906. The object of this invention is to make photo prints, such as ferro prussiate, ferro gallic, etc., from engineering or other tracings, in continuous lengths, which is accomplished in the following manner. The machine is made after the form of an ordinary roller mangle, one of the rollers being hollow and made of glass, of any convenient length, to suit the width of paper used, arranged on each side and close to the glass roller. Two or more other rollers of the same length, made of wood or other suitable material, are placed around these wooden or other rollers, and a continuous band of cloth or other material, so that it presses on about half the circumference of the glass roller, which is geared by mitre wheel or chain to one or more of the wooden rollers. It will be seen that when the rollers are revolved the glass roller and endless band will travel in opposite directions, and both the tracing and the photo printing paper passed between them will be gripped, and carried evenly through. Inside the glass roller, which is open at both ends, are placed several electric mercury vapour tubes, or other high candle-power electric vacuum lights. James Warry Vickers, Finsbury Square Buildings, London, E.C.

**IMPROVEMENTS IN TELEMETERS OR DISTANCE FINDERS FOR PHOTOGRAPHERS AND OTHERS.**—No. 12,512, 1906. This invention relates to a telemeter designed to ascertain the distance at which an object to be photographed is situated from the observer, so that, the distance being correctly known, the camera may be focussed and the exposure made. It consists of a sighting tube combined with, or in a fixed relative position to the centre of suspension of, a plumb weight. When the sighting tube is horizontal the plumb weight hangs at right angles and vertical to it. The sighting tube is directed to the base or ground line of the object to be photographed, and as the weight will hang

perfectly vertical it will give the angle formed between the line of sight and a perpendicular line drawn from the eye of the observer to the ground. This angle, by means of suitable gearing, is multiplied and converted into a circular motion and conveyed to a pointer moving over a dial, which, instead of being marked in degrees, is, for the sake of convenience, marked off to show the distances in feet or metres, so that the distances may be read off with the greatest ease.

This instrument can also be used to level the camera, as when the pointer is pointing to an arrow head marked on the dial the



sighting tube of the telemeter is at right angles to the weight and is consequently in a perfectly horizontal line.

This instrument is for use on level ground, and hence should the base or ground line of the object to be photographed stand higher or lower than the ground on which the observer is placed, the necessary allowance must be made for this difference of level by directing the sighting tube to a distance higher or lower than the object which would be level with the ground on which the observer stands.

The instrument may be fixed to the camera or independent thereof, and it comprises a case closed at front by a glass cover and containing the weight which is suspended by a spindle which works freely in bearings in front and rear plates or supports in such manner that whatever may be the vertical position of the telemeter the weight will, within predetermined limits, always hang vertical. Only a certain amount of angular movement of the plumb weight is necessary, and it is then stopped by striking against the case. The instrument may be in the form of a watch carried in the pocket. Frank William Riches (Engineer), of 11, Toutschkoff Pereoulk, St. Petersburg, Russia.

## New Trade Name:

**PUSHAKE.**—No. 291,795. Chemical substance included in Class 1, and not included in other classes. Fuerst Brothers, 17, Philpot Lane, London, E.C., merchants. April 3, 1907.

**MR. T. NAYLOR**, manufacturer of photographic apparatus, etc. (late of Halway Street Works, Tottenham Court Road), intimates change of address to 24, Denmark Street, Charing Cross Road, where in future he will trade under partnership title of Naylor and Luck.

**THE ROYAL SOCIETY.**—At a conversazione held at the society's rooms, Burlington House, on May 8, one of the most interesting exhibits was that shown by Dr. F. D. Chattaway, F.R.S., of copper mirrors deposited upon glass from aqueous solution. Although silver is very readily deposited upon glass in this way and extensively used in the manufacture of mirrors, it has hitherto been found impossible thus to deposit the metal copper, but the mirrors exhibited proved equal in brilliancy and uniformity of surface to those treated with silver, and, on account of the colour of the copper, much more beautiful.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### A Pictorial Object Lesson.

THE most satisfactory method of dealing with pictorial work on an outing (says a writer in "The Photographic News") would be for the leader to select some subject which appealed to him, to get his standpoint and expose his plate. Then let each member carefully examine the subject, see how much of it was included on the ground glass, and, if possible, hear in a few words what the leader proposed to do in the way of treatment. Then, at a club evening, a straight print might be shown from the negative, either contact or enlarged to the size it was proposed to make the picture. A second similar print might also be shown, with any alterations in the way of lightening or darkening which might be intended, these modifications being made with charcoal grey and Chinese white, applied with a brush. If club facilities existed, the enlarged negative making, with the necessary control, might form another demonstration.

### Oil Pigment Printing.

In speaking of the actual pigmenting in his oil printing process Mr. G. E. H. Rawlins (writing in "The Amateur Photographer") says: "At this point we reach the most important part of the proceedings, for it is in the application of the pigment that the process becomes plastic, and the picture evolves as we may command it. The pigment of which it will consist is a very carefully adjusted oil paint, quite different from the variety used by painters, and in order to apply it a small quantity (about the size of a match-head) must be carefully spread, *very thinly*, on a piece of glass, and one of the special brushes lightly charged by gently dabbing upon it. On applying this to the blank print some of the pigment will be transferred, and the picture will begin to appear. Gently it comes, the shadows drawing to themselves each its proportion of the colour; but one perhaps comes forward too much, showing brighter than the impression the scene itself left upon the mind. A little extra pigment on the brush, a persuasive touch, and down it goes to the exact value we desire. Or, again, the negative gives us a tame, sad passage where we saw all light and silvery—a quick turn of the brush, a sort of flicking action, and it shines out full of brilliance. In fact, whatever effect we feel to be desirable is readily within the reach of a mere modification in the handling or manipulation of the brush."

### Exposure for Architectural Subjects.

With regard to the exposure of architectural subjects, Mr. E. R. Bull (writing in "Focus") gives the following advice: "For interiors the only reliable guide is that of experience. Notes should be made of the precise conditions at the time of each exposure, and the results so gained will act as a guide for future practice. As the characters of the subject and lightings vary to such a very great extent, only a rough estimate can be quoted. In the light portions of the cathedrals, as the naves, in a good diffused summer light, and the lens working at  $f/22$  on rapid plates, from three to five minutes will be required. If stalls or other dark objects be included the exposures must be increased, and here orthochromatic plates will be found advantageous. In very dark parts, as crypts, the exposures often run into several hours. It is well to remember that in this class of work, under-exposure renders the plate useless, and the exposure should be for the shadows; the high-lights will take care of themselves. When exposures are of prolonged duration, persons passing in front of the camera may be ignored, providing they are constantly on the move. But should they remain in one place or sit down, the lens should be capped. This may occur many times during one exposure. Light coloured clothing is particularly apt to produce ghosts, and thus spoil the picture."

MESSRS. RILEY BROS. (late of 55 and 57, Godwin Street) have removed to more extensive premises at 17, Colonnade, Westgate, Bradford, where all communications should now be addressed.

SEASONABLE ADVERTISING.—A good example of window advertisement is to be seen at the present time at the Kodak Company's branch, 40, Strand, where a realistic seaside view of children playing on the beach is depicted, one of the number being occupied in kodaking his companions.

## New Books.

"Lehrbuch der Microphotographie." By Dr. R. Neuhauss. Published by S. Hirzel, Leipzig.

It is nine years since the second edition of this text-book was published, and considerable advances have been made during that time, not only in the construction of micro-objectives, but also in the preparation of plates.

A brief historical survey of photomicrography, which is, we venture to assert, the correct term, opens the book, and this deals rather with the evolution of apparatus from Mayer's simple instrument of 1844 to the latest complete installations of Zeiss, Reichert, and Leitz.

The objective, the effect of immersion fluids, and projection oculi are dealt with in very simple fashion, a remark which may also apply to the chromatic difference of focus and the production of monochromatic light filters. The sources of light are treated more fully, and there is here much valuable information, based on the only satisfactory foundations of spectral composition, plate sensitiveness, and resolving power. The condenser and its use comes in for like simple treatment.

The particular arrangements for dark ground, side or polarised, stereoscopic work are somewhat more fully treated, but those spectroscopic work are meagre.

The section devoted to photographic manipulation pure and simple is commendably brief; commendable in that the author assumes that either the worker is acquainted with photography or that he will have access to purely photographic text-books, therefore the instructions given deal rather with the particular modifications incident to the special work in hand.

The concluding sections dealing with "the importance of photomicrography" and the methods of reproduction are particularly happy; we have here a sketch of the value of the work and the value of every reproduction process.

As a manual for photomicrographic practice, we can warmly recommend Dr. Neuhauss' work, particularly to those who are acquainted with the general practice of photography. It is well illustrated throughout by diagrams, and at the end some fine half-tone cuts of type and photogravure illustrations are given, amongst which would specially mention those of some Zenker laminae, that is, laminae of interferential colour work, and one of the well-known *Amphipleura pellucida*.

"Elektrische Fernphotographie." By Dr. Arthur Korn. 2nd Edition.

This booklet is an extension of the first edition, necessitated by the important practical advances which Dr. Korn made during the past two years in his method of reproducing pictures electrically at long distances. It gives an interesting historical review of previous attempts in a similar direction, and describes in full the author's carrier forms of transmitting apparatus. The principal change taken place in the receiver, the high tension vacuum discharge tube with its attendant complications, having been replaced by a much simpler though delicate arrangement, which, owing to its small inertia, permits of higher speeds in transmission.

The receiver consists now essentially of an "Einthoven Galvanometer," in which a very fine wire is stretched between the poles of a powerful magnet, this wire "sagging" under the influence of the currents traversing it. A small shutter attached to the wire is thus made to more or less stop out the rays from a source of light, and thus to introduce the variations in depth of printing which result in the print.

A most important addition is the "Selenium Compensator," a theory of which is developed. Its principal function in this case is to eliminate some of the time "lag" of the Selenium, and render possible speed of transmission greater.

The method which Dr. Korn has evolved undoubtedly shows some very practical and satisfactory results, and should, during the next few months, become familiar to the general public, owing to its having been acquired by one of the great London papers.

"Résumé des Travaux Publiés." Par MM. A. and L. Lumière, Lyons.

This is an extremely useful collection of brief summaries of all the published papers by the authors on photographic and other subjects dating from 1877 to 1906. In all cases the original source is given, and therefore it is possible to turn this up if it be thought necessary.



M. Lumière's investigation work, most of which has been reported on our pages, has touched on most photographic subjects, and it could be found very handy to have in one volume a summary of the same.

## New Materials.

Wellington Canvas Bromide. Manufactured by Wellington and Ward, Elstree, Herts.

This is a distinct novelty which should find considerable favour, both for contact printing and enlarging. It is a real canvas paper, giving well the grain, and is therefore specially suitable for artistic effects. It is very strong, and will therefore stand considerable rough handling if required.

It is quite sufficient for us to say that it is coated with the well-known Wellington bromide emulsion, and is manipulated in exactly the same way as any ordinary bromide paper, and is obtained at the same price.

This new material will be warmly welcomed by the enthusiast in enlarging, who can with it obtain a fine canvas grain effect without use of bolting silk or other media.

"Shash," a universal concentrated single solution developer. Sold by Fuerst Bros., 17, Philpot Lane, E.C.

Details will be found elsewhere of a competition which has been instituted by Fuerst Bros., with prizes amounting in all to £150 for its obtained with this developer.

From our trials with this developer, which may be obtained either in solution or cartridge form, it is possible to obtain excellent negatives. It is adjustable to various exposures by mere dilution with water and the addition of bromide, and is also suitable for development papers. It is clean working and not very readily oxidised, so it answers to all the requirements of the practical worker.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, MAY 24.

Leen Photo Art Club. Indoor Meeting.

SATURDAY, MAY 25.

Camera Club. Outing to Knaresborough.

Middlesex Photographic Society. "Record" Outing.

County Photographic Club. Outing to Allesley and District.

East and District Photographic Society. Outing to Mitcham.

East Park and District Photographic Society. Outing to Old Park, Winchmore Hill.

MONDAY, MAY 27.

East Photographic Society. Outing to Esholt.

East and District Photographic Society. "Gum Bichromate." W. F. Slater.

East and District Photographic Society. "Essential Qualities of Photographic Apparatus." G. Kimber.

East and District Photographic Society. Pictorial Competition.

East and District Photographic Society. "Theory and Practice of Time Development." W. F. Slater.

TUESDAY, MAY 28.

Photographic Society. Technical Meeting. "A Measurement of the Efficiency of Dark-Room Filters." C. E. Kenneth Mees, D.Sc., F.C.S., and K. Baker.

Photographic Society. "Camera Adjustments." A. J. Hyder.

Photographic Society. "Intensification and Reduction." A. E. Bawtree.

Photographic Society. "Copying." J. Leadbeater.

Photographic Society. Social Evening.

WEDNESDAY, MAY 29.

Photographic Club. "Sepia Platinotypes." Demonstrated. W. A. Hooker.

Photographic Society. "Lantern Slides." R. J. G. Owen.

Photographic Society. "Theory and Practice of Self-Toning Papers." John Griffin & Sons.

Middlesex Photographic Society. Technical Meeting.

THURSDAY, MAY 30.

London Photographic Society. "The 1906 Outings." E. H. Ingleton and L. T. Jones.

FRIDAY, MAY 31.

Photographic Society. "The 1906 Outings." E. H. Ingleton and L. T. Jones.

Photographic Society. "The 1906 Outings." E. H. Ingleton and L. T. Jones.

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Photographic Society. "The 1906 Outings." E. H. Ingleton and L. T. Jones.

a series of capital negatives, some being on plates over a year old and kept under adverse conditions. The greater part of the evening was devoted to an explanation by the authors of the pictures, of the conditions under which their respective negatives were exposed and developed, and to a consideration as to how the various plates (mainly orthochromatic, behind filters) translated the original scenes.

## Commercial & Legal Intelligence.

A "WANTED" PHOTOGRAPHER. — Sergeant Whaley arrested at Consett an itinerant photographer, William Stephenson, alias Clark, who is said to be "wanted" at Welshpool.

ALLEGED ADVERTISEMENT FRAUD.—The opening scene in an important police prosecution was enacted at the Liverpool Police Court, when Thomas and William M'Hugh, father and son, were charged in several cases with having obtained money by false pretences and with conspiring to defraud. Thomas A. Anderton, a young ship's steward, stated how he replied to an advertisement in a Liverpool newspaper, and received a letter inviting him to call at a certain photographic studio. He did so, and saw William M'Hugh, who informed him that he wanted a steady, reliable young man, that his father was financing the business, and was a retired solicitor and a member of the City Council, which fact obtained him Corporation work to the amount of £100 a week. He (William M'Hugh) had also a studio in the Isle of Man, and wanted witness to manage the Liverpool branch. He asked for a premium, and £30 was eventually paid over to William M'Hugh. The evidence in other cases was almost identical, and accused were remanded.

A CANVASSEER CHARGED.—At the North Holland (Boston) Petty Sessions last week William Westoby, 56, photographer, Alford, was charged with obtaining money by trick. Walter Morley, machine owner, Wigtoft, said prisoner called on him on January 18, and solicited orders for photographs. He agreed to have his machine photographed, and paid prisoner 5s. for three copies. On March 1 prisoner called again, and said the photograph had come out badly. He therefore took another photograph, and witness gave him another 5s. for three more copies, none of which he had received. Evidence was given showing that prisoner also obtained 8s. from Mrs. Poole, wife of a cottager, at Sutterton; 5s. from John James Alexander, farmer, of Gosberton Fen; 10s. from Walter Alexander, labourer, at Gosberton Clough. Mrs. Eliza Ann, Gosberton Clough, said prisoner lodged with her from March 4 to 15, and left owing her 8s. 6d. Prisoner gave his address as East End, Alford, and Mrs. Lucy Raithby, of that address, said prisoner had lodged with her, but left in February, owing her 30s. Prisoner said he would execute the orders he had received if the magistrates would grant him time. He admitted that in December, 1903, he was committed to prison for one month at Grantham for obtaining money by false pretences. He was committed for two months' hard labour.

CHEAP PHOTOGRAPHY.—In the Lynn County Court Charles Holman, 30, Norfolk Street, Lynn, tobacconist, brought an action against George Mason and C. Foster, formerly trading as the Gainsborough Photo Company, but now as the Stickybacks Company, 59A, St. Matthew's, Ipswich, photographers, to recover £5 for damages done to premises. Judgment for defendants.

A FOLKESTONE BANKRUPT.—On May 9, in the case of Leonard John Watson, photographer, Folkestone and Canterbury, the liabilities were put at £248 10s. 10d.; net assets, £64 1s. 1d.; deficiency, £184 9s. 9d. Debtor said he started business about seven years ago at Folkestone as a photographer. He had about £25 capital, which he had saved whilst an assistant. The business was a success. Last October he opened a branch business at 6A, The Parade, Canterbury, because the doctor said his wife could not live in Folkestone. The business in Folkestone, which he left in charge of an assistant, then went down very considerably. Debtor, continuing, said the rent he paid at Canterbury was £90.

The Official Receiver: What was the reason of your giving up 6A, The Parade?

When I found I could not square up things properly at Folkestone I thought the best thing to do would be to tell Mr. Philpot, the landlord, to get another tenant.

In answer to the Official Receiver, debtor said he sold the Folkestone

ROYDON CAMERA CLUB.—A number of prints of excellent average type were on the walls last week, representing the work done by members on a recent excursion. A medal offered for the best picture awarded Mr. H. P. C. Harpur by ballot amongst those present. Harpur had been giving panchromatic plates a trial, and showed

business just before the receiving order for £20, and £4 was deducted for expenses. He left the furniture at Canterbury as security. He gave instructions subsequently to Messrs. Young and Briggs (and signed a document to that effect) to sell the furniture, and the proceeds were to go to pay Mr. Philpot for rent, and the balance to be paid over to him (debtor).

The Official Receiver: The effects were not sold at the date of the receiving order?—No, Sir.

The Registrar: Where were they?—In Messrs. Young and Briggs' custody.

The Official Receiver: Did the whole of these things belong to you?—Yes, Sir.

The Official Receiver: Did you give Mr. Philpot any reason to believe that you could pay your debt in full?—No, Sir.

In answer to the Registrar, the debtor said he had an interview with the landlord, and he said that if debtor gave him some security the goods which were then at The Parade would not be stopped. It was agreed at his (debtor's) suggestion that the landlord should be paid out of the proceeds of the sale.

Did Messrs. Young and Briggs render you an account?—No, Sir.

The Official Receiver: I claimed the effects.

The Registrar: Are you to have an account?

The Official Receiver: Oh, yes

Mr. Mercer (who represented Mr. Philpot) said, in courtesy, at all events, the Official Receiver should have an account.

The examination was adjourned until June 6.

#### NEW COMPANIES.

BARKAS AND COMPANY, LTD.—Registered May 1. Capital £200, in £1 shares. Objects: To carry on the business of chemists, druggists, drysalters, oil and colourmen, dealers in photographic, surgical, and scientific apparatus and materials, etc. No initial public issue. Registered without articles of association. Registered office, 54, Franciscan Road, Tooting, S.W.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

#### A WAVE OF ORTHOCHROMATISM.

To the Editors.

Gentlemen,—I would crave permission, as a user of orthochromatic plates in my photographic work, which is employed by me merely to obtain records of pleasing arrangements of masses and light and shade, to suggest that the artist and the artist alone is the real judge of the value of an orthochromatic plate. The scientific worker is totally misled by the bogey of "luminosity values," which are not required in pictorial work. It is on this point, I think, that your clever correspondent, Mr. E. A. Salt, has wrecked himself.

We artists, and I use this term because it is as an artist of the paint-brush I write, do not want correct luminosity values. We want contrasts in colour, a subject of which the average photographer is woefully ignorant, and probably through his education—that is, the continued use of ordinary plates—is very loth to admit, or is unable to see.

Correct luminosity values I have found useless, but I have found a very great improvement in the use of colour sensitive plates, both with and without a filter. In taking a subject, however, I invariably note what the particular colour contrasts are that I want to accentuate, and choose my filter accordingly. This necessitates the use of three or four filters, and it is not always necessary to use them.

Mr. Salt's contention that "orthochromatism" is a reserve force and a reserve force only I deny. There is a marked improvement in the early and late seasons of the year in the rendering of the colour values on a colour sensitive plate without a filter; but it requires the trained eye that is trained in colour sense (not photography) to see

the same. It is here that I venture to suggest that your esteemed correspondent fails. He judges his results from the monochrome photographic standpoint, and not from that of the polychrome art.

I enclose my card, and remain, yours faithfully,

S. Kensington.

A COLOUR PAINTER.

To the Editors.

Gentlemen,—I feel grateful to "Professional" for having recognised, in his temperately written letter, that I recommended ortho plates for certain subjects. To satisfactorily render distant views, skies, and objects at close quarters presenting heavy colour contrasts, ortho plates and filters appear to be indispensable. In the case of distant views, a loss of atmosphere no doubt sometimes occurs, this may possibly be due to the filter used cutting too sharply. I am also glad to note that he also touches upon the desirability of plates for certain classes of work. Their finer grain, and, generally speaking, greater latitude, in exposure are certainly points in their favour.

Mr. Ernest Human appears to have undertaken the rôle of "Glorious" to your editorial remarks, but with variations. In these is not particularly happy. Opening in the best "penny plain, t'pence coloured" style, he melodramatically expresses his astonishment that the views I advanced should be possible in 1907. Now this is not my argument, nor is it particularly polite. He next cites a remark as to the "subtle difference," and goes on to say, "True, difference of tone value, and tone value alone." Of course, Mr. Human does not mean to admit the difference is "subtle." Not he; it is of his little way of expressing himself.

I also think that Mr. Human is mixing up "tone values" with "correct luminosity representation of colours in monochrome." Though related to each other they are essentially different. Give a panchromatic plate, an adjusted filter, a subject within the latitude of the plate, and correct exposure, then the relative luminosity values of the coloured original no doubt are secured. The resulting negative, however, may be quite incapable of rendering true tone values by any known printing process. How difficult these are to secure an expert picture copyist knows full well, even with the original before him for comparison. Here also the question is complicated by the fact that occasionally colour luminosities must be falsified to apparent truth, or, in other words, suggestion of colour contrast in monochrome.

In reference to Mr. Human's question as to "usual standards" am not aware that anyone has ever suggested that the capacity of an ordinary plate, under certain strictly limited conditions, to render blue as white, and red as black, should be considered "standard," and I see no use in the invention of futile suppositions as a basis of discussion. This is, however, significant of the attitude often adopted by violent partisans of orthochromatism, who arrogantly cannot appreciate the added power it places in their hands without unduly depreciating an old and tried friend, which has done magnificent work in the past, and is capable of repeating it in the future.—Yours faithfully,

E. A. Salt.

#### FOCUS OF NEGATIVE LENS.

To the Editors.

Gentlemen,—With reference to the query, "B.J.," p. 359, I beg to offer the following rule:—

To measure the focus of telephoto negative lens:

Let  $I^1$  = image diameter formed by positive lens.

$I^2$  = image diameter, of same object, formed by telephoto negative lens, combination without altering the position of the positive lens ( $I^1$ ).

$M$  = magnification.

$E$  = camera extension = distance from concave surface of negative lens to the nodal point, if known, of negative lens to screen ( $I^2$ ).

$N$  = negative focus.

$$\text{Then } \frac{I^2}{I^1} = M, \text{ and } \frac{E}{M-1} = N.$$

Yours truly,

Bishop Auckland, May 21.

H.



# Answers to Correspondents.

matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered less the names and addresses of the writers are given. Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., Wellington Street, Strand, London, W.C. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 7d. each photograph, to cover cost of registration fee, form, etc. No unmounted copies of each photograph must be sent with the

## PHOTOGRAPHS REGISTERED:—

T. Hales, Brompton Barracks, Chatham. Photograph of Depot Battn. Chatham, 1906-07. Army Camps.  
Sons, 8, Gainsborough Street, Sudbury, Suffolk. Two Photographs of Hill, Sudbury. 1. East View. 2. West View.  
Elizabeth Stevens, St. John's Street, Bury St. Edmunds. Photograph of old Print of the Abbey of St. Edmundsbury.  
Ward, 13, Turton Street, Weymouth. Photograph of a View of the Sicans  
Man, 42, Brunswick Road, Shoreham, Sussex. Photograph of a Boy  
Over a Cove.  
577, Garratt Lane, Earlsfield, S.W. Photograph of a Football Group  
id, "Summerstown, with Three Cups."  
Burney, 405, Stretford Road, Old Trafford, Manchester. Two Photo-  
s of Professor Wm. Stearns.

LE HALF-TONE INKS.—Could you inform me if it is possible to use any of the sympathetic inks into a condition for printing in half-tone blocks. I want the printing to be invisible if warmed or otherwise treated.—PUZZLED.

Within our knowledge it cannot be done, since the action of pathetic inks depends on the absorption of water, a process which cannot go on in a greasy ink.

ING.—In enlarging from a negative which has matt varnish on the back, I cannot prevent the outline of varnish from showing on the bromide print. I have tried using piece of ground glass next the negative, but though that is an improvement, it is not by any means obliterate the outline. I use artificial light to enlarge by.—ENLARGER.

is not possible to avoid this unless the image is thrown slightly out of focus or a lens with a large aperture used, and image only focussed for. This means very exact focussing, the slightest error will at once throw the back of the glass out of sharp focus.

RO LENS.—Can you inform me where I am wrong? I have been trying to calculate a telephoto lens for a special purpose to use from 10in. to 20in. focus, but am at a loss to ascertain the I want. In Lummer's book on this subject he gives as multiply focus of positive by focus of negative, and divide difference less separation. Now, taking as positive lens of focus and a negative of 6in. mounted  $\frac{1}{2}$ in. apart gives the wing:  $8 \times 6 = 48$ ;  $8 - 6 = 4\frac{1}{2}$  = what? as  $8 - 6 = 2$  and will not go. What will be the focus obtainable by combining a 6in. and 8in. lens and mounting them from 3in. to 4in.—PUZZLED.

the case in point the calculation is  $8 \times 6 = 48$ , and  $4\frac{1}{2} = -2\frac{1}{2}$ , therefore  $-48 \div -2\frac{1}{2} = +191.5$ in., which is a five focus. The error lies in the omission of the minus sign. rule to find the focus of any supplementary lens is as stated Lummer, and it is obvious the decrease of the distance of separation in above calculation will considerably increase resultant positive focus; thus if the distance of separation reduced to 4in., the positive focus is 24in.

OUNTANT.—I have been using the dextrine mountant on p. 994 of the "Almanac," but although I have used was supplied to me as the best dextrine, it will not set. is the cause of the trouble?—MOUNTER.

re is no doubt that the dextrine is at fault. The formula ers perfectly if the best white dextrine is used. The only to do is to obtain two or three samples and submit them practical test, following the formula exactly.

G PRINTS.—A friend has shown me some line drawings

which he said were made from prints, but he was unable to give me any more information than that the actual prints were used. Can you tell me how this is done, please?—H. V. ESDALE.

The prints, which can be bromide, or P.O.P., or any silver process, are outlined with special waterproof ink, which can be obtained from almost all dealers, and then the silver image is dissolved, either with

Thiocarbamide .....	240 grs.
Nitric acid .....	$\frac{1}{2}$ ozs.
Water .....	20 ozs.
or Iodine .....	$\frac{1}{2}$ grs.
Potassium iodide .....	30 grs.
Potassium cyanide .....	30 grs.
Water .....	5 ozs.

The first is preferable, as it is not so poisonous as the latter. The print soon disappears in this, leaving the ink lines.

PANCHROMATIC FLASHLIGHT.—Is it possible to add any salts to magnesium powder so as to obtain a flashlight suitable for copying water-colours, etc., as I find the ordinary mixture does not give the orange and red well.—MAGNESITE.

Strontium, calcium, and lithium salts may be added, and thus red and orange rays be obtained, in addition to the green, blue, and violet of the plain magnesium. It would be far better to obtain one of the commercial panchromatic mixtures, which burn rather slowly and thus enable one to give sufficient exposure. An ordinary flashlight would hardly be sufficient, especially if colour filters were used.

LEARNING THE BUSINESS.—I am an artist, successful portrait and landscape painter, but not sufficiently certain of employment to marry. Therefore, I should like to take up photography as a profession, relying on art only as yielding additional income. I have some knowledge of photography as an amateur, but, of course, want to learn it properly before taking over a small business. 1. Are there situations where I could get experience and knowledge, at the same time rather earning than paying a premium? 2. How long do you think I should have to learn?—F. K.

1. The best thing to do would be to look through the small advertisements of situations vacant or else advertise in our columns for a situation. On the other hand, it would be possible to obtain instruction at one of the schools. 2. This entirely depends upon your present knowledge, but six or twelve months should be enough.

DIRECT SEPIA BROMIDES.—Is it possible to obtain by any commercially practicable method direct sepia bromides—that is, by development alone?—POSTCARD.

The following method has been recommended, using the following developer:—

A. Pyro .....	30 grs.
Metol .....	60 grs.
Sodium sulphite .....	1 oz.
Potass. bromide .....	30 grs.
Water .....	20 ozs.
B. Sodium carbonate .....	3 ozs.
Sodium sulphite .....	$\frac{1}{2}$ oz.
Water .....	20 ozs.

If mixed in equal parts with normal exposure a warm black is obtained. By increasing exposure one-half and using 1oz. of A, 1oz. of B, and 2oz. of water, a warmer tone is obtained. With three times normal exposure, and using 16oz. of water and 30 minims of 10 per cent. bromide, a bronze sepia is obtained. By merely increasing exposure and the amount of water and bromide, great variation in colour is obtainable. Whether this is commercially practicable is another question; we should have thought that either the sulphide or hypo-alum toning methods, which are both commercially used, would have sufficed.

COPYRIGHT.—Will you kindly tell me to whom does the copyright belong when a free sitting is given?—N. T.

The following extract from the "British Journal Photographic Almanac" for 1906 answers your question. The rights of the photographer in regard to the use of the negative are very different when he receives no good or valuable consideration for taking the photograph. Clause 1 of the Act then vests the copyright in him. The question of what is valuable consideration was mentioned in the case of "Ellis v. Marshall," which is an instance of the free or invitation sitting. Miss Mary

Moore, the actress, sat for her portrait on the invitation of Mr. Ellis, paying him nothing, though she received a few courtesy copies, and the copyright was ruled to be the property of the photographer. It has been argued that the subsequent sale of copies to the sitter constitutes valuable consideration, but such is evidently not consistent with the Act, which is clear in stating that "the negative shall be made or executed for a good and valuable consideration." In the very usual case of the reservation of the copyright to the photographer when he received a consideration, the statute is equally clear in requiring a written agreement at or before the time of sitting. This agreement should state the consideration (reduced price, etc.) which the photographer is to give for allowing him to reserve the copyright, and it should be stamped with a 6d. agreement stamp. A copyright is property, and, legally, a transfer of property involves a consideration. A customer, for a consideration to the photographer, acquires the copyright in his photograph; for a consideration from the photographer, which may be much less than that to the photographer (a discount from the usual price, for instance), he allows the photographer to reserve the copyright; practically he transfers it to the photographer.

**COPYRIGHT.**—I have a negative (not copyright) of a client who paid for photos at time of sitting. I am now anxious to get assignment of copyright, and he is willing to assign. What steps must I take? Must he copyright first and then assign to me, or can he just assign by filling in copyright form and me then registering? Please explain, as I have never seen the point explained. Thanking you in anticipation.—**COPYRIGHT.**

All that is required is a written memorandum, which must be appended to the ordinary registration form, which sets forth the fact that the owner of the copyright assigns the same to you.

**CANVASSING.**—I go round from door to door photographing groups at their apartments, submitting proofs, etc. Do I require to have a licence? I have been told that I do.—**CANVASSER.**

We have heard the same statement made, but in our opinion no licence is needed.

**BROMIDE TONING.**—Can you tell me how to tone bromide postcards to a purplish brown, such as one sees on the commercial cards.—**PRO.**

The method adopted in some cases is that of the hypo-alum bath, which will, when ripe, give this particular colour. The formula, as given in our "Almanac," is quite satisfactory, and is as follows:—

Hot water .....	20 ozs.
Hypo .....	2½ ozs.
Dissolve and add:	
Alum .....	½ oz.

This solution should not be filtered, as it works better as it becomes older; it may be strengthened from time to time with a little fresh solution. The best results are obtained by keeping the bath hot, or as warm as the emulsion will stand, say, 100 to 120 degrees Fahr. The prints will tone in from thirty to forty minutes. Much quicker toning and more purple tones are obtained by adding to the above bath—

Silver nitrate ..... 10 grs.

When the bath begins to take too long, throw half of it away and add fresh solution.

**ACID FIXING BATH.**—An acid fixing bath for use with bromide paper is very frequently recommended. Is this essential, and what are its advantages? So far I have not used it, and have not met with any special trouble.—**H. E. T.**

The acid fixing bath immediately arrests development, and prevents any chance of stain from oxidation of the developer. If in your practice you can turn out good work without it, there is no necessity to alter your method of working.

**GLAZING PRINTS.**—I have repeatedly tried to glaze P.O.P. prints by squeegeeing to glass, ferrotype, and celluloid, but in all cases some of the gelatine squeezes out, and the prints stick, and have to be taken off in bits with a knife and hot water. I have used —'s and also —'s papers with like results. Is it the fault of the paper or the manipulation?—**NEWCASTLE.**

The trouble is obviously in the manipulation, and this is proved by the gelatine squeezing out. Obviously this has been softened so much by prolonged washing or other treatment as to have become practically disintegrated. After washing for an

hour with six changes of water the prints should be immersed in a 5 per cent. solution of formaline for about five minutes, transferred to the methylated spirit bath for five minutes then squeegeed without drailing.

**ILLNESS OF MR. ALFRED WATKINS.**—We regret to learn that Alfred Watkins, of Hereford, president of the P.C.U.K., has met a serious motor accident. Whilst proceeding up a steep hill, the car containing Mr. Watkins and a friend, from some unexplained cause began to run backward. Mr. Watkins endeavoured to turn it to the roadway, but the car overturned, and whilst his friend managed to leap off in time Mr. Watkins was pitched heavily on to a pile of stones and rendered unconscious. He was taken to a farm for the night, and, though badly bruised and shaken, and the muscles of his leg injured, was able to be taken home next day. He is making good progress towards recovery, and it is hoped that in a few weeks he will be about again.

**THE ALHAMBRA.**—This leading home of entertainment, the cinematograph performances at which have consistently demonstrated the feats possible to animated photography, has now been decorated from floor to ceiling, a process which has been carried out without interfering with a single performance. The effect presented by the house is brilliant in the extreme, a blaze of light that is at the same time harmonious. And from the point of view of comfort (which, after all, is far more important than appearance), all the changes are for the better. The stalls have been re-seated, and are not only pleasant to sit in, but give plenty of room for one's feet and for persons passing backwards or forwards. The same has been done in the balcony and upper circle, while the general appearance provides its patrons with armed and cushioned seats. Entrances and exits have been constructed to and from the balcony and grand circle; the entire floor of the house has been either repainted or covered with new linoleum; the balcony lounge has been made a place of beauty, with mirrors, mural decorations, and charming designs in electric lights; and direct access to the stage is now possible not only from the Charing Cross Road entrance, but from Leicester Square. The Alhambra has always been worth visiting for the sake of the entertainment. One may now say that it is worth visiting for the sake of its own beauty.

**THE "PUSHAXE" COMPETITION.**—Messrs. Fuerst Brothers announce a competition to introduce to public notice the new "Pushaxe" developer which they are shortly placing on the market. The competition should prove extremely popular, as it is open to amateurs and professionals, the dealer also coming in for his share of the spoils. Ten prizes, varying from £30 to £1, are offered for negatives, lantern slides, and prints, all of which must be developed with the "Pushaxe" developer, each package of which will contain a necessary entry form, together with full particulars. The competition will be judged by Messrs. William Crooke and H. Walter B. whose decision will be final. Competition specimens, accompanied by entry form properly filled up, must reach Messrs. Fuerst Brothers, 17, Philpot Lane, London, E.C., before November 30, each being marked "Competition." The entry form must contain the name of the dealer from whom the developer was purchased. Three prizes of £20, £10, and £5 respectively will be awarded to the three dealers who obtain the largest number of customers.

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## The British Journal of Photography

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## SUMMARY.

present exhibition at the "B. J." house of photographs by the N.P.R.A. closes to-morrow (Saturday).

final arrangements for the Photographic Convention to be Hereford from July 15 to 20 have now appeared. Some from the Convention book are given on page 412.

ers this week witnessed two trade exhibitions—that of lak Company at the Portman Rooms (closing to-morrow at), and Messrs. Gamage's, which remains open till June 8.

months' hard labour for a fraudulent canvasser was a sentence at Croydon last week. (P. 411.)

prosecution of the two M'Hughs at Liverpool for alleged from assistants in photographic businesses is being continued.

ful investigation of dark-room light-filters by Dr. C. E. K. and J. K. Baker was communicated to the R.P.S. on Tuesday (P. 417.)

ers in Bromide Prints.—We give some notes on the various connected with the epidemics of blisters on sulphide-toned es. The water supply is certainly a factor in the case, and bath which also hardens the prints is recommended. (P. 403.)

matic enlarging apparatus and an instrument for viewing nn photographs are among the patents of the week. (P. 413.)

ther discussion of orthochromatic matters took place at the P. last week. (P. 411.)

iter in a contemporary has published some interesting figures mercury intensifier. (P. 402.)

unexplained facts in connection with loss of density in the bath are the subject of some notes on page 402.

E. J. Wall, in reviewing the modern work in colour sensitising, es the connection of fluorescence with the sensitising pro- of a dye. (P. 406.)

## EX CATHEDRA.

### The Reflex Camera Exhibition.

The arrangements for the exhibition of reflex cameras and their products, in the shape of photographs, have progressed so far that there is no doubt of the great interest which the combined collection of pictures and apparatus will present. Among the reflex workers who are sending prints for exhibition are:—

G. W. Beldam.  
Herbert Bairstow.  
F. Martin Duncan.  
Gordon Chase.  
Dr. John W. Ellis.  
S. G. Kimber.

Charles Kirk.  
Percy Lewis.  
Arthur Marshall.  
Oliver G. Pike.  
W. Thomas.  
W. L. F. Wastell.

and, therefore, the exhibition will obtain a doubled interest from the information conveyed as to the methods of leading exhibitors. In addition to the firms already announced the following firms expect to send reflex cameras associated with their names:—

Spiers and Pond, Ltd.  
F. C. Clarkson.

We would again draw attention to the period during which the exhibition remains open, viz., June 13 to July 6.

\* \* \*

### The Canvassing Nuisance.

The heavy sentences which continue to be passed on fraudulent portrait canvassers do not appear to do much towards mitigating the evil, but they have the salutary result of showing the public in the most unmistakable manner the true nature of the business. That the best means of checking the evil is to give it all possible prominence has long been our policy, and to that end we have at times almost overburdened our columns with the police-court reports of the clever trickery which has duped so many poor people. Yet we are glad to find that such reports are of value to our professional friends who, as in the instance of Mr. Gordon Chase at Tunbridge Wells, have reprinted and distributed these exposures of the canvassers. Mr. Chase sends us such a circular which he has just issued, and we wish him well in using it to repulse this dishonest competition.

\* \* \*

### Dark-Room Anæmia.

The Departmental Committee appointed last August to inquire into the question of compensation for industrial diseases has just issued its report. We learn from it of one suggestion which was rejected, namely, that employment for long periods in photographers' dark-rooms might be the cause of chronic anæmia. As to what ground there is for the suggestion we do not know. We know many who are practically confined to dark-rooms for eight or ten hours a day, and we cannot recall one case of what might be called chronic anæmia. Many years ago Messrs. Lumière, of Lyons,

instituted the use of green light filters in their factory, and stated that they found that there was less irritability and peevishness amongst their employees. Possibly they employ a great number of female hands. It would be interesting to have the evidence of dark-room workers on this point.

### The Action of Light on Living Organisms.

That light can act therapeutically is, of course, well known, as, for instance, in the case of the Finsen light treatment. It has also been accepted for many years that the absence of light, or rather of the violet rays, was favourable in such cases as smallpox, measles, etc. In these diseases red light is used to illuminate the sick rooms. It is not necessary to enter into the subject of radiography, as the beneficial effects of the X-rays in certain cases are well known. That light does exert some action on living organisms is abundantly proved, and the analogy between the vegetable and animal kingdom may be in favour of the theory or idea that red light may cause anæmia; but it has also been recorded that plants thrive well when illuminated by red light only. Assuming the correctness of the idea that sunburn is due to the photographically active shorter waves of light, one might be tempted to argue also that absence of these waves would cause anæmia, but so far we do not think the case proved, at any rate, not sufficiently so as to warrant the inclusion in the third schedule of the Workmen's Compensation Bill, 1906, of workers in photographic factories.

### Loss of Density in the Fixing Bath.

The question has been raised in a contemporary. Why do negatives sometimes lose density in the fixing bath? It is, of course, fairly well known that in the presence of air and sunlight the fixing bath very vigorously attacks the silver image, but the query applies to the ordinary conditions of fixation. In the particular case in question the querist found that in cold weather his negatives lost density, and that an increase of pyro tended to obviate the loss. This points to under-development, and we believe it is a certain fact that imperfectly developed negatives do lose density, though a fully developed image will stand very prolonged fixation without any damage. It is generally assumed that the resulting thin image is simply the natural result of under-development, and that it is quite unnecessary to assume any solvent action on the part of the fixing bath; but while it may be easy to mistake an initial lack of deposit for an ultimate loss of deposit we do not think that this mistake has occurred, for we have noted many instances in which slightly under-developed negatives have come from the fixing bath in a very much thinner condition than it was at all reasonable to expect. As a matter of fact, if we assume the truth of the subsalt theory, a very feasible explanation is available, for, if subsalts are formed in the latent image in the conditions generally postulated, we may most reasonably assume that they are formed in the process of development, and, if development is incomplete, the subsalts must exist in the image when the plate is put into the fixing bath. In this case it is also reasonable to assume that the hypo will decompose the subsalt into silver and silver bromide, dissolving the latter. The net result, then, is that we have one atom of silver where complete development would have left two.

### The Developed Image.

The developed but unfixed image has, perhaps, not received as much attention as it deserves. If subsalts exist both in the latent image and in the developed image the latter is

likely to contain them in far greater quantity, in it offers a more promising opening for investigation. The fact that it is not simple silver, as is probably assumed, is proved by the readiness with which it is attacked by reagents that will not affect the metal. For example, a solution of potassium bromide will not affect silver at any rate, any appreciable extent. Yet it will reduce silver bromide, and so cause the ultimate loss in the fixing of part of the developed image. This action is somewhat useful, for surface fog is considerably reduced by a solution of potassium bromide. Fine details in the shadows are, however, also destroyed. A second fact suggests the presence of subsalts is the action of various substances added to the fixing bath. It has been stated that if either sodium chloride or sodium iodide is added to the hypo solution, density is lost, and a reducing action takes place. We have not tried either of these additions, but we have had experience of the reducing action of an iron fixing bath made by adding sodium sulphite and hydrochloric acid to the hypo solution, which additions do not result in the formation of sodium chloride. These effects can be accounted for by assuming the presence of subsalts for such a compound in the presence of a soluble hypo and sodium thiosulphate would no doubt be wholly converted to a soluble silver salt, and would, therefore, disappear from the image. It does not appear that over attention has been given to these reactions on the developed image, and it is not impossible that some good might be done from following up the subject.

### Silver Nitrate as a Remedy for Burns.

A German correspondent kindly drew our attention to what he alleges to be an error in our paragraph of April 15, 1910, attributing the recommendation of a 50 per cent. solution of silver nitrate as a means of allaying burns to Herr Coblenz. It may be remembered that we expressed surprise at this drastic recommendation and we are therefore glad to be informed that the author of the solution which is advised is a cold one containing ten per cent. of the silver nitrate. This has proved a valuable palliative application in the case of severe burns, although silver nitrate is not now the common inhabitant of photographers' shelves that it once was the prescription may, nevertheless, be worthy of note by those whose occupation exposes them to danger from fire.

### Intensification with Mercury.

Some useful quantitative results have been obtained by the use of mercuric chloride have been obtained by Mr. H. Lloyd-Hind, and published in the "Photographic Monthly." He finds that the amount of mercuric chloride required by each square plate varies from .014 to .277 grammes, according to the original intensity of the image, and that 100 c.c. of a 1 per cent. solution should be sufficient for fifty plates or one pint for 291 quarter-plates. Dilute solutions do give as much intensification as strong ones, hence it is advisable to throw away used solution when it begins to work slowly. A curious feature is the disappearance of the hydrochloric acid used to acidify the mercury solution. It appears that when 100 c.c. was used to intensify 100 quarter-plates 12 per cent. of the acid was lost. The author concludes from this that it is advisable to add acid from time to time to make up the loss, but we doubt the necessity for this. The acid is commonly used to facilitate the dissolution of the mercury chloride, and it appears to us somewhat doubtful if it plays any important part in the bleaching process. It is apparently used up, but this may be due to combination with the gelatine. The acid may facilitate



after washing out of the mercury solution, but it is safer to rely on a separate acid bath for this purpose. It would seem that a little more information with regard to the action of the acid would be desirable. We believe the general idea is that it assists in dissolving the chloride, and thus to preserve the solution, and facilitates washing; we do not think it is usually credited with any action on the image.

\* \* \*

#### Postcard Enterprise.

Like the journalist, the postcard publisher has to live up to Lord Curzon's demand as to the intelligent anticipation of events before they occur, and, like the journalist, it is rarely that he is in so doing. But when the leading firm of publishers of photographic postcards, on the very next day after the announcement of the Queen of Spain, places on the market a card purporting to represent the King, Queen, and their only-born son, one gets an unpleasant impression that the publisher's line of good taste which sets a limit to commercial enterprise has been overstepped. The publishers themselves must surely realise that no one in his or her senses credits the production with being a genuine photograph of the infant, but must surely regard it as an affront to his own intelligence. Photographers, still more, have reason to regret an act which, by inference and implication, casts the stigmas of sham and fake over photography in general. Our good friends have been too clever by

\* \* \*

#### Convention.

From the full book programme of the Convention now published, we are glad to see that the arrangements for the meetings and excursions, to take place from July 15 to 20, have been satisfactorily made. We have already given the details of the latter part of the proceedings, so that it is only necessary to remind intending conventioners of the opportunities which await them in the ancient city of Hereford. Mr. Watkins, whom all will wish a speedy recovery from a recent accident, contributes to the Convention programme an interesting sketch of what is to be seen and photographed in Hereford, and the Dean of Hereford supplies a written guide to the cathedral, which is architecturally informative. The list of papers and demonstrations, the commendably short itineraries for the excursions, justify the belief that Hereford will not be one whit less popular as a Convention centre than the previous meeting places.

\* \* \*

#### Do not to Artifice.

The human weakness for portraits is traded upon, as we all know, by every advertiser, but it is not often that the appeal to the public is made in such an utterly wretched and uncouth manner as it is on a circular issued by a firm of cigarette makers which has fallen into our hands. The designs from a hundred packets of these luxuries, we are entitled the purchaser to a portrait miniature in natural colours and framed in gold. A three-colour reproduction of his work of art appears on the circular, and though the colours are beautiful but one inch across there is one impression of the subject 1-16 of an inch out of register, with the result that the border of bright magenta surrounds the subject's outline, and gives point, as no other effect could do, to the words below:—"This printed reproduction gives but a poor idea of the artistic beauty of the originals." In the name of humanity we hope it does, and we hope, too, that the proprietors of ——— cigarettes know a little more about printed miniatures than they do about trichromatic print-

### BLISTERS IN BROMIDE PRINTS.

SINCE the introduction of toning bromide prints with sodium sulphide, blisters have become so common that it is a serious matter, as whole batches of prints may be spoiled at any moment. The blisters occur in such an erratic way that the ordinary photographer is unable to trace their cause to its source—or sources, for there are probably many. Some brands of paper seem more liable to this defect than others, yet different batches of the same maker's paper vary, and some will blister and some will not. It has been suggested that grease on the paper before coating with the sensitive emulsion is a probable cause. But this would produce large blisters, and the trouble is usually that the prints are covered with small blisters from one-eighth to a quarter of an inch in diameter, and the large ones are exceptional.

Before the days of sulphide toning blisters occurred, but the defect was not a common one. Several remedies were suggested, such as immersion in a solution of common salt, without washing, from the fixing bath; or a bath of methylated spirit in place of salt and water; but even then the cures often failed, and blisters frequently appeared. Prints on thin paper seemed more liable to blisters than prints of the same make on thick paper, yet postcard prints often show blister badly, though they generally disappear on drying. The local water supply no doubt has some effect in causing blisters; where the water is "hard," in a limestone or chalk district, blisters are less liable to appear, while in some of our large towns, such as Glasgow, Liverpool, Manchester, and Birmingham the water is "soft," being drawn from lakes (natural or artificial) in mountainous districts, being practically rain water, in which there are but small quantities of lime and other minerals.

The excellence of Burton beer is said to be due to a peculiar hardness of the water yielded by the wells in the district, and in other parts of the country brewers "Burtonise" their water by the addition of carbonate of lime and other salts. Unfortunately, photographers cannot do that, as the supply comes, as a rule, direct from the water mains; if large tanks were used it might be possible to harden the water before use.

A curious thing happened in Birmingham some two or three years ago, when local photographers were troubled by blisters suddenly appearing in untuned bromide prints. They were at a loss to account for it, until a letter appeared in the Press, from an amateur photographer, suggesting that it was caused by the arrival of the water from the new Welsh reservoirs. In a few months the trouble ceased for a few weeks, and then broke out again as badly as ever. It afterwards leaked out that the demand for water had been so great that the old supply of water from the wells, in the red sandstone, had to be requisitioned, and then the blisters ceased; then when the demand fell to its normal quantity undiluted Welsh water was supplied, and the blisters appeared again.

Medical men who practise photography find that bromide prints, developed in their chambers in Birmingham, blister, while those developed outside the town, where the supply comes from wells in red sandstone, do not blister.

The question then arises, how can photographers who are compelled to use a "soft" water prevent their prints from blistering? The answer is, by using a fixing bath containing alum. Many object to such a bath, arguing that it endangers the permanence of the print. If it is prepared in the haphazard way in which many men work it may, and probably will, affect the stability of the print. If the fixing bath is prepared by throwing a handful of alum into a solution of hyposulphite the prints fixed in it will turn yellow sooner or later. But if the bath is properly

prepared there seems no reason to fear any deterioration. Many manufacturers recommend an acid fixing bath containing alum, and for some of the newer brands of bromide paper, in which the paper support is thin, alum is an absolute necessity; and for many of the "Gaslight" papers on the market, an acid fixing must be used, if yellow prints are to be avoided.

A good formula, one well tested by long use, is:—

Water ... ..	64 ozs.
Hyposulphite ... ..	16 ozs.
Sodium sulphite ... ..	1 oz.

When the crystals are dissolved add  $1\frac{1}{2}$  oz. of glacial acetic acid, and finally 1 oz. of potash alum dissolved in 5 ozs. of water. A large stoneware jug can be used for mixing, and hot water hastens the solution of the chemicals; it should, of course, be allowed to cool before use. If properly mixed the solution should be only very slightly cloudy. The surface of prints fixed in this bath should feel "leathery" to the touch in about thirty seconds after immersion, and the bath should not be used too long without renewal. If the surface of the print is soft after a minute's fixing a fresh bath should be substituted at once. It is best to make up a gallon or more at a time, so that a stock of unused, fresh solution is always ready. If found more convenient it may be mixed double the strength, and diluted for use as required. After washing prints may be spread out to dry, face downwards, so avoiding curling. If the prints are to be toned with sulphide they must be dried before being toned, or they may blister; and any rough handling or buckling of the wet prints must be guarded against, as this is a frequent cause of blisters.

After the prints have been bleached by the photographer's favourite formula, they must be darkened by application of the sulphide, which must not be too strong—half an ounce of saturated solution of sulphide should be diluted with forty ounces of water—and the print should not remain in it any longer than is necessary to convert the iodide or other silver compound into sulphide. Only a few prints should be darkened at a time—each can be placed face down and pushed under the solution. When about a dozen prints are immersed they may be turned face up one by one, and in two or three minutes after the image is darkened as far as it will go, they may be removed one by one, and placed in a fairly strong solution of alum, without previous washing. They may remain in the alum solution until all are toned, the dish containing the prints is put under a stream of water, and prints turned over and over, so that the alum solution is gradually washed away; a very short washing in water is then sufficient.

The method recommended above is the result of years' practical experience in an establishment where bromide prints form 99 per cent. of the output. There are probably many causes of blisters, but if the above method be adopted not one print in a thousand will blister, if ordinary care is used in carrying out the process. Special stress must be laid on three points—first, an acid fixing bath containing alum; second, drying prints before toning; and third, removal to an alum bath from the sulphide solution without washing. Sometimes a white deposit will appear on the surface of prints when dry, but a slight rubbing with a tuft of cotton wool moistened with methylated spirit will remove it.

## ACCURACY AND EFFICIENCY OF MODERN SHUTTERS.

### I.

IN modern photography, especially when working with a hand-camera, short exposures are sometimes desirable; and thanks to the rapidity of modern plates, and the large working apertures of modern lenses, there is no reason why an exposure of 1-30, 1-50, or even 1-100 sec. should not be a full and correct exposure.

Now, owing to the enterprise of men like Watkins, Wynne, and Welcome, the modern photographer has great facilities for calculating correct exposures, and from my personal experience I should say that he is particularly anxious to give correct exposures when working at the higher speeds; but, unfortunately, the inaccuracy of most shutters, combined too often with a complete ignorance of the principles which determine the efficient exposures of these shutters, makes it impossible for him to give anything like the desired exposure.

When I speak of the anxiety of photographers to give correct exposures at the higher speeds, my experience is that a man who would debate as to whether he should give 1 or 2 seconds when uncapping his lens, will worry as to whether he should give 1-30 or 1-20 second when he works in fractions of a second; and the chances are that if he decides on 1-20 of a second, the shutter will give a total exposure of 1-30 sec., and the nature of the shutter will be such that the efficient actinic value of the light that reaches the plate will make this exposure equal to 1-90 of a second: less than  $\frac{1}{4}$  of the desired exposure. In fact, marking most of the between-lens shutters with small fractions of a second is like fitting a brown Bess with a telescopic sight.

#### Duration and Efficiency of Exposures.

With shutters of the roller-blind and between-the-lens types the duration\* of the exposure is the time which elapses from

the moment the shutter commences to open until the moment it finishes closing. The duration of the exposure is important when photographing moving objects, because the objects being photographed during the whole exposure, and, as everyone knows, an exposure of too long a duration blurs moving objects; but inaccuracy in the duration of the exposures marred on the shutter can easily be remedied, as Messrs. Beck, of Chesham, will test the shutter speeds and mark the correct speeds on a card for the small sum of fourpence.

But the actinic efficiency of the shutter is another matter—a very important matter for those who desire correctly exposed negatives. Supposing a sheet of cardboard (ABCD, Fig. 1) is placed before the lens, and an exposure made by slowly raising the cardboard to EF and, without a pause, slowly lowering it to its original position. If the actual duration of the exposure had been one second, the efficient exposure would have been only half a second, because the lens would have been partially covered during almost the whole exposure, and the average portion of the lens uncovered would have been one-half: 1 lens uncovered during one second = whole lens uncovered during half second. Efficient exposure, half second. This is what may happen with shutters of the roller blind type, in which the aperture is short in relation to the aperture over which it passes: a square opening in the blind passes before the lens, an average of half the rays of light is cut off during the uncovering of the lens, and a similar volume of light is

\* We are considering what may be termed the *local* duration of the exposure, i.e. the duration of exposure given to any one portion of the plate, in the present article.



the covering of the lens, and as the opening is but smaller than the lens, the whole lens is uncovered only during a portion of the exposure.

An iris or diaphragm shutter the efficiency is affected in a different and less certain manner. Imagine that a lens is closed with an iris diaphragm which closed altogether, and as exposure were given by slowly opening the diaphragm during the first half-second, and slowly closing it during the next half-second, so that the diaphragm was opening and closing during the whole exposure. A glance at Fig. 2 will show that if the iris is half open, a lens working at  $f/8$  would be equivalent to  $f/16$  and the value of the light rays quartered: one second's exposure at a nominal  $f/8$  would equal a nominal exposure of  $\frac{1}{4}$  second at  $f/16$ , and the average of exposures at  $f/64$ ,  $f/32$ ,  $f/16$ ,  $f/8$ , and the average of exposures at  $f/16$ : one second at  $f/16 = \frac{1}{4}$  second at  $f/8$ . Some of the shutters, such as the Göerz Sector, can open very quickly, in an open during most of the exposure; but an ordinary roller-blind shutter costing from 20s. to 30s. is most uncertain. It takes about 1-5 of a second, the shutter will open and close quickly, but not fully open for say  $\frac{1}{4}$  sec., and the efficient exposure would be about  $\frac{1}{4}$  sec.; but at 1-30 sec. the shutter will be opening

be seen that the front of this aperture, F, travels three inches during the exposure. During the first inch AB, the lens is being uncovered and the efficiency halved; during the second inch, BC, the lens is working at the full efficiency, and during the third inch, CD, the efficiency is again halved, whilst the lens is being covered—that is to say, the shutter is giving half efficiency during 2-3 of exposure, and full efficiency during  $\frac{1}{2}$  of exposure ( $\frac{1}{2} \times 2-3 + 1 \times \frac{1}{2}$ ) = 2-3. That is to say, the efficient exposure of this shutter is 2-3 of the duration of the exposure, and a nominal 1-20 sec. would be an efficient exposure of 1-30 sec. In shutters fitted to some of the very compact and neatly mounted lenses, the blind aperture may measure only  $\frac{1}{2}$  times the diameter of the lens aperture, in which case the efficiency would be reduced to 3-5 of exposure duration.

Granted that a roller-blind shutter works at the specified speeds, the following table will enable the photographer to calculate the efficiency of the exposure. Measure diameter of lens aperture and width of blind opening

When blind aperture	=	diameter of lens,	efficiency	=	$\frac{1}{2}$
"	"	"	"	"	"
"	"	"	"	"	"
"	"	"	"	"	"
"	"	"	"	"	"
"	"	"	"	"	"
"	"	"	"	"	"
"	"	"	"	"	"

Thus with an 8-inch lens working at  $f/8$ , i.e., a lens measuring 1 inch diameter, if shutter opening measures 2 inches, the efficient exposure at a nominal 1-20 sec. =  $1-20 \times 2-3 = 1-30$  sec.

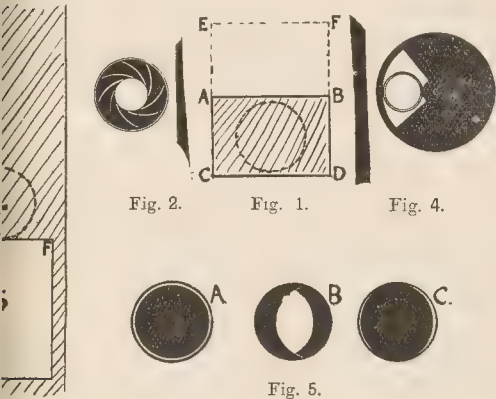
#### The "Cleverex" Shutter.

Another type of shutter which comes under the same category as the roller-blind is the type in which a metal disc pierced with an aperture on one side is revolved across the lens field, Fig. 4. In the old form of shutter, such as that which Messrs. Lancaster used to supply, the disc was revolved by means of a spring, and the various speeds secured by means of a variable tension. The principle of these shutters was excellent, and, provided the duration of the different exposures was ascertained, the efficient exposures could be accurately determined by the foregoing roller-blind table. Unfortunately, if these shutters were laid aside with the spring at high tension, and such accidents will happen, the driving power of the spring would weaken, and the speeds become inaccurate.

The latest development of the disc shutter is Messrs. Beck's "Cleverex," which is an excellent shutter in many ways. In the "Cleverex" the disc is revolved by a simple spring, and the variations of exposure are obtained by altering the width of the disc aperture, and not by altering the tension of the spring; hence there is little probability of the shutter getting out of order. At the slowest "instantaneous" speed, 1-10 sec., the disc aperture is about four times the diameter of the lens, and the efficiency is consequently great: duration of exposure 1-10, equals an efficient exposure of 1-12 $\frac{1}{2}$  sec. But, unfortunately, as the speed increases, and the aperture is reduced in width, the efficiency decreases: 1-20 = efficient 1-30, which is not bad; 1-40 = efficient 1-80, which is not satisfactory; and 1-80 would not give an efficient exposure for any subject except seascapes. For pictorial hand-camera workers, this shutter might well be marked with durations of 1-10, 1-15, 1-20, 1-30 sec., giving an approximate efficiency of 1-12, 1-20, 1-30, and 1-50 sec. A high average of efficiency combined with accuracy.

#### Diaphragm Shutters.

The sector, iris, and diaphragm shutters are very pretty instruments, but their accuracy is very uncertain, and their efficiency often disappointing. A high-class shutter of this type, such as the Göerz "Sector," may work with accuracy and efficiency; but the cheaper and more popular kinds are as a rule inaccurate in the speed marking, and give very inefficient exposures at any speed greater than 1-20 sec.



ing during almost the whole exposure, and the effective exposure at 1-30 sec. would probably be only 1-100 sec. That is, an exposure of 1-30 sec., from start to finish, has been given, but the lens has only received the quantity of active light that would have been passed by an ideal shutter (one that opened and closed in 1-1,000 sec.) working at 1-100 sec.

#### Roller Blind and Similar Shutters.

As we have seen, the roller-blind shutter halves the efficiency of exposure whilst it is uncovering and covering the lens; the opening in most of these shutters is considerably wider than the lens, and consequently during a portion of the exposure the lens is entirely uncovered, and its action more efficient. If, therefore, a roller-blind shutter be fitted to a lens of 1-inch diameter, the lens-hood or lens-flange will probably measure quite 2 inches, and the opening of the blind will probably measure 2 inches. Now let us assume, for the sake of simplicity, that the two rollers are very far apart, so that the blind-aperture is a straight line during the exposure, and let us also assume that the blind is quite close to the lens; we can calculate the efficiency of the exposure from Fig. 3. Let L be a lens of diameter 1 inch, and S the blind aperture of 2 inches; it will

be seen that the front of this aperture, F, travels three inches during the exposure. During the first inch AB, the lens is being uncovered and the efficiency halved; during the second inch, BC, the lens is working at the full efficiency, and during the third inch, CD, the efficiency is again halved, whilst the lens is being covered—that is to say, the shutter is giving half efficiency during 2-3 of exposure, and full efficiency during  $\frac{1}{2}$  of exposure ( $\frac{1}{2} \times 2-3 + 1 \times \frac{1}{2}$ ) = 2-3. That is to say, the efficient exposure of this shutter is 2-3 of the duration of the exposure, and a nominal 1-20 sec. would be an efficient exposure of 1-30 sec. In shutters fitted to some of the very compact and neatly mounted lenses, the blind aperture may measure only  $\frac{1}{2}$  times the diameter of the lens aperture, in which case the efficiency would be reduced to 3-5 of exposure duration.

The last shutter of this class which I tested (it had been advertised and sold in the respectable company of a first-class anastigmat and an excellent camera) was marked at speeds from 1 to 1-100 sec. At 1 sec. it gave an exposure of  $\frac{2}{3}$  sec.; the nominal  $\frac{1}{2}$  and 1-5 sec. were both  $\frac{1}{4}$  sec.; and the 1-25, 1-50, and 1-100 sec. all gave an exposure of 1-35 sec. duration. But the worst fault of this one quick exposure was its horrible inefficiency, for more than  $\frac{2}{3}$  of the duration of 1-35 sec. was taken up by the opening and closing of the shutter, and the efficiency only worked out equal to a full exposure of 1-85 sec. So when one imagined that one was giving 1-25 sec., one was giving the plate an exposure only equal to 1-85 sec.

Now, as we have seen, the efficiency of a diaphragm shutter depends on two factors: the total duration of the exposure, and the duration of the time the shutter remained fully open. During the time the shutter is fully open the exposure is obviously efficient, but during the time the shutter is opening and shutting the efficiency is reduced to a quarter. Thus, say the total duration of an exposure be 1-25 sec., and half this time is spent in the opening and closing, we have 1-50 sec. full efficiency + 1-50 sec.  $\times \frac{1}{4}$  efficiency =  $1-50 + (1-50 \times \frac{1}{4}) = 1-40$  sec. actual efficiency.

I have never heard of the efficiency of these shutters being

tested, but it is quite a simple matter. The first factor—the duration of the exposure from start to finish—is tested in the usual manner, and the different speeds noted down. Second factor, the time the shutter is fully open, is next in the following manner. The centre of the lens is covered with a circle of black paper, so that only the extreme edge of the aperture is left uncovered, just enough to throw a faint light on the focussing screen; the various speeds are again tested, and the results again noted. It is, of course, obvious that the second test gives the time that the shutter is practically open (Fig. 5, A).

With the "Unicum" and "Automat" shutters, which are shown in Fig. 5, it will be found that the exposure is given by opening two thin metal plates with curved edges. With these shutters the time of remaining fully open is found by covering the lens except the portion which will come into action just as the shutter is open, C, Fig. 5. It will also be noticed that the curved plates give slightly greater efficiency than that given by the iris shutters, and the time of opening and shutting will be divided by three instead of by four.

In the next article I hope to give rules for ascertaining the efficiency of shutters, and discuss the focal-plane shutter.

A. J. ANDERS

## A REVIEW OF RECENT WORK IN COLOUR SENSITISING.

### III.

THE discovery of optical sensitisers was made by the late H. W. Vogel, and to him also is due the statement that a dye sensitised for the colours it absorbed<sup>1</sup>. To him also must be ascribed the discovery that the maximum of sensitiveness did not exactly coincide with the maximum of absorption, but was shifted towards the red. The most complete examination has, however, been made by Eder<sup>2</sup>, who measured not only the absorptions of dyed gelatine, but in the case of eosine the dyed silver bromide. Naturally, measurements of the latter are extremely difficult, not only on account of the high refractive index of the silver halides, but also because of the rapid darkening of the halides.

Eder's results and his papers, which are far too long to give in detail, led him to the following conclusions:—

1. That neither the absorption spectrum of the alcoholic nor aqueous solution of a dye, nor the dry-dyed gelatine, coincides with the position of the photographic sensitive maximum on gelatino-bromide of silver.

2. The sensitising maximum of the dyed silver bromide lies further towards the red than the absorption maximum of any of the solutions.

3. That specific gravity of silver bromide = 6.353 is so much greater than that of gelatine = 1.326, that one may well assume the greater specific gravity of the refractive medium as the cause of this shift. Although Kundt's law has many exceptions, there is very great regularity in these special cases.

Kundt's law asserts that the absorption band of a colouring matter is displaced towards the red as the refractive power of the medium in which the substance is dissolved increases. In accordance with this law, one would expect that the shift with the different halides would increase as their refractive indices, which for the melted halides (Keiser) are, for chloride  $n_D 2.0611$ , for bromide 2.2533, and for iodide 2.2787. I have been unable

to find any conclusive proof of this. Eder states that the position of maximum sensitiveness for chloride and bromide is in the same position, but Keiser finds that that for the chloride is about  $\lambda$  557, and that for bromide about  $\lambda$  563. As silver is not sensitised, this could not be measured.

But to return to Eder's conclusions:—

4. The position of the absorption maximum of the dye in solution and the sensitive maximum of the dyed silver bromide differs in the spectroscopic as a rule fairly regularly by about 300  $\mu$ . That is to say, those rays of light which act most on dyed silver bromide possess as a rule a shorter wave length than those which are absorbed by the dyed gelatine, without the silver bromide.

5. The absorption spectrum of silver bromide stained with eosine and the maximum of sensitiveness of the dyed bromide completely agree.

6. Variations of the absorption spectrum of dyed gelatine and the photographic action of the dyed halides ought not to be accepted as exceptions to the "absorption law," for the action spectrum of one dyed medium is no certain proof of absorption of another medium stained with the same dye.

Confirmation of Eder's conclusions have been given by H. Lumière<sup>3</sup>, Bothamley<sup>4</sup>, and others. Dr. J. J. Acworth<sup>5</sup> has examined this subject, and many of his results do not agree with Eder's, but this is explained by the fact that Acworth in many cases rather deeply stained plates, and thus introduced the factor of screening.

Acworth's work was particularly good because in every case he actually photographed the absorptions of the dyed plates, a plate panchromatised with chlorophyll, tincture of jaborandi, shifting the plate repeatedly so as to eliminate the action of

<sup>1</sup> "Ber. d. chem. Gesellsch.," 1873, p. 1305. The most convenient source of reference is "Die Photographie farbiger Gegenstände in den richtigen Verhältnissen," by H. W. Vogel, 1885. Chap. I.

<sup>2</sup> "Beiträge zur Photochemie," part iii., p. 85.

<sup>3</sup> "B. J. Almanac," 1906, p. 771. "Eder's Jahrbuch," 1896, p. 189.

<sup>4</sup> "Eder's Jahrbuch," 1896, p. 146.

<sup>5</sup> "Journ. Soc. Chem. Ind.," Jan. 30, 1887.

<sup>6</sup> "Ueber die Beziehungen zwischen Absorption und Empfindlichkeit sensitiver Platten," "Wiedemann's Annalen," 1890. A translation of Dr. Acworth's appeared in the "Photographic Quarterly," vol. ii., p. 196, 1890-91.



darkening of the silver halides. Those interested in the subject can turn up the above-mentioned translation, but it may be worth while to state his final conclusion, and that is "the cement of the maximum of sensitiveness in regard to the amount of absorption has not its cause in the greater dispersal density of silver bromide films, but finds its full explanation in the above communicated theory of Professor E. Wiedemann."

His theory of Wiedemann's<sup>7</sup> is as follows:—"The appearance of luminescence is a sign that within a molecule very energetic vibratory movements are present. Such increased vibratory movements must evidently occur in all cases where an absorption of an incident light ray takes place, if the absorption depends upon the enlarging of the amplitude of the vibrations in the molecule at the cost of the incident ray, which in those vibrations within a molecule becomes existing energy, which may be converted either into radiatory or into heat vibrations. We can have both of these occurrences as a kind of damping. By the absence of the first factor plays a great rôle, by absorption without development the second. If a body is decomposable by incident light, a decomposition occurs if, in consequence of absorption, the amplitude of vibration in the molecule has reached a certain magnitude. If, however, the amplitude remains under a certain greatness, no decomposition can practically take place. The value of the amplitude depends, however, on the absorption-coefficient's greatness, and secondly, upon damping. If the absorption is nil, then the value of the amplitude is nil, and likewise chemical action. If, on the other hand, the damping is very great, then the conversion of motion in the molecule takes place very rapidly, and, in spite of the absorption, no decomposition shows itself. Now, this damping is apparently the greatest for the places of strongest absorption; therefore, if we sensitise a plate with some suitable substance for the incident rays which correspond to this maximum of sensitiveness may not appear there, but somewhere else more or less adjacent to it."—(Acworth, *loc. cit.*) We find this statement of Wiedemann's we have no other author who does not ascribe the shift towards the red to the density or refractive index of the halide.

Though has been quoted, I think, to prove that whether we accept Eder's or Wiedemann's explanation, there is a shift towards the red as compared with the solutions and the coincidence of the absorption of the dyed halide with its sensitiveness. Turning our attention, then, to the next point, the connection between the character of the absorption of the dyes and sensitiveness of the halides dyed therewith, this must be at once accepted without question, for we find close similarity between the absorption of such a dye as erythrosine and its sensitiveness and that of leucine or nigrosine and the sensitiveness attained therewith. This is also proved by Von Hübl's work<sup>8</sup> and by Monpillard's.<sup>9</sup> It is universally recognised that this holds good, and so much at a preliminary examination of a dye solution will tell one of the kind of sensitiveness to expect. It is well established by the researches of Valenta on the isocyanines<sup>10</sup>, and on the absorption and sensitising action of some yellow dyes for the ultra-violet<sup>11</sup>.

In connection with the whole subject of absorption and sensitiveness see also "A note on a panchromatic emulsion of silver rosinate," by Mees and Wratten, "Phot. Journ.," August, 1907, p. 300.

At brilliancy of the colour of the dye has no special influence on the next point, and this will be at once conceded when the use of such dyes as erythrosine, a very brilliant one, and that of rulein S, or nigrosine, or diazo black, all of which are very dyes, are considered.

Or one may take the whole of the phthaline group, and at once see that the brilliancy of their colouring does not influence the sensitising action.

With regard to the fugitive character of the dye, the importance of this was, I believe, first propounded by Abney—at least, I gather so from his footnotes to Eder's early work, "The Chemical Effect of the Spectrum," which appeared first in the "Photographic Journal" for 1881-2, and was reprinted as a separate work in 1883. Against this view we have Bothamley's<sup>12</sup> experiments, which prove that the instability of the dye to light has no action. Again, cyanine is the least stable of all dyes, isochinoline red the next fugitive, yet neither are such powerful sensitisers as erythrosine. And alizarine blue bisulphite, which shows only very slight change even after a month's exposure to daylight, and yet it is a fairly good sensitiser.

If this theory held water, then one must assume that the oxidised or bleached dye added to an emulsion would produce reduction of the silver salt. Eder<sup>13</sup> has, however, painted a plate with cyanine solution which had been exposed to light for a year and turned brown, and yet found no action.

Mees and Sheppard state<sup>14</sup> that "there is a probability that the sensitising power of a dye is connected with instability to light, but quantitative confirmation appears to be lacking. Dicyanine, for instance, is extremely unstable, but a weak sensitiser, while rose benzal is stable, but a good sensitiser." The example quoted is, therefore, directly opposed to their assumption. It must not be forgotten, too, that "instability" is a relative term only—that is to say, it refers to the dye under stated conditions. Under others the dye may be "stable." This is a well-known fact in ordinary dyeing, and indigo, for instance, may be extremely unstable on wool, and yet fast on cotton although used under the same conditions. Is it fair, then, to argue because a solution of the dye is unstable, that the dye shall be equally so on a dry plate?

With regard to the fluorescence of the dye having no action, one can at least say that the presence of fluorescence does not cause increase of colour-sensitiveness, and this is amply proved by the fact that of the phthaline dyes the strongest sensitiser, erythrosine, when pure, has absolutely no fluorescence at all; yet most of the other dyes of this class fluoresce and yet are not such good sensitisers. In fact, one is almost tempted to argue that fluorescence is not a supporter of colour-sensitiveness, but an actual deterrent to the latter.

The subject of fluorescence is an extremely complicated one, but it has been proved by Tyndall in one of his lectures that it is not a momentary phenomenon, but persists for an appreciable period of time. If, therefore, a fluorescent dye be added to an emulsion, one can well understand why there should be chemical action at the position of fluorescence, for the fluorescence or luminescence may persist long enough to cause an appreciable action—that is, appreciable on development, on the silver halide.

It is also capable of proof that some of the organic dye solutions fluoresce not only in ultra-violet but also in the visible spectrum. This is well seen with naphthaline red, which fluoresces throughout the whole of the spectrum except the extreme red; most of the phthaline derivatives, too, fluoresce in light which is of visible wave length, not necessarily the ultra-violet, to which region at one time fluorescence was supposed to be alone due.

For those who wish to follow this subject further, I would recommend Lewis Wright's "Light" (Macmillan), chapter VIII., and, for readers of German, Stark's papers in the "Physikalische Zeitschrift," 1905, p. 892; 1906, pp. 249, 355; and 1907, p. 81. To consider in detail Stark's statements would absorb far too much time and space, and they bear solely on fluorescence, and not in connection with dyes.

E. J. WALL, F.R.P.S.

<sup>7</sup> "Eder's Jahrbuch," 1890, p. 219.

<sup>8</sup> "B.J. Almanac," 1906, p. 771 and 1907, p. 744.

<sup>9</sup> "Bull. Soc. Phot.," Franc., 1906, p. 132.

<sup>10</sup> "Beiträge zur Photochemie," part iii., p. 158.

<sup>11</sup> Ibid, p. 163.

<sup>12</sup> "R.J." 1895, p. 727.

<sup>13</sup> "Beiträge zur Photochemie," part iii., p. 100.

<sup>14</sup> "Phot. Journ.," March, 1906, p. 129.

# THE DAYLIGHT SENSITOMETRY OF PHOTOGRAPHIC PLAT AND A SUGGESTED STANDARD DISPERSION-PIECE.

## III.

### [Daylight (Variation in Colour).

It has been many times stated that daylight was utterly unsuited for sensitometric tests, because of (1) the difference in the intensity of the various hues as the slit is illuminated by white cloud or blue sky, and (2) the variation in general brightness-intensity. Experiments were made to determine the actual difference in the first instance, by using the replica-grating spectrograph as just specified. The instrument was so arranged that the axial line of the collimator pointed directly to the zenith. Immediately over it was held a Zeiss apochromatic lens of 314 mm (12.4 in.) focal length, which formed an image of the cloud upon the slit-plate. Several exposures were made on different dates, and on various makes of plates, only such days being chosen as presented well-defined cumulus clouds in a clear and intensely blue sky. Care was taken that the slit was entirely filled with the cloud-light or blue sky, as the occasion demanded, and exposures were made to immediately follow one another, the exposure times being from 5 seconds to 1½ minutes, and on the same plate.

The results were exceedingly interesting, the negatives from the blue sky showing, as was to be expected, an absorption of the complementary hues at the least refrangible end. This absorption was, however, but slight in general. Those negatives whose timing showed the greatest contrast-difference were selected for measurement, together with a plate exposed to the spectrum from the same sky, but with the lens removed and a sheet of ground glass interposed in its place.

Density measurement of these negatives gives the results as detailed in Table III.

TABLE III

WAVE LENGTH.	DENSITY.		
	(Blue Sky.)	(White Cloud.)	(Ground Glass.)
3,640 .....	0.1750	0.2122	0.6731
3,780 .....	.4536	.3956	.8401
3,830 .....	.7106	.6498	1.1121
4,120 .....	1.2124	1.2638	1.2681
4,370 .....	1.0702	1.1436	1.2182
4,780 .....	0.4592	0.4992	0.5112
5,020 .....	.1172	.2234	.2194
5,220 .....	.1218	.2012	.1896
5,410 .....	.1836	.2739	.2400
5,570 .....	.0952	.2619	.2109
5,730 .....	.0494	.1261	.1253
5,940 .....	.0382	.0676	.0666

When plotted, these results give the curves of Fig. 7.

It will be noted that the difference between the secondary maxima in the yellow-green, when expressed in density, = 0.11, and this amount will be still further reduced if the "blue sky" negative had been exposed for a slightly greater length of time. The strong absorption in the ultra-violet from  $\lambda$  3400 to  $\lambda$  3700 in the "cloud" and "sky" negatives is, of course, due to reflection and absorption by the component parts of the lens-system. On the other hand, a change in altitude of the observer would show a still greater difference, the "blue" of the sky becoming more intense as the altitude increased, and necessitating an increase in the exposure time.

Comparison of these results, together with comparison of exposures made when the collimator formed an angle of 25 deg. with the plane of the horizon (which, of course, showed considerably less difference), indicates that daylight from a low angle, when properly diffused, is a sufficiently reliable guide for practical tests in selective sensitiveness. The second objection will be dealt with presently.

### Hurter and Driffield's Investigations.

To correctly understand and appreciate the argument advanced for the use of daylight as a standard in plate-testing necessitates a fairly clear understanding of the work of Hurter and Driffield, whose "Photo-chemical Investigations" first raised photography from

mere rule-of-thumb practice, and placed it upon a definite basis of scientific fact. They discovered and enunciated the laws governing the action of light and development, and furnished a terminology which is not likely to be supplanted. Unfortunately, for some known reason, the important results of these eminent workers but little known in America, and one may therefore be pardoned briefly recapitulating these points which bear directly upon the present paper.

The first great distinction made by them is in the definition of terms "opacity" and "density," which are in ordinary use synonymous. *Opacity* is defined as representing merely the optical property of the reduced silver in the negative to impede the passage of light; *transparency* is therefore the inverse of this. *Density*, on the other hand, is a physical measure of the amount of silver reduced in the film, and is expressed as the logarithm of the opacity, thus

$$D = \log \frac{I_1}{I} = \log \frac{1}{O},$$

where  $I$  = the intensity of the light transmitted,  $I_1$  = the intensity of the incident light, and  $O$  = the opacity. This distinction between opacity and density must be firmly fixed in the mind.

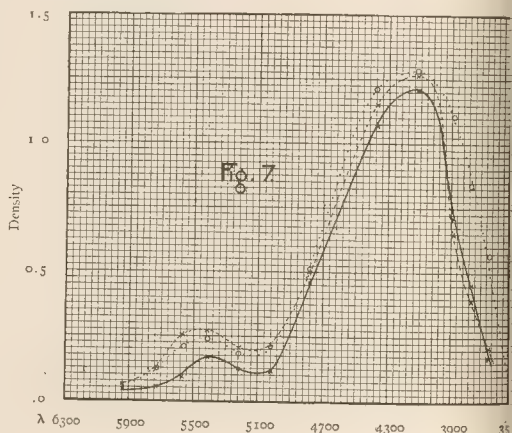


Fig. 7.

If a plate be impressed with a series of different accurate exposures increasing in geometrical progression, as 1, 2, 4, 8 . . . . 256, developed, and the resulting scale of opacities be measured, it will be found that if the logarithms of these opacities are plotted (ordinates), there will result a characteristic curve. The central portion of this is practically a straight line, and throughout this straight portion the deposits of reduced silver (blackening) will increase in arithmetical progression, as 1, 2, 3, 4, . . . . 9; that is, there is a definite logarithmic relationship between the amount of light action and the action itself. The density unit is the density of a deposit which transmits the tenth part of the incident light.

The enunciation of the law of "constant density ratios" provoked considerable controversy from photographic workers in general; while the investigators' conclusions were disputed, they advanced to the support of their statements definite scientific proofs which confirmed them. It was found that the relation existing between amount of light and the density-ratios is fixed and unalterable by constitution of the developer, or time of development; the opacity ratios are, however, altered. For example, suppose that a plate exposed to light for a definite length of time behind a revolving sector-disc with graduated apertures be cut into two portions, each portion be then developed for a different length of time,

<sup>16</sup> "Journ. Soc. of Chem. Industry," May 31, 1890.



and obtain as a result negatives which differed greatly in their appearance one from another; that is, that one which had received the shortest time of development would be what is termed a "thin" negative, while that receiving the longest time of development would be what is usually termed "contrasty." Yet the ratio existing between densities would be identical, although the opacity-ratio varied, the same in development causing the various densities to grow, but in such a manner that they would still bear the same ratio to one another. When the opacity-ratio is the same as the ratio of exposure, the negative is the true inverse of the original. The determination of a characteristic curve shows that a plate has considerable "latitude" in exposure,<sup>17</sup> so that negatives developed together which had received greatly different exposures would yield identical prints, provided that the exposures lie within the straight portion of the curve.

On the other hand, in the case of two negatives developed for precisely similar length of time, but with one exposure double that of the other, we have the opacity-ratios constant, while the densities

In other words the extra exposure simply means the addition of an equal amount of deposit on the varying densities composing the negative, and merely affects the time required in printing. To such extent is it possible to vary the exposure time (with constant development) that increasing exposures of from one to sixteen times will produce identical prints, the only real difference between them being the time occupied in printing. The negatives, however,

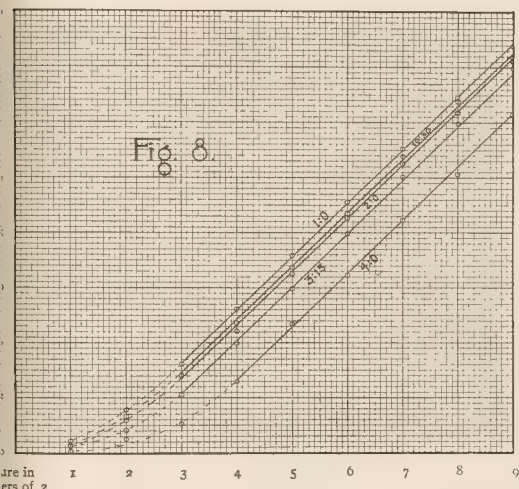


Fig. 8.

are vastly different from one another. This fact was exceedingly illustrated recently in a photographic magazine.<sup>18</sup>

#### Variation of Mean Intensity in Daylight.

With this explanation we may now consider the second objection to the use of daylight—namely, the variation in the mean intensity. It will readily be perceived that this intensity-variation, of course, amounts to nothing more than an alteration in the length of exposure, therefore comes under the jurisdiction of the law expressed in the preceding paragraph. In order not only to test the validity of the law but also to obtain a personal measurement of the photographic change during the course of a few hours, the following exposures were made with the revolving sector-disc,<sup>19</sup> under conditions as specified. The record detailed in Table IV. is from the laboratory notebook.

"Latitude" is defined as the ratio of the exposure at which over-exposure commences to that at which under-exposure commences.

F. Dundas Todd, "Development, Scientific and Practical," "Photo-Beacon," No. 1904.

The sector-disc exposure machine was constructed somewhat similar to the one of Mees and Sheppard ("Journal Royal Photographic Society," July 1, 1904, p. 229), but fitted with a removable cap pierced with a 4.0 mm circular aperture and covered with ground glass for use with daylight. When working with constant acetylene light, the cap is removed and the burner instantly placed in position.

All four plates were developed together in the same tray with Kodak D19, for two minutes, at a temperature of 17 deg. C., and when fixed and dried were carefully measured, and the densities plotted. The resulting curves are shown in Fig. 8, and it will be readily seen that they bear out very exactly the theoretical requirement that they lie parallel to one another. Their density-ratios vary, but their opacity-ratios are constant. Between 1 p.m. and 4 p.m.

TABLE IV.

Sky bright and sunny. Plate, Seed "27" Emul. 11,168; Oct. 12, 1906.

Plate No.	Time of Exposure.	Position on Plate.	Length of Exposure.	Remarks.
1	10 A.M.	Upper half	3 min.	Blue with white clouds
1	10.30 A.M.	Lower half	"	Blue with white clouds
2	11.15 A.M.	Upper half	"	Slightly brighter
2	12 M.	Lower half	"	Slightly brighter
3	1 P.M.	Upper half	"	Still brighter
3	2 P.M.	Lower half	"	Intensity about the same
4	3.15 P.M.	Upper half	"	Slightly duller
4	4 P.M.	Lower half	"	Light much weaker

Two exposures on each plate. All four plates cut from one large plate.

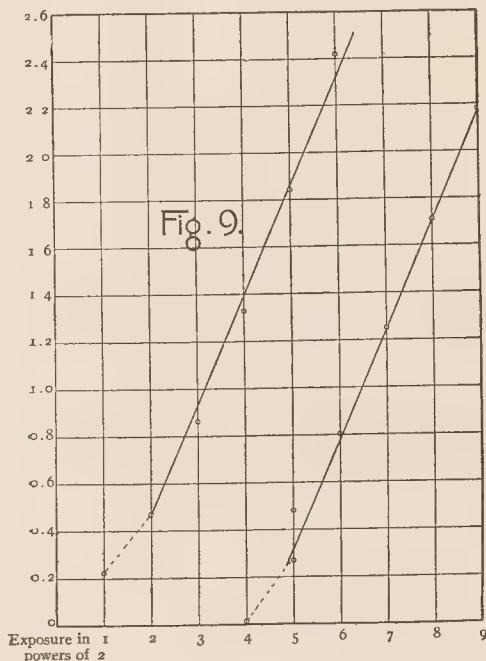


Fig. 9.

there is an indicated difference in light-action of  $2^{1.3} = 2.5$  times, which allows for considerable fluctuation in light-value. But that this is by no means a limiting value is shown by the parallelism of the curves in Fig. 9, which represent a difference in light-action of 23.3 or 9.8 times. There is no difficulty in obtaining any amount of corroborative data in this connection.

It should be remembered, that with varied exposure and equal time of development, we obtain, as the exposure is increased, an addition of an equal density (or fog) to the complete negative; but this increase of density does not in any way alter the opacity-ratios existing between the series of exposures on the same plate (throughout the straight portion of the curve), such opacity being governed by the development: there is no alteration in the gradation. Hence the curves of two differently exposed spectra would, as a whole, be parallel to each other, although the height of the ordinates (densities) would vary.

#### Irrationality of Plate Curves.

To be able to refer to the speed of any particular plate as possessing

a definite numerical value presents advantages which cannot be disputed. But if such a numerical value is based upon some source of selective radiation which differs from daylight, such as a candle, in the case of Hurter and Driffeld, the screened acetylene light of Mees and Sheppard, or the benzine lamp of Eder,<sup>20</sup> then the comparative speed-values obtained for "ordinary" and orthochromatic plates, are certain to be unreliable to a greater or less extent, dependent upon the closeness of the approximation of the artificial standard to daylight, and they must therefore be accepted provisionally.

A method commonly in use in testing the speed of one plate against another, is to expose the two plates to identical amounts of the same light-action, and then develop them together in the same tray for a similar length of time, and compare the resulting negatives. Pro-

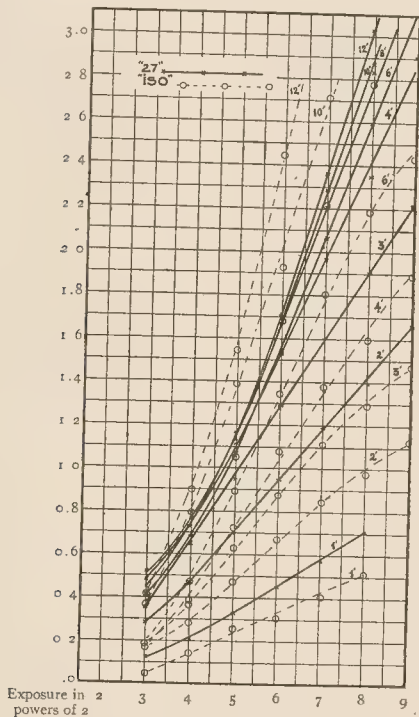


Fig. 10.

vided that both plates have a similar composition, the method cannot be objected to; but when the plates in question are possessed of a different chemical constitution (the consideration of orthochromatic plates being laid aside for the moment), such a method is very liable to lead in many cases to most erroneous conclusions.

If two pairs of differently constituted plates ( $A$ ,  $A_1$ , and  $B$ ,  $B_1$ ) be exposed simultaneously to the same light-action, and then developed together, giving one pair double the length of time of the other, as  $AB=3$  minutes, and  $A_1 B_1=6$  minutes, it is very common to find, that with the first pair where  $A$  possesses a greater density than  $B$ , in the case of the second pair with the lengthened development, the effect would be entirely reversed, and  $B_1$  will have a greater density than  $A_1$ . The following series of plates was therefore prepared: a Seed "27" and a Cramer "instantaneous isochromatic" were exposed to precisely the same amount of light-action behind the revolving sector-disc, and then cut into eight strips each in the dark room. All of these strips began development together in the same bath at the same time, but, at stated intervals, each pair of plates ("27" and "Iso.") was removed from the developer together and passed directly into the fixing bath.

<sup>20</sup> Eder and Valenta, "Beiträge zur Photochemie" (French translation by Belin, entitled "Système de sensibilité")

From the measurement of these negatives the curves shown in Fig. were plotted, and serve well to illustrate this phase of plate-action.

It will be noted that, with but one exception (8 minutes), no pair of plates gives curves which are parallel to themselves. The gradation of the two plates is entirely different. In the present instance the Cramer plate is known to be slightly slower than the Seed, and hence it will be perfectly correct for the curve of the former to be lower than that of the latter; but it will be seen that, if we measure the distance apart of these curves representing the various development times, it is a constantly decreasing quantity up to a certain point, namely, that at which the slope of the straight portion of the curves are similar; and from that point on, the conditions are absolutely reversed, and the isochromatic plate acquires a greater density than the "27," and appears the faster plate of the two. Under the method of equal time of development, therefore, no true deduction could be made regarding the relative speed of these plates from any of the eight pairs of curves shown.

It has been shown by Abney<sup>21</sup> that a change in the gradation-curve takes place when the exposure is to light of differing wave-length, the curve becoming steeper; that is, the contrasts are more marked as the wave-length increases. In the present instance with normal development the curve of the "Iso" plate is less steep than accompanying "27" plate, although it is sensitive farther toward the less refrangible end of the spectrum. It would, appear, therefore, that the change in the slope of the curve is due mainly to constitutional (chemical) difference between the two plates, which leads to a difference in the velocity of the chemical reaction in ordinary development.

In order, then, to obtain a direct comparison between two plates, it is necessary not to develop for precisely similar lengths of time, but for precisely similar amounts of development-action—i.e., reduction product; under which circumstance the gradation-curves will be parallel to one another. In trichromatic work, where different plates are used and the development is for equal times, as is very common in the case, this change in the gradation-curve due to constitutional plate-difference must therefore be as carefully guarded against as the change in gradation due to difference in wave-length, if the true colour-value of the object be seriously considered.

#### Development Factor.

In the development of either the spectral records or the sector-disc exposures it will be evident, therefore, that the duration of development is of considerable importance. Hurter and Driffeld have named the amount of development received by a plate the "development factor" ( $\gamma$ ). This factor may be calculated from their formula

$$\gamma = \frac{D_2 - D_1}{\log E_2 - \log E_1},$$

where  $D$  and  $D_2$  are two densities selected from the straight portion of the curve, lying as far apart as possible, and  $E_1 E_2$  = the relative exposure times for the densities considered. It was shown by these workers that when  $\gamma=1.0$  the negative is the true inverse of the original; when greater than 1.0, the contrasts of the original are increased; while if less than 1.0 they are diminished. In testing diffused daylight it is not possible to obtain the values of  $E_1 E_2$  expressed in c.m.s. (candle-meter-seconds); nor for practical results is it essential. If one takes instead the ratio of the light-aperture in the revolving sector-plate, results of sufficient accuracy may be readily secured.

In the sector-disc made by the writer the apertures were cut in brass with much care, and the edges bevelled. Yet, notwithstanding all efforts to the contrary, the error on the smaller apertures was considerable. This error may be noted by comparison with the theoretical ratio, thus:—

Theoretical ratio = 1,	2,	4,	8,	16,	32,	64,	128,	256
True ratio = 1.04,	2.03,	4.06,	7.94	15.83,	31.84,	63.8	127.6,	256.0 <sup>2</sup>

When it is borne in mind that in the everyday practical sensitometry of photographic plates use is made of those obtainable commercially and not of an article specially coated on an accurate surface, it will readily be appreciated that the use of the theoretical aperture-ratio

<sup>(21)</sup> "On the Variation in Gradation of a Developed Photographic Image," Proc. R. S., 68, 300, 1901.

<sup>(22)</sup> My best thanks are due to Professor Raymond Burnham, of the Armour Institute, Chicago, for the measurement of the disc apertures.



within the limits of "plate error"; to make use (except for work) of the true ratio is an unnecessary refinement. value of  $\gamma$  may also be obtained graphically by drawing a line to the straight portion of the characteristic curve, starting from point 1.0 in the log E scale; for, as expressed by Hurter field,  $\gamma = \tan \theta$ , where  $\theta$  is the angle of inclination of the line from the horizontal base-line. The value is read directly from the density-ordinates. In practice, the writer finds it convenient to shift this 1.0 point two divisions to the left along the scale, and thus economise space.

constant  $t_{\gamma}$ , (the time necessary for any plate to reach a development factor of 1.0) advanced by Mees and Sheppard, which is a value in the indication of the development speed of various plates may be determined by the method of Drifford for determining the development factor.<sup>23</sup> The development factors ( $\gamma$ ), extracted as described, are now plotted with the time of development as abscissae, and the two development factors as ordinates, which, when plotted with the zero point, determine the curve. Take, in illustration, the "27" and Cramer "instantaneous isochromatic" plates

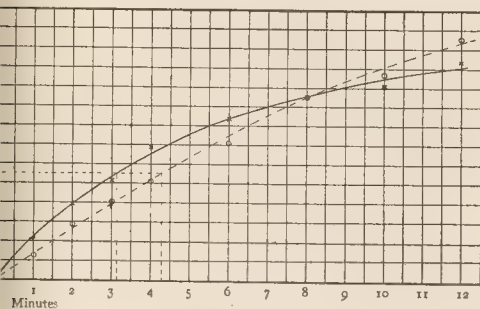


FIG. 11

which were exposed behind the sector-disc, and developed at a temperature of 17 deg. C. for from 1 to 12 minutes respectively. The replotted curves in Fig. 11 the development time necessary for  $\gamma_{1.1}$  may be read off directly as indicated—viz., 3m 10s and 3m 15s respectively.

ROBERT JAMES WALLACE.

(To be continued.)

# HEAVY SENTENCE FOR CANVASSING FRAUDS.

Arrested at the Croydon Borough Police Court, Edwin Morton, 25, New Road, South Norwood, was charged on remand with using £s. by false pretences from Charlotte Gammon, and 2s. from Annie Rudkin by false pretences.

Two young women are employed by Mr. S. G. Edridge, the Clerk of the Court, as cook and housemaid, and their story was that in their last the accused went to the back door and asked if they liked to have some photographs taken. They consented, and gave him the money, but did not see the man again until April 26, when he again called at the house and they accused him of having stolen their money.

At Morton's house, it was alleged, the police found some old receipt books and a large quantity of photographs. Taking the addresses from the receipt books, Detective Cadby made about forty inquiries at Beckenham, Anerley, Penge, Crystal Palace, and neighbourhood, and found that Morton had defrauded about fifty servants of money, and that on two occasions he was given a half-guinea and left to get change, but did not return. One girl, who received 15s. a month, gave him a half-sovereign, and he left a book with her as security, but did not return. The police had received between five and six hundred complaints.

Detective-Sergeant Easter said there were similar cases in Carshalton, Sutton, Norbury, and West Dulwich.

Morton, a prisoner, who pleaded guilty, was sentenced to three months' imprisonment with hard labour.

## A WAVE OF ORTHOCHROMATISM.

IN reference to the recent paper by Mr. E. A. Salt, which appeared in our issue of May 10, a paper was read by Mr. E. Human at the London and Provincial Photographic Association on May 24, Mr. A. E. Smith in the chair. The lecturer took exception to many of the points raised by Mr. Salt. Speaking of the difference noted by Mr. Salt between negatives taken on a screened ortho plate and those made on an ordinary plate, such difference being something apart from the rendering of colour values, Mr. Human contended that the difference could only be one of tone value, and instanced a subject such as a spring landscape in which the tones of green would be rendered in their proper differences on a screened ortho plate, but not upon an ordinary plate. The lecturer believed that an ortho plate used with an adjusted screen was capable of giving reproductions of light and shade in a subject at least twice as good as that of an ordinary plate, the gradation in which frequently inclined to "soot and whitewash." Mr. Human thought that if an ortho plate would do better, as Mr. Salt admitted it would, on some occasions it would do better on all, and he went so far as to say that even for copying black and white line work results could be obtained on an ortho plate which were superior to those on an ordinary. For flower subjects the rendering with ordinary plates might be fair with a prolonged exposure, but it was much better when an ortho plate was used. It was only by the use of an ortho plate that the texture of petals, etc., could be obtained at the same time as the delicate tones of the colour of the flowers. Mr. Human thought that flower-photography was unknown before the introduction of ortho plates.\* As regards portraiture, an instance was given of a red-haired girl, who had been unsuccessfully photographed by several professionals, but whose tonal values yielded to an orthochromatic plate properly screened. The importance of the proper adjustment of plate and filter was strongly emphasised, and in conclusion the lecturer challenged Mr. Salt to select his own subject and to obtain a photograph by using ordinary plates. He (the lecturer) would undertake to obtain a better result on orthochromatic plates, whatever the subject, and he also made an offer on behalf of a friend to obtain a better photograph of a flower subject on ortho plates and filters than with an ordinary plate.

In the discussion, Mr. W. T. Wilkinson said that he agreed with all that Mr. Human had said, but he found the one great drawback in ortho plates was their speed, the fast ortho plate had not any more ortho value than the slow. If the filters were not properly adjusted he found that the tone value of the greens was rendered far too black, and for the best results the filters, as had been stated, must be properly adjusted to the plate.

Mr. W. R. Stretton said that after using ortho plates for some time he had altogether discarded them for the ordinary brands. He thought that in pictorial work, at least, there were two factors that should be considered, when discussing the subject under notice—first, the personal one, and secondly, the development, because unless a plate was properly developed, no matter what plate was used, the result would prove a failure. He disagreed with Mr. Human's remarks upon the rendering of the greens, and could obtain good rendering by the aid of ordinary plates without any screen, and he thought that under certain circumstances there was a difference in rendering between ortho and ordinary plates which was not always to the advantage of the ortho. When working on the river the ortho plate with filter cut out the distance, but with an ordinary one he had succeeded in obtaining the distance and smoke from cottage chimneys against a blue sky. What needed to be taken into consideration was the personal element in development; this to his mind was the root of the matter.

Mr. Teape pointed out that the artist, when painting, produced his effect by a scheme.

Mr. Rapson said that Mr. Human had made one or two statements that seemed to him rather rash. One could not use the same class of plate for a soft as for a hard effect, and for copying black and white he thought the ordinary plate would do as well as the ortho. With regard to the filters, he had one which flattened the results,

\* The lecturer is evidently not cognisant of the fact that Mr. Henry Stevens, whose photographs of flowers have probably never been equalled, and who obtains a most realistic reproduction of texture, has done all his work on ordinary plates.—Eds. "E.J."

<sup>23</sup> "Photographic Journal," 43, 17 January, 1903.

for it had gone blind, and so killed contrast. Such a screen would naturally knock the life and sparkle out of a negative. Ortho plates were, he thought, always poor in the greens, being more sensitive to the yellow than the green. He always used ortho plates where needed.

Mr. Burgess did not understand where the value of ortho plates came in when copying black and white.

Mr. Haddon said that Dr. Mees had stated that the best rendering of such subjects was obtained by colour-sensitive plates and filters. Mr. Rapson had, he continued, admitted that the ortho plate was the best when taking a photograph of a garden, and what was best for the one was best for the other.

Queried as to the green trees only reflecting white light, Mr. Haddon said that if only white light was used the greens would appear as if dusted with flour.

Mr. Teape thought that this could be overcome by excessive exposure.

Mr. Freshwater had obtained flower studies on ordinary plates that were, he thought, not much behind those done on ortho, but when photographing geraniums he found he obtained a difference in the greens on ortho plates, the markings of the leaves being far better.

### LANTERN PROJECTION DISTANCES.

(From "Popular Astronomy.")

THE usual published tables of size of disc for a given distance from screen with a three-inch slide for different focus lenses in projection are perhaps near enough for all ordinary exhibition purposes, but not sufficiently so for accurate projection calculations. The tables give a constant ratio between disc and distance, the same as a pin-hole lens would give, whereas the conjugate focus of an objective naturally makes the disc greater in proportion than the distance calls for, amounting to nearly 18 inches on a 21-foot disc with a half size objective, as in the table herewith, from actual experiments by the writer on the 73-foot floor of the Portage armory, February 5, 1907, through the courtesy of Company F, third regiment, some of the members of which kindly assisted with the measurements. The alternating ten ampere arc lamp was used in the lantern. The objective was half size,  $9\frac{1}{2}$  inches equivalent solar focus, and according to the one-fourth equal image distance, the slide, a hymn, words and music, full field, having a three-inch exact mask, was focussed sharp at half way from centre to edge.

As a three-inch slide is a rarity, and  $2\frac{1}{2}$  inch horizontal being the almost universal width, a column is also given for discs from this width, which ranges tolerably close enough to the usual tables for ordinary purposes. The ratio of slide to focus should be the same as disc to distance, and is closely.

TABLE OF LANTERN PROJECTION DISTANCES.

Screen to Objective Dia- phragm.	Lesser Conjugate Focus.	Diameter of Disc.	Same from $2\frac{1}{2}$ in. Slide.	Times Enlarge- ment.	Ratio $3\frac{1}{2}$ in. Slide to Conjugate Focus.	Disc per Published Tables.
Ft.	n.	Ft. In.	Ft. In.			
10	10'00	3'00	2'104	12	3'333	3'00
20	9'60	6'03	6'00	25	3'200	6'00
30	9'47	9'06	9'014	38	3'168	9'00
40	9'41	12'09	12'03	51	3'137	12'00
50	9'37	16'00	16'04	64	3'125	15'00
60	9'35	19'03	18'064	77	3'117	18'00
70	9'33	22'06	21'07	90	3'110	21'00

H. W. GRIGGS.

FROM THE HEALTH RESORTS DEVELOPMENT ASSOCIATION, 29, John Street, Bedford Row, London, W.C., we have received copies of the official guides published by them for the Corporation of Deal, Leamington Spa, and Southwold. These booklets, which are copiously illustrated, contain interesting particulars of the several towns and surrounding districts, with advice as to how to get there, where to stay, what to see when there, and many other useful items of information. A copy of the desired guide may be obtained free on application to the Town Clerk at either of the above resorts.

### THE PHOTOGRAPHIC CONVENTION AT HEREFORD JULY.

THE Handbook of the forthcoming meeting of the Convention Hereford in July, under the Presidency of Mr. Alfred Watkins J.P., is to hand, and, judging from its contents, conventioners expect a right royal time during their visit to that ancient and toric city, than which, and the surrounding district, it would be difficult to find a spot more full of photographic promise. By courtesy of the Corporation of Hereford the use of the hands Town Hall, as the place of meeting, and a suite of rooms, have been placed at the disposal of the Convention for the week. The following is the programme of arrangements:—

#### MONDAY, JULY 15.

Morning.—Members of the Local Committee will attend at Town Hall to conduct parties to places of interest in and around city.

Afternoon at 2.30.—Reception at the Town Hall by his Worship the Mayor, Mr. G. J. Caldwell, J.P., who will be supported by members of the Town Council, the President, Mr. J. S. Arkwright M.P., the Committee of the Herefordshire Photographic Society and members of the Woolhope Club.

At 3 o'clock.—The President, Mr. Alfred Watkins, J.P., will deliver his inaugural address, after which a paper on "Microscopic Researches on the Gelatine Film" will be read by Dr. W. Scheffé.

Evening at 8.—Conversazione. Official reception by the Mayor of Hereford. Exhibition of pictures and apparatus, musical performance, refreshments, etc.; also an exhibition, specially arranged by Mr. W. T. Carless, the hon. local secretary, of ancient charters, plate, and insignia of the city of Hereford.

#### TUESDAY, JULY 16.

Morning, 9.30.—Excursion by brakes to Weobly and Pembridge, both of which possess an interesting old church and numerous ancient buildings.

Evening, 8.30.—Annual general meeting in the Town Hall, followed by a meeting of the new Council.

#### WEDNESDAY, JULY 17.

Morning.—Visits to the cathedral, where the Dean will arrange to meet the members at 11 o'clock, the markets, churches, hospices and other objects of interest in the neighbourhood.

Afternoon, 3.—The President and Mrs. Watkins "At Home" at the Vineyard Croft. Boating, punting on the Wye, canoe studies, woodland bits, etc. The official Convention group will be taken by Mr. Herbert Unwin in the adjacent grounds of the Vineyard (by kind permission of Miss Parry) at 3.30.

Evening, at 7.—The annual dinner at the Green Dragon Hotel.

#### THURSDAY, JULY 18.

Morning, at 9.20.—Excursion by train to Ludlow, Stokesay, and Ludlow is particularly rich in subjects of picturesque beauty and historical interest, amongst which we may mention the church, Castle, the Feathers Hotel (one of the most elaborately decorated timber houses in existence), and the Whitcliff walk, with Ludlow and the bridges. Stokesay Castle is unique in being an earthen fortified manor house of the thirteenth century in good preservation which has neither fallen into decay nor been "restored."

Evening, from 7 to 8.—A meeting of professional photographers in the committee room.

Evening, at 8.30.—A paper will be read by Mr. E. J. Humphreys entitled "A New Aid to Pictorial Photography," followed by a paper by Dr. C. E. Kenneth Mees and Mr. S. H. Wratten, entitled "Variations of the Watkins Factor, with Modification in the Conditions of Development."

#### FRIDAY, JULY 19.

Morning, 9.55.—Excursion by train to Goodrich and Symonds Yat. At Goodrich the chief objects of interest are the two extremes of the ruins of a Norman castle, and a modern mansion Goodrich Court. The road from Goodrich to Symonds Yat (two and a half miles) is rich in picturesque scenery, and the landscape photographer on the search for pictures will find them here without difficulty.

Evening, at 8.30.—A lecture entitled "The Romance of Insular Life," by Mr. F. Martin Duncan.



on the previous day, a meeting of professional photographers was held in the committee room from 7 to 8 o'clock.

SATURDAY, JULY 20.

The last excursion of the Convention of 1907 will leave Hereford train for Ledbury at 9.45. Here will be found many picturesque bean houses, a quaint market house (built in 1633) and a fine church, portions of which date from Norman and probably Saxon times.

The city of Hereford itself is particularly rich in subjects which appeal to all classes of photographers—architectural, archaeological, landscape, one of the chief, of course, being the cathedral, which Conventioners wearing their badge will be allowed to photograph at any time during the week, except when there is a service.

The Handbook contains a list of the hotels, boarding-houses, restaurants, etc., where accommodation may be obtained, also a list of photographic dealers and dark rooms in Hereford, Ludlow, and Shrewsbury.

## Exhibitions.

### KODAK PROFESSIONAL EXHIBITION.

It is now open, at the Portman Rooms, Baker Street, London, an exhibition of photographs and apparatus, brought together by the Kodak Company, and open from 10 a.m. to 10 p.m. to professional photographers and their friends. The photographs are, without exception, examples of portraiture by British and American photographers, and, while illustrative of the capacities of the various printing papers specially offered by the Kodak Company for personal use, yet present a variety of styles in posing, lighting, and printing, which no portrait photographer can fail to study without profit. We are glad to see represented on the walls examples of the work of Garo, Knapp, and other American professionals, who took part in the exhibition held at our own offices not long ago. The Kodak Co. have consistently done good service in keeping the name of this order in prominence, and the present collection will be found to contain not a few instances of professional photographers in this country having profited by the opportunities thus afforded.

The printing papers which make up the various panels are: collodion, sepia, cold bath platinum, ordinary platinum, "Velvet" solio, "Velvet" bromide, and Dekko and "Aristo" platino (collodion type). The last-named claims the lion's share of the space, and the panels devoted to it contain a great deal of magnificent work. It should be mentioned that demonstrations are given on a large scale of the "Aristo," solio, and bromide, and Dekko papers. In the room for the two latter will be found a very convenient printer, which permits of any size of negative being accommodated, and gives no light to escape. It is a very convenient professional printer.

The Aristo portrait lamps and the Aristo printing installation are shown working. In connection with the former, which is now adapted to work entirely by reflected light, note should be taken of two very useful screens, serving to cut off light, either from the front or upper portion of a sitter. In one case the screen is connected with a reflector, the two vigorous action of which it serves to moderate. The use of these screens is demonstrated.

The latest model of studio camera also on view includes a number of features which are commendable, including the rapid adjusting mechanism and the hood, to which gauze may be affixed as a ready means of modifying the lighting on the sitter and subduing portions which compete with the parts of chief interest. Numerous other accessories are on view, including a baby motor car, of which several studios are reported to make successful use as a tout, and a stand outside the establishment inducing the child to take a whimsical ride in it, and thus conveying him or her into the studio, to be worked by the mother. We must draw attention, too, to the drying exhibit and demonstration—Messrs. Kodak, Ltd., supply a line of adhesive tissues and machines, and the photographs on the walls are examples of their use—and to demonstrations of a new

air-brush, the "Airostyle," with an instantly removable needle, which is placed on the market at £4 4s. Demonstrations of "Negafake," the abrasion method of retouching, are also given. The whole exhibition, it will thus be seen, offers every inducement to professional photographers to pay it a visit before it closes to-morrow evening, at 10 p.m.

### THE GAMAGE EXHIBITION.

At Messrs. Gamage's huge and well organised emporium in Holborn there is now an exhibition of photographic apparatus, which is open free to the public daily from 9 a.m. to 8 p.m. (Saturdays 9 to 5). Among the exhibitors are Messrs B. J. Edwards and Co., whose stand displays a new plate "The Empire," just introduced chiefly for professional portraiture. Rapidity and fineness of grain are not the only features which are strong claims for its adoption. Messrs. Chas. Zimmermann and Co. show a new pocket folding focal-plane camera, as well as the standard patterns of Ernemann cameras, to which, we noticed, a very neat and efficient focussing hood is now fitted, as well as a finder, which automatically erects itself when the camera is opened, and *au contraire* subverts itself on the instrument being closed. These movements are two of the things to be seen at the exhibition. Messrs. Thomas Illingworth show a selection of their high-class enlargements and give demonstrations of Zigo self-toning papers. The Adhesive Dry Mounting Company have an attractive exhibit of their process, and the Standa Development Co. shows the latest patterns of the developing apparatus of that name, and offers to develop plates brought to it during the hours of the exhibition. Among other exhibitors are Messrs. Rotary Photographic Co., W. Butcher and Sons, Chas. Tyler and England Bros., Houghtons, Limited, Leto Photo Materials Co., L. Kamm and Co., Midland Camera Co., Theobald, and J. E. Lockyer, in addition, of course, to Messrs Gamage themselves, at whose stall everything photographic may be purchased. The exhibition, which is enlivened with music, remains open until June 8.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received between May 6 and May 11:—

The following applications for patents was made between May 13 and May 18:—

**FILMS.**—No. 11,105. Improvements in and relating to means for removing sections of photographic films from roll and film cartridges and the like. Percy Albert Craven, 11, Maiden Lane, London.

**COLOUR PHOTOGRAPHY.**—No. 11,442. Colour photography. Ernest Braunn, 86, Hart Street, Southport.

**ENLARGING.**—No. 11,499. Improvements in and relating to lanterns and apparatus for enlarging purposes. William Frederick Butcher, 322, High Holborn, London.

**MEASURES.**—No. 11,507. Improvements in measuring glasses for dark-room purposes. William Frederick Butcher, 322, High Holborn, London.

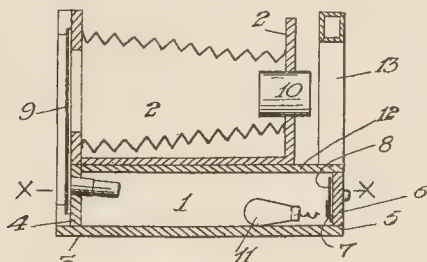
### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**PLATE-CHANGER FOR COLOUR PHOTOGRAPHY.**—No. 11,986. The invention consists of a dark slide holding a series of three plates each in a sheath or carrier, which also contains the light filter. The slide is inserted in the camera in the ordinary way, and on the shutter being withdrawn the first plate is exposed *in situ*. This and the second plate are then caused to fall forward into the camera in such a way that they are out of the field of view. They are drawn again into the slide, when all three exposures have

been made. The mechanism for effecting the movement of the carriers is somewhat intricate, and consists, according to the first claim, of a pneumatic stopping and releasing means, comprising a plate and stem adapted to actuate a two-armed lever and a one-armed lever, which both carry a detent, the mechanism being so arranged that when the pneumatic bulb is actuated, the detent on the former lever is raised to release the foremost plate-carrier, while the detent on the latter lever is depressed to prevent the release of the second plate-carrier. Albert Müller, Linkstrasse, 13, Berlin, W., Germany.

**TWO SUBJECTS AT ONE EXPOSURE.**—No. 9,648, 1906. The invention consists of a small auxiliary camera consisting of a box, 1, containing a lens, 3, and opposite the latter a picture or design, 6, which is illuminated by an electric lamp, 11, in the box. The



object of the invention is to take at the same moment a single negative, the upper part of which contains the portrait of a person, and the lower a reproduction of some drawing or object. Herbert Oscar Seaman, Athlone, Victoria Road, Stetchford, Worcestershire, and John Edward Rickards, 3, George Street, Birmingham.

**VIEWING LIPPMANN PHOTOGRAPHS.**—No. 32, 1907. The invention consists of a method of viewing the Lippmann interference colour photographs, in which the reproducing lens system, or at least part of it adjacent to the photograph is simultaneously made use of as the illuminating lens system. Thus the angle of incidence, under which the illuminating rays meet the photograph, can be greatly reduced, by bringing the entrance pupil near the axis of the lens system, and further the photograph can be placed at right angles to this axis.

In order that light may impinge on the whole surface of the photograph in a uniform manner, the entrance pupil has to be arranged in the focal plane of the illuminating system. The principal rays proceeding from the centre of the pupil in that case impinge upon the photograph parallel to one another.

In order to prevent the catadioptric images of the entrance pupil, which are produced by the lens surfaces, from being projected upon the dioptric image of the photograph, the axis of the reproducing lens system may be arranged on one side of the photograph, but always perpendicular to it. The lens system is in that case used eccentrically. If this system consist of a single plano-convex piece of a lens, it may be cemented upon the photograph as a cover glass. It stands then at the same time in the place of the wedge-shaped cover glass, which is usually supplied in the case of Lippmann photographs to remove the disturbing surface reflection.

Two appliances for the production of a virtual image can be combined to form a double apparatus for viewing two identical or two stereoscopic pictures. The apparatus designed for a single picture can, however, also be arranged so as to use both eyes. Two entrance pupils are then best arranged for the light, one on the left for the entrance of the rays, which are to be reflected from the photograph into the right eye, and a right one for light which after reflection at the photograph is to render the virtual image visible to the left eye.

Fig. 1 is a diagrammatic plan view of an apparatus for producing a virtual image by a Lippmann photograph to be viewed with one eye. The image  $b^1$  of the entrance pupil  $b$  projected by the mirror  $a$  is situated at the focal distance of the lens  $c$ , and is

reproduced from this and from the photograph  $d$ , in as far as the picture-film reflects like a plane mirror, at the position of the eye  $e$ . The reproducing pencils produce simultaneously a virtual

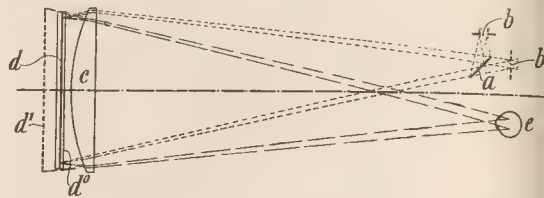


image  $d^1$  of the photograph  $d$  behind the hinder surface of the photograph. There are no means provided in this simple example to abolish the catadioptric images of the entrance pupil, the axis of the lens  $c$  passing right across the photograph  $d$ . The latter is provided only with a plano-parallel cover glass  $d^0$ . Carl Zeiss Works, Jena, Germany.

**AUTOMATIC ENLARGING APPARATUS.**—No. 11,620, 1906. The invention consists of various means and mechanism for rapidly bringing the lens, negative, and sensitive paper into their proper relative positions.

The easel is so arranged as to be adapted to slide along the base-board or base of the apparatus in the usual or any suitable manner, and from the lower part of the easel a bar or slide of wood or other suitable material of graduated width is fixedly mounted on the easel so as to project towards the lens-carrier and negative-carrier and towards and away from which latter the bar or slide moves with the easel, one edge of this bar or slide being formed with a cam or so curved as to produce the automatic focussing as follows:—

A spring-controlled bell-crank or the like lever is pivoted to a support on the base or otherwise supported on the base; one arm of this bell-crank being adapted to bear (through the medium of any suitable anti-friction device such as a roller) against the curved or cam-like surface of the bar or slide against which it is kept constantly pressed by any suitable means, such as a coiled spring, while the other arm of this bell-crank (which is located in a different horizontal plane to the first-named arm—so as to be clear of the curved bar) is connected, by a connecting rod to the lens-carrier, the length of the arms of the bell-crank either being the same or different, in which latter case they are so proportioned that acting in conjunction with the curvature of the edge of bar or slide thereby the lens carrier will be moved at a differential speed towards or away from the easel as and when the latter is moved by hand towards and away from the lens-carrier so that the relative distances of the lens from the negative carrier will be correctly maintained throughout to produce automatic focussing in all positions of the said parts.

2. In place of the curved bar fixed on the easel and sliding with it as aforesaid—the second method consists in the employment of a specially curved swinging cam which is pivoted to the base-board or base of the apparatus and provided with a crank handle or other means by which the cam can be swung or partially rotated around its pivot, the easel being attached by suitable means such as a connecting rod to a crank on the cam or to the crank handle while the lens-carrier is kept normally pressed against the curved part of the cam, so that when the cam is turned through part of a revolution by means of its handle correct relative movement will take place of the lens-carrier and the easel, and thus in all positions automatic focussing will be produced.

3. Instead of the foregoing arrangements the automatic focussing may be obtained by means of a cam or curved surface fixed, formed, or carried on a pivoted lever, one end of which lever is connected by a rod or otherwise suitably connected to the lens-carrier, and the other end forms a handle, while the easel is connected through a connecting-rod or flexible connection to one end of a bent lever or bell-crank pivoted to the base-board, the other end of the bent lever or bell-crank being caused by a spring to bear against the curved surface or cam-like surface on the first-named handle lever, the arrangement being such that as the handle lever is operated the cam surface or curved



plate will be moved away from the end of the bent lever or bell-crank bearing against same, and thus permit the spring to draw the easel towards the lens carrier, the latter being moved towards the easel by the hand-lever in exactly correct relative speed to produce automatic focussing at all positions of the parts.

The twelve figures of the mechanism are required for a proper explanation of it. Houghtons, Limited, 88 and 89, High Holborn, London, and James Wright Craig, 88, Braid Road, Edinburgh.

### New Trade Name.

ICE, A SIGNBOARD BEARING THE LETTER N.—No. 291,997. Photographic films and plates included in Class 1. Houghtons Limited, 88 and 89, High Holborn, London, photographic manufacturers. April 10, 1907.

### Analecta.

Extracts from our English weekly and monthly contemporaries.

#### The Pocket Camera.

There has been for some time past (writes Mr. W. Thomas in the *Amateur Photographer*) a tendency to provide a small form of camera, which should not be too bulky for carrying about, and giving a picture something less in size than the quarter-plate. Several such cameras, using plates of  $3\frac{1}{2} \times 2\frac{1}{4}$  have been placed on the English market, each of which, in proves very satisfactory, some being fitted with focal-plane shutters, others having the ordinary shutter attached to lens; both, for their special purposes, are good. Quite one of the latest introductions is the "Sybil," made by Newman and Guardia. It is up like a cigar-case, is ready at a moment's notice, works with perfect smoothness, has a lens aperture of  $f/6.5$ , a shutter speeds range from  $\frac{1}{4}$  to 1-100th of a second, and seem really to pretend it to be; is made entirely of metal (except the screws), has no complicated movements to worry over, is an immense pleasure to use, and produces exceedingly good negatives.

#### Markings on Negatives.

An editorial in "The Photographic News" of May 24 deals with the case in which disagreeable opalescent markings were produced by drying negatives hurriedly with methylated spirit. In the case mentioned it was found that if a negative were hurried through the processes of fixing, washing, and drying with spirit these markings were very likely to put in an appearance. At first it was thought that the impurities in the commercial methylated spirit coming into contact with the water in the film was the cause; but as seen that pure spirit had also the same effect. The photographer, in his praiseworthy haste to get the negatives through quickly, waited only until the visible creaminess had disappeared from the film, then gave a quick rinse under the tap, and treated them with methylated spirit. As the film dried the markings grew apace. Application of water—i.e., a further washing—removed them, they appeared again when the plate dried, and not until the plate was treated to another period in the fixing-bath, followed by a good wash, did the marks disappear.

#### The Value of Backing.

It is a common idea of the inexperienced (writes Mr. A. Lockett in "Focus") that backing makes very little difference except for faint subjects. As a matter of fact, there are very few subjects possessing any brightness or vigour of lighting which are not improved by backing—in the majority of cases greatly improved. In a where there is no chance of actual halation being present, crispness and clearness of the negative is almost sure to be needed. To sum up, it may be said that—barring some very exceptional occasions when a slight halation may be pictorially a detriment—none but backed plates should ever be used by those who wish to obtain the best possible results. The slight extra expense involved is always amply repaid.

## New Books.

"The Photographic Red Book." London: The Affiliation of Photographic Societies.

The Affiliation of Photographic Societies' annual for 1907-8 has reached us, and presents much the same appearance as in previous years, its enlarged form being still maintained by the inclusion of twelve half-price tickets of admission to the exhibition of the Royal Photographic Society which opens in September next. The book sets forth the advantages accruing to affiliated societies, together with their rules and management, and also the benefits and privileges conferred on their members individually. The list of "places to photograph," with full instructions for obtaining permission for the same, is not highly instructive, and might be cut down with advantage. A list is also given of affiliated societies, both in London and the provinces, including the names and addresses of their officers and headquarters, dark room accommodation, etc., which will prove serviceable to the tourist and holiday maker; whilst the inclusion of a table of distances, enlarging, and reducing formulae, speed numbers of bromide papers, and other useful items of information are commendable features.

THE "BIBLIOTHECA CHEMICO-MATHEMATICA."—The price current of old and rare books, issued by Messrs. Sotheran and Co., 140, Strand, W.C., reaches our table. It contains works by authors, arranged alphabetically from G to H, among whom we find Robert Hunt, both editions of whose rare "Researches on Light" Messrs. Sotheran can supply. Another interesting photographic entry is the "Chemical Handicraft," of John J. Griffin, issued in 1866, and the "Chemical Recreations" of the same founder of the present Kingsway firm of Velox fame, which first saw the light in 1838.

"EVERYBODY'S GUIDE TO PHOTOGRAPHY."—A new edition of this popular sixpenny guide reaches us from Messrs. Madgwick Hulston and Co., Ltd., 4, Ave Maria Lane, E.C. The author, Mr. E. Pierce, accomplishes his task of initiating the beginner very satisfactorily, on the whole, and is everywhere very explicit. One may wish for less misleading passages in one or two instances in the chapter on optics, but on the whole the volume is accurate, if all too brief.

## New Materials.

PAGE-CROFT POSTCARDS.—The new self-toning paper of Mr. Page-Croft, Cooksey Road, Birmingham, is now issued in postcards of assorted tints. The cards are tastefully produced, with rough edges (gilt), and are supplied in sixpenny and shilling packets, complete with masks. A sample packet will be sent on receipt of two stamps.

ROYAL PHOTOGRAPHIC SOCIETY.—It has been arranged to abandon the technical meeting formerly held on the fourth Tuesday in June and to substitute for it a practical demonstration on the first Tuesday in that month. A meeting is now held at the Society's House on every Tuesday evening from the first Tuesday in November till the second Tuesday in June, inclusive, except upon those Tuesdays which follow immediately after a public holiday.

"TOURS IN GALLOWAY" is the title of the official guide-book to South-Western Scotland, issued by the Portpatrick and Wigtownshire Joint Railways, and intending visitors to the picturesque holiday land cannot do better than obtain a copy. It contains copious, well-illustrated notes on the chief places of interest to be met with whilst touring in the locality, together with a list of hotels, apartments, farmhouses, etc., at the various stopping places where accommodation suited to all classes of visitors can be obtained. Particulars of travelling arrangements, circular tours, etc., are also given, and in fact all the information required by the average tourist in this part of Scotland. A copy of the guide may be obtained by sending two penny stamps to the Traffic Manager, Portpatrick and Wigtownshire Railway, Stranraer, N.B.

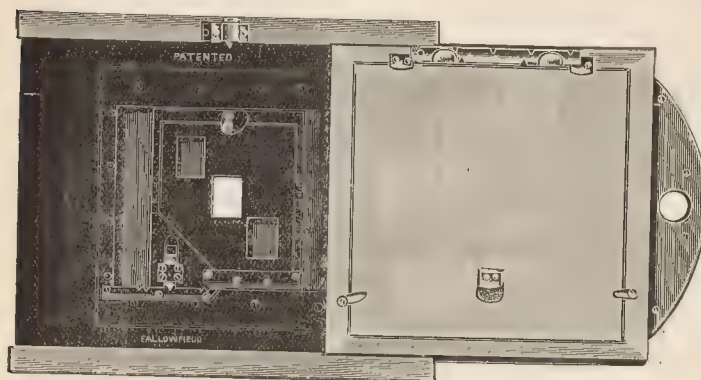


Fig. 1.

No. 19 "secto" taking 3 on  $\frac{1}{4}$ -plate.No. 4 "secto" taking 12 on  $\frac{1}{4}$ -plate.

## New Apparatus.

The "Multisecto" Repeating and Midget Apparatus Sold by Jonathan Fallowfield, 146, Charing Cross Road, London, W.

In this piece of apparatus, which has just been placed upon the market by the firm of Fallowfield, there are embodied facilities which every professional maker of the smaller sizes of portrait photograph must have wished for many a time, that is to say the attachment allows of a very great range of sizes being obtained, and further, it dispenses with the use of odd-sized plates; all its work being done on either the half or quarter plate. These two facts should entitle the "Multisecto" to the interested examination of any midget photographer, who, unless we are mistaken, will find it a piece of apparatus which realises all that he has desired in such an accessory.

The "Multisecto" consists of two parts, a back, which is supplied in a form readily fitted to almost any make of camera of the square whole-plate pattern, and a dark slide which differs from those of the ordinary kind only in the arrangement of removable slotted bars, seen to the right in the drawing. In the majority of cases the work of fitting the back is very slight and entails no alteration to the camera. The accessory is removed in a few seconds and the camera is then at liberty for ordinary work.

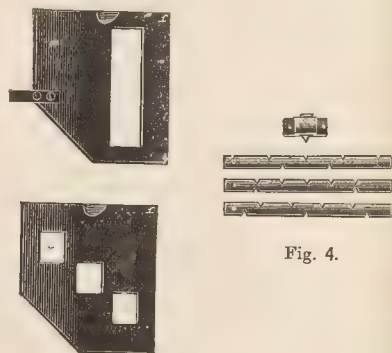


Fig. 4.

Figs. 2 and 3.

The method will be understood from a glance at Fig. 1, in which it will be seen that the back carries a mask, or "secto," with three apertures and the corner cut off (Figs. 2 and 3.) The particular disposition of the "secto" decides the number of pictures on a plate, and when a given one has been inserted all that is needed is to attach the corresponding slotted bar (Fig. 4) to the dark slide and make the exposures row by row on the plate, the "secto" being moved between each row. As a result of this simple process no less than twenty different sizes of pictures may be obtained on the two popular sizes of plates, from one  $1\frac{1}{3} \times \frac{4}{5}$  (15 on the quarter-plate) to the quite respectable size of  $3 \times 2$ , three of which are obtained on a half-plate. It is particularly in the larger sizes that the apparatus will be found welcome by the professional photographer, as it gives him the choice of some very pleasing shapes and sizes, in addition to the smaller ones usual in button work. We illustrate on this page two of the arrangements out of the total twenty, commending the apparatus to the attention of those—and we believe them to be an increasing number—who have acceded to popular demands in providing midget portraits. The complete "Multisecto" is sold at 50s., at which price are included the twenty "sectos" and slotted bars for the dark slides.



point which should not be omitted in reviewing this very accessory is that Messrs. Fallowfields are issuing a special series of "Multisecto" mounts for each size, so that there be no need for a photographer, doing an extensive business apparatus, to fill his window with a confusing assortment of mounts. The adoption of a single style will give character to work, and will still further emphasise the commercial advantage of the apparatus.

ket Stereoscope. Sold by the Stereoscopic Postcard Company, Limited, Essex House, Stratford, London, E.

stereoscope in question forms part of the policy of the Stereoscopic Postcard Company to supply stereoscopic views and viewing apparatus at popular prices. It is of cardboard covered in velvet, answers its purpose sufficiently well, and costs but 9d. a figure which yet allows a profitable discount to the trade. The firm also supplies the usual wood and aluminium hooded stereoscopes.

series of stereoscopic postcards of the regulation size of 5½ in. in. embraces a wide range of subjects, the photographic character of which, judging from the examples sent to us, is good. Cards retail at 2d. each. A hand-coloured card, also photographic, is supplied at 3d.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### SATURDAY, JUNE 1.

Photo Art Club. Outing to Speyside (Aberlour).  
and District Photographic Society. Outing to Oxshott.  
on and District Photographic Society. Outing, Thames Embankment.  
Polytechnic Photographic Society. Outing to Benfleet.  
Photographic Society. Outing to Northampton.  
Photographic Society. Outing to Driffeld.  
Stereoscopic Society. Outing to Lea Backwater.

#### MONDAY, JUNE 3.

London Photographic Society. "Theory and Practice of Time Development." Wm. F. Slater, F.R.P.S.  
ark and District Photographic Society. "After Treatment of the Negative for Pictorial Effect." E. Warner. Monthly Print Competition.

#### TUESDAY, JUNE 4.

Photographic Society. "On the Selection and Making of Filters for Panchromatic Plates." J. McIntosh.  
Photographic Society. "Gum Process." S. W. Morrison.  
Photographic Society. "Recent Advances in Photography." Harry C.

#### WEDNESDAY, JUNE 5.

Hiddlesex Photographic Society. Lantern Slide and Print Competitions.  
gh Photographic Society. Forty-seventh Annual Meeting.  
amera Club. Evening Excursion. Scholes to Barwick.  
uburban Photographic Society. "Platinum, Developing for Tones." Cornford.  
on and District Photographic Society. "A Visit to the Zoo." Mr. Burroughs, F.Z.S. Competition, May 20 Prints.

#### THURSDAY, JUNE 6.

and Provincial Photographic Association. Open Night.

### ROYAL PHOTOGRAPHIC SOCIETY.

ng held 28th inst., Mr. E. J. Wall in the chair. A paper by E. Kenneth Mees and Mr. J. K. Baker on "The Measurement of Efficiency of Dark Room Filters," was read by Dr. Mees. Referring to the visual luminosity curve of the spectrum, the authors pointed out that the greatest value lay in the green, especially at intensities, and by cutting out the red and blue it was possible to use safe lights, which were agreeable to the eye, and were yet equally without action on the plate. The results of their measurements, however, had been to convince them that absolute safety and efficiency was a combination which it was practically impossible to attain in practice, and they had been convinced of the wisdom of the brown maximum, to shield the plate as much as possible from the room light. The measurement of the intensity of the light given by different filters was made by attaching a black cross, made by pieces of lantern slide binder, to the filter, placed in the lamp. The cross was focussed on the ground glass of the camera, the lens of which was gradually stopped down until the cross became invisible on the ground glass. This extinction method was not very accurate—varying from 25 to 40 per cent.—but it gave a fairly good idea of the widely differing intensities of the different filters. Different

observers would make very different measurements, but the ratios were about the same. As a standard of safety they took a filter, which at one metre distant from the plate and with an eight-candle power lamp behind it, produced no fog in half a minute, but produced fog in one minute. This corresponded to a number 50 in the table given for the safety of the different lights. The authors gave particulars of the dyes used in making filters suitable for slow ordinary, rapid ordinary, isochromatic and panchromatic plates.

In the subsequent discussion Dr. Mees, in replying to questions, said that he usually bound up the glasses forming the filter, but did not cement them. He could not see that liquid cells had any advantage over the solid screen. A grey screen, which Mr. Hector Maclean thought would be of service as a dark room filter, was obviously of no use for that purpose. The sensitiveness of a plate did not alter very greatly. Dr. Mees thought, on being wetted with the developer, it became about halved. All their tests had been made with plates in the dry state, inasmuch as plates were in that condition when first manipulated in the dark room. Mr. C. Sordes Ellis thought that a light of greater intensity than those mentioned in the paper was permissible, from the fact that a plate could be slipped into the developer in the deep shadow of the lamp, and its sensitiveness having been thus depressed, might be exposed to a light which would be unsafe in the ordinary conditions. The chairman stated that he was accustomed to develop panchromatic red-sensitive plates at some six feet from an ordinary ruby lamp, but Dr. Mees thought the practice dangerous, and Mr. A. J. Newton instanced a case where, by exposing a red-sensitive plate to such a light, he got a positive instead of a negative.

At a late hour the secretary, Mr. J. McIntosh, demonstrated the results obtainable by the method of ammonia fixation and toning with ammonium sulphide applied to printing-out papers. A note on this subject appears in the current issue of "The Photographic Journal," and Mr. McIntosh's demonstration showed the tones which were obtainable on two commercial brands of gelatine printing-out paper.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—At Wednesday's meeting of this society at 75, High Street, Lewisham, new members were elected which brought the total up to 130, and further members were nominated. Mr. Chas. Stuart started a discussion on "picture-making," which resolved itself into a battle royal between the advocates of fuzziness and those who favoured  $f/6.4$ . Mr. Stuart, with the fervour of a recent convert, recommended the orthodox pictorial recipe—the main object sharp, and the rest fuzzy. Mr. Winney contended that a "sharp-all-over" picture more nearly represented nature as seen by the human eye, and showed some examples in which the planes were pretty well differentiated, in spite of their definition. Mr. T. K. Grant judiciously summed up the middle position, and pointed out that, while one man will get his emphasis by throwing part of the picture out of focus, another expert gets his by contrast of light and shade.

## Commercial & Legal Intelligence.

**ALLEGED ADVERTISEMENT FRAUDS.**—Thomas M'Hugh and William M'Hugh, father and son, were again before the Liverpool Police Court last week on a charge of obtaining money from assistants in the photographic business by false pretences, and with conspiring to defraud.

Mr. H. F. Neale represented the elder prisoner Thomas, and Mr. John Sefton appeared for William.

A young man named Robinson Hindle, who is a clerk, and lives in Heriot Street, gave evidence as to £100 he had parted with as a premium to the prisoner. He had answered an advertisement for an assistant wanted in the photographic business, and called at "Hugh Mack's" studio, 71, London Road. There he saw William M'Hugh, who told him that he wanted a reliable, steady, young man for his assistant, and asked what premium he was prepared to advance. After some bargaining he agreed to pay £100, and handed it over in the form of a Bank of England note. It was agreed that witness

should receive a weekly salary of 35s. and  $\frac{2}{3}$  per cent. of the profits, and remained in prisoner's service until the two were arrested. One day, about the middle of April, Thomas M'Hugh approached him with the object of securing a further advance of £150. That would make his deposit £250, and Thomas promised to lend him another £250 to make his share in the business £500. Witness asked him how he would pay back the £250, and Thomas told him that it would come out of the profits of the trade. "He also told me," added the witness, amidst much laughter, that "it was the chance of a lifetime." Thomas also stated that another young man wanted to put £500 in the business and become a partner, but he (Thomas) would not allow his son to take him, because he was a "boozer." Witness did not consent to make the further deposit.

In reply to Mr. Neale, witness agreed that the elder prisoner had taken no active part in the business.

James Stewart Galston, a musician, who had paid to William M'Hugh a premium of £10, was also in the box. To him William had represented that his father was a commercial traveller who had given him £1,000 to start business.

Albert Edward Harrison, a mechanic, belonging to Hull, who had advanced £10 towards £50 to be apprenticed to the photographic business, was the last witness called, and the stipendiary then remanded the accused, allowing the elder man bail as before.

## News and Notes.

**NEW FELLOWS OF THE R.P.S.**—The following six candidates for the Fellowship have been elected out of twelve who applied:—Donald Cameron-Swan, Robert Thorn Haines, Robert Laidlaw, F. C. Lambert, Oliver G. Pike, J. Watson.

**INVISIBLE PRINTING INKS.**—A correspondent writes:—"Some years ago I was shown some specimens of invisible sympathetic inks by Mr. Winston. If your correspondent applies to Fetter Lane it is quite likely they are still on the market."

**METHYLATED SPIRIT DRINKING.**—Being out of work, Robert Aspland Hatt, thirty, a Hackney photographer, took to drinking methylated spirits, and died from pneumonia accelerated by chronic alcoholism.

**DEATH FROM CHLORAL.**—A photographer named Timms, of Langley Mill, was found dead in his bed last week from the effects of an overdose of chloral, taken to induce sleep.

**MR. JOHN W. SMITH,** for some years manager for Mr. R. W. Paul, has severed his connection with that firm to join the Warwick Trading Co., as manager. Mr. Smith will be pleased to meet his friends in the trade at 4 and 5, Warwick Court, High Holborn, London, W.C.

**TOURIST LITERATURE.**—The official illustrated holiday guide of the London and South-Western Railway is again in hand in its usual attractive form, and is certainly one of the best books of the kind issued gratuitously. It contains notes on the chief places of interest reached by the company's rail and steamship services, together with numerous illustrations. Also, a list of hotels, boarding houses, etc., not the least interesting feature being the carefully revised and up-to-date list of golf links and clubs situated on or near the London and South-Western Railway system. The whole forms a well-arranged compendium of information, and may be obtained free of charge from Mr. Henry Holmes, Superintendent of the Line, Waterloo Station, London, S.E., or from any agent of the company in England or on the Continent.

**YORKSHIRE PHOTOGRAPHIC UNION.**—The annual excursion of members of the Union will take place on Saturday, June 22, Hull and Beverley being the places chosen for this year's gathering, and as both are rich in objects of photographic interest the outing should prove both pleasurable and profitable to all concerned. Tea will be provided at the rooms of the Hull Photographic Society, and particulars as to tickets, train arrangements, etc., may be obtained from Mr. Ezra Clough, 10, Farchliffe Road, Bradford.

**"THE EXPERT."**—The first number of the new weekly (Saturdays, 3d.) gives promise of its usefulness to the collector of old and

modern articles of art, vertu, furniture, and the like. "The Expert" makes liberal use of photographic illustration, and is generally produced and edited. The issue before us contains articles on:—Ham Hall; English Eighteenth Century Drinking Glasses; Lace; Book Plate Collecting; Church Gresley Ware; Collecting.

**"THE CAMERA HOUSE BEACON."**—We are glad to extend a welcome to a contemporary in Melbourne, Australia, which has commenced career under the above title. It is issued monthly by H. J. T. Bridge, 356, Colliers Street, Melbourne, under the editorship of J. Albi (J. O. Moerch).

**HARD LABOUR FOR TRAVELLING PHOTOGRAPHER.**—Walter Stenson, a young man, described as a travelling photographer, brought up at the Welshpool Petty Sessions, charged with stealing a Globe bicycle, valued at £4 the property of Mr. E. C. Bigg, cycle agent. On being formally charged prisoner elected to be tried with summarily and pleaded guilty. Superintendent Williams there were no previous convictions against the prisoner. This of people gave the police a lot of trouble. They came into the county with no intention of paying for their lodgings, and generally succeeded in taking something away with them. There were other cases of the kind in the county now. The Mayor, in sentencing prisoner to two months' imprisonment with hard labour, said occurrences were much too frequent in the district.

**THEFT BY TRAVELLING PHOTOGRAPHER.**—Frank Dudley, Rivers, a travelling photographer, was charged with obtaining a camera, value £27, by false pretences from Albert Perry, of Uttoxeter, on March 22. He at first denied the offence but afterwards admitted, and said that he had pawned it for £3 in London. He was remanded.

**PHOTOGRAPHY AND LITERATURE.**—An interesting series of outings with some literary interest has been arranged by the South Suburban Photographic Society. It is proposed to deal with the portion of Old Pilgrims' Road (from Winchester to Canterbury), which over the hills between Westerham and Maidstone. The first of the outings will be led by Mr. H. Snowden Ward (editor of the "Photographic Monthly") on Saturday, June 8, with Wrotham as rendezvous. There is a fine old church at Wrotham, and some picturesque views may be had in the neighbourhood. On Thursday, June 13, Mr. J. T. Ashby leads another outing to Knockholt, via the Old Pilgrims' Way runs by Hogbrough Hill. The last of the series will have Maidstone for centre, and will probably have Snowden Ward again for leader, about July 27. Mr. Ward, who has written "The Canterbury Pilgrimages" was recently published, made a special study of the subject, and the society is fortunate in securing his co-operation. Mr. Ward Muir and Mr. and Mrs. C. Cadby all live in the neighbourhood of Wrotham, and it is hoped they will be able to join the party. We understand that visitors from other clubs and societies interested will be welcomed. The hon. secretary of the society is Mr. J. Nixon, of Ingleside, Chislehurst, Blackheath.

**PALACE THEATRE.**—At the invitation of the directors of the Palace Theatre a company of pressmen and friends on Monday last visited this renowned place of entertainment, to inspect recent alterations and improvements. The management have remodelled the bioscope chamber, which contributes largely to the Palace programme, the result of securing an even steadier picture on the screen, making assurance doubly sure as regards the safety of the theatre. In many other respects the comfort and entertainment of the visitors have been further studied. The lighting arrangements before the curtain have been overhauled, and the accommodation in the stalls made the height of convenience and luxury. The Palace justly prides itself on the coolness and safety of the building, its island site permits seven exits on the ground floor—and it is satisfactory that its accommodation is made fully worthy of the refreshment to be witnessed on its stage.

**PAGET PRINTING PAPERS.**—Visitors to London may be interested in noting the remarkably fine display of prints on the "Simplex" and other papers which now occupies the window of Messrs. Houghtons, Ltd., 88-89, High Holborn, W.C.



## Correspondence.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

We do not undertake responsibility for the opinions expressed by our correspondents.

### A WAVE OF ORTHOCHROMATISM.

To the Editors.

men,—“A Colour Painter” will have seen from the third of my letter of last week that I have not been “misled by bogey of luminosity values,” and I must express regret if biguity on my part should have created such an impression. I will forgive me if I leave any discussion on the fresh raised to others more competent to deal with it. It is by no means new, and has been very energetically controverted in the

doubt “colour luminosities” must be falsified occasionally. The simple case of red poppies in green grass. Both may have the same “luminosity value,” and probably the best rendering of the red (being a more advancing colour), of the green than the surrounding green. Such cases are, however, only in the nature of a compromise, and must be sharply distinguished from the enunciation of a principle that “colour values,” *per se*, can be translated into monochrome. Such translation I firmly believe, would in each instance vary, and vary with the temperament and colour perception of the artist. I have never been able to learn from painters exactly what they do want in this connection, and very much doubt whether they know themselves. “A Colour Painter,” however, combines with the “lesser arts”; perhaps he can state some definite principle for our guidance.—Yours faithfully,  
E. A. SALT.

### BLUE PAPERS AND OTHER MATTERS.

To the Editors.

men,—History repeats itself. Some short time ago there was a controversy in regard to how to know when a blue print (on ussate paper) was sufficiently exposed to be washed. A question of some kind was demanded—a photometer. Then came a letter from a Mr. X. that his paper needed no such arrangement. Thirty years ago I used, made, and sold ferro-prussiate and the exposure could be seen as well as now, and the process was easy to follow, viz., Look at the print, and when it just begins to change colour on the lines which were to be white after washing, then the print is ready to be washed. The difference now, in the making of the paper, to change the colour? Is it not always ferricyanide and citrate, proportions required?

page 396 of the “Journal,” exposure for architectural sub-photometers of all kinds have been invented, and yet the same is brought out which was good enough thirty years ago. It remains true to date, and was published by myself at that time:

interiors (and exteriors, for that matter) the only reliable method is that of experience.

again: The exposure should be for the shadows; the highlights take care of themselves. True to date.

news No. 3,347, 1907, is splendid. This is good as long as the housebreaker has not read about it. Next he will put his finger on the opening of the lens (of very short focus, subject being to 15 in. from it), and explode the light first and work it, or maybe stand aside first to cover his face with a rag and, or—or— Splendid and useful invention, unfortunately like many others.

ill the landlord open his door himself and close it when he is ready. Rather complicated machinery to remain unseen!—Yours  
A. LEVY.

## Answers to Correspondents.

\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to “THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C.” Inattention to this ensures delay.

\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

C. Treasurer, 21, Inglis Street, Inverness, Scotland. Three Photographs of the Rev. Murdo MacKenzie.

W. Marshall, 31, Hart Street, Henley-on-Thames. Two Combination Photographs of Five Views taken at Henley-on-Thames.

BOOK ON OPTICS.—Will you kindly give publisher's name and price of Lummer's book, mentioned p. 399, current issue?—M. C. Macmillan and Co., Ltd. Price 6s.

PHOTOGRAPHY IN PARIS.—I should be pleased if you could inform me if snap-shooting (hand or stand camera) is allowed in Paris, or is permission necessary?—FRANCE.

As in London, so far as all exterior views and scenes are concerned. For interiors the usual permissions are needed.

MILANO.—For the sepias, bleach in:

Ammonium bromide .....	35 gms.
Potass ferricyanide .....	35 gms.
Water .....	1000 ccs.
and after a brief wash, darken in:	
Sodium sulphide (pure) .....	12 gms.
Water .....	1000 ccs.

It is not easy to obtain a satisfactory blue tone, but the following is as good as any. The prints must be pale, as the process intensifies them:—

10 per cent. ferric ammonium citrate solution...	10 ccs.
10 per cent. potass ferricyanide solution .....	10 ccs.
10 per cent. acetic acid solution .....	100 ccs.

A very good blue toner is made by Messrs. A. and M. Zimmermann, 3, Lloyd's Avenue, London, E.C.

W. W. (Lausanne).—The addresses asked for are:—James Swift and Son, 81, Tottenham Court Road, London, W.C.; and George Hare, 26, Calthorpe Street, London, W.C.

KILLING FORKIES.—Would you kindly inform me if there is anything I could get to kill forkies? My studio is built of wood, on the ground, and last summer I was over-run with these pests, creeping about the studio in all directions.—G. G. G.

We are quite unable to assist you. As a matter of fact, we do not know what “forkies” are, and no dictionary we possess enlightens us in the matter. Neither can any friend whom we have asked; all say they have never heard of such things. You say your studio is built of wood on the ground, and possibly this is a garden pest indigenous to north countries, in which case a horticulturist in your neighbourhood could probably tell you how to exterminate the pests.

OBSCURING GLASS.—I am desirous of making some imitation of frosted glass on the outside of a window, and should be glad to learn your opinion on the use of white paint or water-glass solution, mixed with chalk, to be dabbed on, much as is done with

ordinary whitening mixture on the windows of empty houses, etc. The idea is, of course, that my imitation frosting—as it is to be exposed to all weathers—must be waterproof, etc.—G. BARNARD.

If ordinary white paint be used there is no necessity to add chalk to it. Usually the frosting is done on the inside of the glass, where, as a matter of course, it is more durable than it would be on the outside. There are silicate paints sold, but whether they resist the weather better than oil paints do we cannot say, as we have had no experience with them, as applied to the outside of glass. We should certainly recommend you to stipple the paint on the inside, whatever you use.

**BUTTON PHOTOGRAPHS.**—I shall be glad if you can give me some practical information respecting miniatures. I secured colour and booklet from Fallowfield. My difficulty lies in fixing celluloid to face of print with hot roller. I soak in alcohol as directed, but as soon as I apply warm roller the celluloid becomes clouded or else will not adhere. I am a constant subscriber to your valuable paper, and shall be obliged if you can give the necessary information for the making of successful miniatures.—**PERPLEXED.**

If you have a proper roller and plate, and follow the instructions supplied with it, we cannot see how you should fail. The thing is so simple. The print only should be soaked in strong spirit, the celluloid laid on it, and the heated roller passed over it two or three times, slowly; perfect adhesion is then secured. Probably you have not allowed the roller to become sufficiently heated. It should be as hot as the hand can well bear.

**THREE-COLOUR WORK.**—I have been trying a little three-colour work, with very poor success. It has struck me that if I used a Kodak camera with films I should have the advantage that there would be no risk of light fog in loading, and I could afterwards develop them all at once in a tank. Can you tell me if there are isochromatic films made sensitive enough for this work, also whether Edwards' iso. plates would give good results if one gave a long exposure for the red screen? I am using Dr. Miethe's screens.—G. A. COLLINSON.

There is no panchromatic film made, but any of the ordinary orthochromatic films, as also Edwards' iso. plates, would answer, provided the ratio of the filters was altered. Miethe's filters practically divide the spectrum at  $\lambda$  400—490 for the blue-violet, 490—589 for the green, and 589—700 for the red sensation. Now nearly all the ortho. plates have a minimum of sensitiveness in the green-blue, therefore the exposure under the green filter must be prolonged, in order to give this time to fill up. As the sensitiveness of these plates to red is practically nil, it would be necessary considerably to prolong the exposure through the red screen. In the case of outdoor work and portraits, this would not be much disadvantage, as pure reds are rarely met with in Nature, but for copying coloured objects and still life, where pure reds are more often met with, it would be a great disadvantage.

**R. ATHERTON.**—We are unable to trace the paragraph. An etching ink is sold as Sabatier's by chemical apparatus houses, such as Baird and Tatlock, Cross Street, Hatton Garden, W.C. Perhaps this is what you require.

**DEVELOPING P.O.P.**—Would you kindly assist me in the following? In the issue of the Journal, October 20, 1905, a formula was given for developing P.O.P. by Dr. Woolsey Blacklock. I tried it at the time and obtained satisfactory results. This last week I have again tried it, and it will not give the results without toning the prints. Can you tell me why? The formula I have followed faithfully. I believe, though, that there was, in a closely following number of the "B.J.," a comment upon it, and possibly I used that formula instead. Can you look up the number in question? I want a formula to develop P.O.P. without having to tone the prints.—**PUZZLED.**

The comment was in issue of November 3, 1905 (see "B.J. Almanac," 1907, page 782). A little 5 per cent. solution of silver nitrate was added to the developer. You will see a variety of other formulæ in the "Almanac," pp. 780-784. We fear you will not get results which dispense with gold toning.

**W. WHITE.**—Professionals are estimated at from 8,000 to 10,000. Of

amateurs, there are no data. The following are the periodicals: "Photo-Revue," 118, Rue d'Assas, Paris; and "Revue de Photographie," 44, Rue des Mathurins, Paris; "Das Atte," "Photographisches Chronik," both from W. Knapp, Halle, Germany; "St. Louis and Canadian Photographer," 3, 210 St. Louis, Mo., U.S.A.; and "Shacin-Shimpo," 10, Ch. Kobikicho, Tokio. You will find others in the list on page of the "Almanac."

**OLD FOGGY.**—The card is undoubtedly photographic, and appears a gelatine P.O.P.

**GLAZING P.O.P.**—I shall be glad if you can tell me any way of glazing P.O.P. postcards besides putting on to glass or on type. I believe there is some special way in which some of the postcards now on the market are treated. Unless we first strip the cards we find them inclined to stick, and as this is waiting, I shall be glad to hear of a different method, if it is one.—K. R.

Stripping from glass is the regular commercial method. Prints are usually given ten minutes or so in a bath of  $\text{H}_2\text{O}_2$ . A good deal depends upon the proper polishing of the glasses with French chalk. The glasses improve, as regards easy stripping, with use.

**POSTCARDS.**—During the past few years I have taken a series of views in this town, most of which I have produced as postcards which have had a fairly good sale. I am now anxious to get your advice in the following matter. Yesterday I accidentally came into possession of a box of sweets on the cover of which reproduced one of the views above mentioned. The box bore the name of a confectioner in this town, and also of the makers of the sweets—or, perhaps, of the boxes; I cannot say which, as are unknown to me. I shall value your opinion as to whether the guilty party, and what I should do.—**MERLIN.**

It is possible that both have acted innocently; but, having registered the copyright in the photograph or photographs, can take action against either the confectioner or the photographer who can be proved to have supplied him, but such action only apply to infringement committed after the registration. We should advise you to write a note to the parties asking for a reasonable settlement they can suggest.

**S. C. P.**—Better apply to the secretary of the Professional Photographers' Association, 89, Albany Street, N.W.

**VOLATILE SOLVENT FOR GELATINE.**—Is there any volatile solvent which will dissolve gelatine (like water) without altering its general properties? My idea is to secure more rapid drying of a print after coating with gelatine, than is possible when the ordinary aqueous solution is used.—**MARCO.**

The only possible thing to do is to dissolve the gelatine in glacial acetic acid and then gradually add alcohol. A perfectly clear solution can be obtained which will sometimes dry but not always, this depending upon the gelatine used. When the acid would act on any substance which is to be used with the gelatine we cannot of course say, as our querist gives no idea of what the plate is required for.

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## SUMMARY.

hibition of reflex cameras and of photographs illustrating utilities opens at the "B.J." house on Thursday next.

J. Anderson, in some further notes on the efficiency of states the requirements of the pictorial photographer.

re of orthochromatism. Mr. W. Thomas pictures the of the "ordinary" plate as a guest at dinner who declines and the cigars. (P. 426.) paragraphs on the same question appear on pages 429

week's correspondence a reader in the Malay States writes nematograph shows in the East, Mr. Nelson K. Cherrill has tion for the prevention of blisters in bromide paper, and reader complains of dark-room anæmia. (P. 474.)

E. Sheppard reviews the sensitometric methods of Mr. Wallace. (P. 426.) ll text of Mr. Wallace's paper is concluded on page 427.

llected researches of Drs. Mees and Sheppard have been by Longmans. (P. 431.)

## "COLOUR-PHOTOGRAPHY" SUPPLEMENT.

C. Tilney, whilst recognising the enormous possibilities of al colour-printing laments its present æsthetic standard.

ciety of Colour Photographers announce an open exhibi- e held in London in the autumn. (P. 46.)

lified method of pinatype has been published by M. Leon (P. 43.)

and theories bearing on the relation of fluorescence to ensitising are discussed by Herr J. Stark and Mr. E. J. (P. 44.)

ests for lenses to be used for colour work are given in an a page 42.

## EX CATHEDRA.

**The Reflex Exhibition.** We repeat elsewhere in this issue the particulars of the exhibition of reflex cameras which will be opened at the house of the "B.J." on Thursday next, at 10.30. To the firms already announced we have to add the name of

Taylor, Taylor, and Hobson, Ltd.,

who will show for the first time a reflex camera of their manufacture, in which great portability has been obtained, and in which a metal frame construction is adopted on the score of durability and lightness. We would once again remind our readers that the exhibition is open without charge until July 6, between the hours of 10.30 and 4.30, except Saturdays, when it closes at 12.30. Next week we shall deal fully with the exhibits, and in this and following issues shall publish several articles specially bearing on the facilities offered by cameras of the reflex type.

\* \* \*

## Canvas Effects.

A correspondent who addresses us for advice on the selection of some medium able to give him a complete change from the matt surface of printing papers, may very justly be recommended to look back to our notes of May 24 on the canvas bromide lately introduced by Messrs. Wellington and Ward. Our inquirer is not alone in his failure to recognise in this new material not merely another variety of surface, but a clever combination of a woven material and paper. It is not only in surface, but in toughness as well, that the new canvas bromide attains distinction, and the results obtainable with it are deserving of all the recommendation we can give them in the eyes of our professional friends who desire a print both rapidly producible and effective, and, as in the present instance, exactly what it pretends to be.

\* \* \*

## The R.P.S. Exhibition.

The prospectus of the forthcoming annual exhibition of the Royal Photographic Society—the fifty-second—has been issued, and shows that the Society has arranged to make no departures from its existing regulations. As before, Class III., "Professional and Commercial Photography," is to be a section space in which is bought and paid for by the exhibitor. The system has evidently proved satisfactory to the degree which silences criticism, much as we should like to see the exhibition management taking an interest other than a financial one in professional photography. Professionals, however, compete on equal terms with amateurs in the "pictorial" class, and will, we hope, take advantage of the opportunity in their numbers. The prospectus of the exhibition is obtainable free from the Secretary of the Royal Photographic Society, 66, Russell Square, W.C.

**Exhibition Standards.**

The considerations which have led judges to make their awards at photographic exhibitions must often excite the curiosity of the exhibitor, both recognised and unrecognised, and he may be sometimes excused for harbouring a doubt of the existence of any definite opinions as to what is good and bad in the minds of the jury. Not infrequently an explanation of an award to a picture devoid of any particular merit may be obtained from the supposition—founded on fact—that the judges were divided between two exhibits, and, in default of being able to agree, gave the award to something which was worse than either. It is therefore of interest to quote what appears to us as a useful epitome of the factors to be considered in the judging of photographs, which we find embodied in the report of the judges of the Wyoming Valley Camera Club, U.S.A. The opinions are those of Mr. Arthur W. Bow, art director of Teachers' College, Columbia University.

A photograph which is merely a record of fact, is in no sense a work of art. It has, if accurate, a scientific, historic value, but not an artistic value. The art lies in fine relations of line, and beauty of tone—or beauty of proportion, and beauty of massing. And these qualities must be deliberately planned by the author.

**Subject.**—Almost anything will be interesting if expressed in art-form, i.e., in terms of beautiful line, and dark-and-light. Success in choice of subject depends upon seeing the possibilities of harmony in these terms.

**Composition.**—First, choice of a size and proportion to fit the subject. Then, so arranging the subject within the space that there is a single interest. Centre the attention upon the point of interest. Avoid confusion of interests. There should be variety and contrast, but the whole should give one simple, clear impression. The lighting involves an appreciation of beauty of dark and light massing. I should recommend a study of the charcoal drawings of William M. Hunt, the works of great etchers, Rembrandt, and Japanese prints. Here again, though there may be many tones, whether strong in contrast, or very delicate, they must unite in one impression.

**Mounting.**—This is a question of proportion, or line, and to some extent of colour. I think that some kind of a narrow border next the picture is usually desirable, but there can be no general rule.

**ON LEASING PHOTOGRAPHIC PREMISES.**

In an article in our issue of May 24 we discussed some of the points that should be taken into consideration when about to purchase a photographic business. It seems useful now to refer to some others that should receive attention when premises are about to be rented for photographic purposes, whether there is a studio already in existence there or not. If a studio is already built it may be fairly assumed that it conforms to the building laws of the district or it would not be standing.

As regards the premises they are frequently let on a yearly tenancy, or on a lease for a term of years—usually seven, fourteen, or twenty-one. Others are let on a three years' agreement, with the tenant's option at the expiration of that time of a lease at a certain rental, generally the same as that in the agreement. In such an agreement it is usually stated that the tenant must give a clear six months' notice prior to its expiry of his intention to take up the lease. Unless that is done the landlord is not bound to grant the lease at all. A yearly tenancy may be terminated by either party by giving the other six months' clear notice, in writing, to expire at the same quarter as the tenant entered into possession. If that, for instance, was the March quarter, the notice must be given before the previous Michaelmas Day. If it were served later than that by the landlord the tenant could hold possession until the following March twelvemonth if he so wished. On the other hand, if the tenant gave notice later than the Michaelmas Day, the landlord could hold him for a similar time—from the following March twelvemonth—and he could be compelled to pay the rent whether he occupied the premises or not.

When premises are rented on a yearly tenancy it is for the landlord to do necessary repairs, but he is not compelled to do them unless there is an agreement to that effect. With leases the tenant is bound to keep premises in thorough repair, and also to leave them in repair at the expiration of the term again, unless there is an express agreement to the contrary, which there rarely is. In leases there is usually a covenant that the outside woodwork is to be painted with two coats of good oil colour every three years, and the inside painted and papered every seven years. Also that the rent is not paid within a certain number of days after it becomes due the lease becomes void, and the landlord takes possession; this is, however, seldom put into effect except when the landlord wishes to get rid of his tenant. A clause is inserted in most leases to the effect that the tenant must not sub-let the whole or any portion of the premises without the sanction of the landlord.

Not infrequently there is a stipulation that the tenant fully insures the premises against fire during his tenancy, but usually the landlord does this at his own expense. In the case of fire the tenant has to pay the rent during the time that the premises are being repaired, or even more, although they may be of no use to him the while. He can, if he chooses, insure the rent as well as the contents of the place, and it is a good plan to always do this, as a fire may cause such damage as may take months to repair.

In taking a lease of premises that have not been used for photography before, the lessee should take the precaution to see that the lessor has the power to grant one. It often happens that the terms upon which the lessor holds the property may prohibit certain businesses being carried on—photography possibly among them, in which case the lessee might be prevented by the real owner of the premises from using them for the purpose for which he requires them. In such an event the lessee has cause of action for damages against the lessor. But trouble in this direction is best avoided by the lessee ascertaining for himself whether the lessor has the power to lease the premises for the business for which they are required.

In taking photographic premises which are only a portion of the building—say, for example, the upper part of the house and part use of the entrance hall—the tenant should have it definitely stated in the agreement that the portions of the entrance are to be his property for the purpose. The landlord may say that the whole may be let for the purpose, but such verbal agreement is not binding, and he may change his mind at some future time. The actual space to be used for showcases should always be mentioned in the agreement or lease, and then it becomes binding. We have known disputes to arise over the matter when the agreement was only a verbal one. In the agreement there should also be a stipulation that the tenant, and his customers, have free entrance to the premises at all times. For instance, the landlord should choose to close his portion of the premises at a certain early hour, and that might include the doorway, in which case the tenant's customers might be shut out.

When a photographer proposes to take premises in a private house—with the object of building a studio there where upon them, say in the garden, he will naturally go to that outlay unless he be granted a lease for a long term—such as one for seven years, renewable, or an option, for fourteen or twenty-one years. These terms should be insisted upon, otherwise after a tenant has to considerable expense, and built up a good business, he may have to turn out at the end of the seven years, and pay a much higher rent if he takes up a fresh lease. In taking a place in these circumstances, a number of points should be investigated before the lease is signed. In



place, the would-be lessee should fully acquaint himself with the building law, and with the by-laws of the act, or he may find, when too late, that they prevent erection of the studio in the form he desires, notwithstanding the fact that the lessor has given permission for the should also notice the surrounding buildings, and building will interfere with any "ancient lights." Does he may be restrained by neighbours from putting at all, or find himself involved in costly litigation images. Although the lessor may let the place with right to build a studio upon it, the ground landlord have a voice in the matter. In residential neighbourhood, where land is let on building leases, there is frequently a stipulation in the original lease that no business be carried on in any buildings erected upon it. A of this kind came under our notice some years back. Photographer took a large house, and, at great cost, a studio in its spacious grounds at the back, and d a high-class business. He was soon afterwards with an injunction, and had to close the place forth- We mention this to illustrate the care that lessees

should exercise before taking premises with the idea of building a studio on any part of them. Although they may have the full permission in all good faith of the lessor to do so, yet it is possible that it does not amount to a legal permission.

If a photographer builds a studio, we will say in the garden, he cannot remove it at the expiration of his tenancy, as it becomes the landlord's property, and moreover, by the terms of his lease, if a repairing one, he will have to leave it in good repair. This, of course, assumes that there is not a clause in the lease that at its expiry the building may be removed by the tenant.

These alone are some of the points that should have careful attention before any lease is signed. Too often such agreements are signed before the lessees have made themselves fully acquainted with their conditions and the responsibilities they are entering into. Leases should always be studied, and all their conditions thoughtfully weighed before they are sanctioned. If this were done, often misunderstandings and occasional litigation might be avoided.

## THE EXHIBITION OF REFLEX CAMERAS.

ims at giving general prominence to the advantages of ex type of camera appear to be on the eve of realisation. nouncement of an exhibition of instruments of this kind, examples of their use, has led to our receiving a larger r of photographs than we can display, and to the receipt e a budget of correspondence asking for advices as to e and place of the exhibition. In consequence of one tal reference to the exhibition as already open, some l-twenty persons visited the "B.J." offices, and were ointed to learn that they would have to wait until for the opportunity to examine the collection of cameras. er, in less than one week now—on Thursday next—these ot photographers may satisfy their curiosity as to the dern and efficient type of camera, and the various excel- ms in which it is obtainable commercially.

but one or two exceptions the exhibition completely nts the makes of camera obtainable. In one or two es the instrument shown will make its first public appear- The features of these new pieces of apparatus and of the atterns will be described in next week's "B.J.," with the e we intend, that the issue shall form a convenient source ence to the present available reflex apparatus. The full xhibitors is as follows:—

ex" (Adams and Co.).  
xrelist's" (J. H. Dallmeyer, Ltd.).  
ex" (City Sale and Exchange).  
orn" (Houghtons, Ltd.).  
lex" and "Premo" (Kodak, Ltd.).  
lenge" (J. Lizars).  
" (Marion and Co., Ltd.).  
nd G." (Newman and Guardia, Ltd.).  
n-Lens" (Ross, Ltd.).  
al" and "Mitre" (A. E. Staley and Co.).  
to" (Spiers and Pond, Ltd.).  
land" (Sanders and Crowhurst).  
al" (Talbot and Eamer).  
or, Taylor, and Hobson" (Taylor, Taylor, and Hobson, Ltd.).  
ar" (Voigtländer and Sohn).  
us" (W. Watson and Sons).  
smann" (Charles Zimmermann and Co.).

ecting the photographs, of which some 120 will be shown, advantage has been given to those exemplifying some parti- vantage of the reflex camera, even when in some technical it may be deficient. We shall say more on this matter

next week; but in the meantime we would commend a study of the prints as showing the adaptability of the reflex camera to subjects of the most varied character. The conclusion from them must be, we think, that, with the exception of wide-angle photographs, there is no type of work for which a reflex cannot be successfully used, and that the percentage of negatives in which the intention of the photographer is realised is higher than in the case of any other description of camera.

The list of the exhibitors includes photographers engaging in very different branches of the art, and as a result the collection should be about equally of interest to the technical photographer, the pressman, and the pictorial worker—to adopt a classification by aim rather than by method, which latter is, after all, much the same in all three cases.

Herbert Bairstow.	Charles Kirk.
F. T. Beeson.	F. B. Kirkman.
G. W. Beldam.	Percy Lewis.
Rev. Harold Burton.	W. Marshall.
Gordon Chase.	W. J. Melhuish.
F. Martin Duncan.	P. R. Momber.
J. F. Duthie.	Oliver G. Pike.
Dr. Fletcher.	J. H. Saunders.
Riley Fortune.	J. A. Stewart.
A. R. and Miss Hunt.	W. Thomas.
S G. Kimber.	W. L. F. Wastell.

In addition to the notes on the apparatus and pictures we would draw attention to several articles on reflex work which will appear in the "B.J." during the next week or two. These include:—

"The Reflex Camera in Professional Portraiture." By Gordon Chase.

"Natural History Photography with a Reflex." By F. Martin Duncan.

"Why I Use a Reflex" By W. Thomas (explaining the gains which a pictorialist derives from the reflex type of camera).

"The Reflex as a Universal Camera." By Arthur Marshall.

These contributions by notable users of reflex cameras will, it is hoped, prove particularly instructive to those who take the opportunity of seeing the instruments for themselves. As already announced, the exhibition opens on Thursday next at 10.30, and remains open until July 6, each day from 10.30 to 4.30 (Saturdays, 10.30 to 12.30).

# ACCURACY AND EFFICIENCY OF MODERN SHUTTERS.

## II.

IN the last article the question of the duration and efficiency of shutter exposures was considered, and it was seen that the duration of an exposure was the time that elapsed from the moment the shutter began to open, and expose the plate, until the moment the shutter finished closing; and it was seen that the efficiency of an exposure depended on the amount of active light that was cut off by the shutter during its operation of opening and closing.

There are, however, in reality, two kinds of exposure duration given by all shutters except those which work between the lens. It will be seen from Fig. 1 that a roller-blind shutter allows the

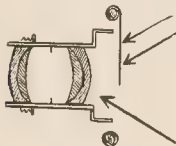


Fig. 1.



Fig. 2.

rays of light from the foreground to reach the lens before the rays of light from the sky are admitted; and similarly cuts off the light from the foreground before it cuts off the rays of light from the sky. This might be called the total duration of the exposure, and is of no practical importance with any shutters except focal plane shutters, when it demands our consideration. The exposure duration that we have to deal with is the local duration of the exposure; that is to say, the actual duration of the exposure that is given to any one portion of the plate; and fortunately it is this kind of duration that is measured in testing shutter speeds.

### Testing Shutter Speeds.

Imagine a pendulum swinging with even beats of one second each. At the lower end of this pendulum there is a tiny mirror which is brilliantly illuminated, and behind this mirror is placed a graduated scale, marking the distance the mirror will travel in hundredths or thousandths of a second. The shutter is set at one of its nominal speeds, and the swinging pendulum photographed. The resulting print depicts the graduated scale, and a tiny streak of white shows exactly how far the mirror has travelled during the exposure, thus recording the duration of the exposure.

Now, if shutters opened in a moment, remained open during the exposure, and closed in a moment, this method of speed testing would suffice; but, unfortunately, most shutters take so long opening and shutting, and cut off so much of the light during these operations, that it is necessary to determine the amount of light that actually strikes the sensitive plate.

With roller-blind shutters it is easy to calculate the efficiency of all the "instantaneous" speeds, when once the duration of the various exposures has been ascertained; and as Messrs. Beck, of 68, Cornhill, will test the duration of a shutter's speeds for the nominal sum of fourpence, there is no excuse for a photographer to remain in ignorance of the actual speed at which his shutter works.

The ratio of efficiency with various widths of blind openings was given in the last article; and if it is, for example, found that the lens aperture is 1 inch and the blind opening 2 in. wide, the foregoing table points out that the speed durations multiplied by  $\frac{2}{3}$  give the efficiency. Thus Messrs. Beck may mark the speed durations as 1-14, 1-22, 1-38, 1-56, 1-84 sec., and the efficiency will work out at 1-21, 1-33, 1-57, 1-84, and 1-126 sec. re-

spectively; and so if the full and correct exposure for a certain subject on a certain plate be 1-57 sec., an exposure of 1-38 will be given with an efficiency equal to 1-57 sec.

The efficient speeds of a sector or iris shutter must be found by a somewhat more difficult and complicated method. Given the duration of an exposure, it must be ascertained how long the shutter is fully open, and how long the shutter is opening and shutting; the former period gives full efficiency, and the latter gives on an average  $\frac{1}{2}$  efficiency with the sector and iris shutters and about  $\frac{1}{3}$  with the "Unicum" and "Automat."

First the speed durations must be found in the customary way; then the centre of the lens must be covered, and the speed durations again taken, which gives the time that the shutter is fully open at the various speeds; the period that the shutter is opening and closing is found by the simple expedient of subtracting the time at full opening from the duration of exposure.

The most accurate way of covering the centre of the lens, in order to test the period that the shutter is fully open, would be to place a circular piece of thin glass in the lens tube, close the diaphragm, and attach a circular piece of black paper cut to shade smaller than the largest aperture of the diaphragm.

Supposing the total duration of the exposure were 1-30 sec. and the shutter was found to remain fully open for 1-60 sec. then the opening and closing would also occupy 1-60 sec. find the efficient exposure with an iris shutter: Add the time at full opening to one quarter of the time spent in opening and shutting: 1-60 sec. +  $(1-60 \times \frac{1}{4}) = 1-48$  sec. Thus the efficiency of this shutter at an exposure of 1-30 sec. duration would be 1-48 sec.

At the higher speed of 1-50 sec. it would probably be found that the opening and shutting occupied 1-60 sec., and the total efficiency of the shutter would work out, 1-300 sec. fully open plus 1-60 sec. at quarter efficiency =  $1-300 + (1-60 \times \frac{1}{4}) = 3-48$ . That is to say, an exposure of 1-50 sec. duration might work out at about 1-133 sec. efficiency; which shows how important it is to ascertain the efficiency of this class of shutters.

Having found the efficiency of a sector shutter with the lens at open aperture, one would have to make a new calculation in order to find the efficiency with a stopped-down lens. For example, if the lens were uncovered in 1-100 sec. at  $f/8$ ,  $f/11$  would probably be uncovered in 1-200 sec. Life is too short for such calculations, and I think one should rest content with the efficiency of the lens at full aperture. One usually works with an open aperture at high speeds; and, well, a trifle of overexposure with a lens at  $f/11$  is rather an advantage than otherwise.

I consider that all diaphragm shutters should be marked with both the duration and efficiency at the various speeds; the former to ascertain the necessary exposures for moving objects, and the latter to show the correct exposure for a fully exposed plate. These figures should be ascertained by actual test, and not estimated or guessed.

### The Focal-Plane Shutter.

For the past four years I have used nothing but focal-plane shutters for hand camera work, so I write with some practical experience. With ordinary care in loosing the tension spring after work, and keeping the shutter free from dust and dirt, the focal plane shutter is the most accurate and reliable of all shutters; and the efficiency at all speeds is practically equal to the local duration of the exposure.

In the past this shutter has suffered much from being misused



misunderstood; and even now many seem to have an impression that an exposure of 1-100 sec. with a focal plane shutter is an efficiency equal to 1-35 sec. It is, of course, true that an exposure of 1-100 sec. with a focal plane shutter is probably equal to an exposure of 1-35 sec. duration with a cheap lens shutter; but this is because the latter is inefficient and not because the focal plane is super-efficient. Leaving races and similar press work out of the question, hand-camera exposures usually run from 1-10 to 1-100 sec., and the focal plane shutter is the ideal method of giving correct and efficient exposures of this class, and producing hand-camera negatives technically equal to any produced by the stand-camera. With the focal plane shutter the efficiency and local duration of the exposure are practically equal, but the local duration and total duration may be widely different. As the shutter slit wears down the plate it gives an efficient exposure to each part of the plate in turn; but if the slit be very narrow the total duration of the exposure may be much greater than the local exposure given to any one portion of the plate. Say an exposure is given at the lowest tension of a  $\frac{1}{2}$ -plate shutter which gives the slit across the plate in 1-11 second; if the slit be widened to 1-16 in., this slit will pass any one point in 1-600 sec., giving an exposure of 1-600 sec., and yet the total duration of exposure will remain 1-11 sec. Now, supposing a running race were photographed with this arrangement of slit and tension, so that his image was 2 in. high in the photograph, the head would take 1-19 sec. to travel 2 inches from his feet to head, during this time the head would have moved nearly  $\frac{1}{2}$  inch upward on the plate, and although each part of the figure would be sharp, he would be depicted as in A, Fig. 2. If, on the other hand, the tension had been fully tightened, and the slit widened to 1-16, the head would only have travelled 1-6 of an inch during exposure, and the distortion would give an idea of speed to the figure rather than bad drawing.

From this it is evident that when rapidly moving objects are photographed with a focal plane shutter, the slit should be as wide as the exposure will permit, and the spring at full tension; in fact, in most work the best way is to have the slit as wide as the speed will allow.

In photographing quickly-moving objects the shutter should, if possible, work so that the slit travels the opposite way to that in which the object moves on the focussing screen, thus reducing distortion to a minimum; but, save in very exceptional circumstances, the distortion given by a focal plane shutter is theoretical, and not of any practical importance.

#### A Suggested Focal-Plane Shutter.

Shutter makers seem impressed with the idea that photographers desire to photograph nothing except diving men, and racing horses, and express trains with their focal plane shutters; at least, their latest departure is the construction of shutters working at from 1-200 to 1-2,000 sec. This departure is much to be regretted.

Speaking in behalf of a large class of pictorial photographers: "We want our hand-cameras fitted with focal plane shutters, not in order that we may photograph what we consider freak subjects, but in order that we may give accurate and efficient exposures ranging from 1-15 to 1-100 sec. Given a rapid lens, a bright subject, and a strong light, we prefer to give 1-40 sec. with a colour screen and ortho plate, rather than race the shutter across the plate at the rate of 1-200 sec. What could be simpler than to construct a focal plane shutter on exactly the same lines as the Thornton-Pickard 'Royal' shutter, with a slit the width of the plate, and a tension spring to give speeds from 1-15 to 1-90, and a device to give time exposures?" I hope Messrs. Thornton-Pickard will see their way to the introduction of such a shutter.

A. J. ANDERSON.

## COMMENTS ON MR. R. J. WALLACE'S STUDIES IN SENSITOMETRY.

An important paper by Mr. R. J. Wallace in the *March Astrophysical Journal*, republished in the "B.J.," May, 1907, affords a welcome indication that it is becoming recognised that accurate quantitative knowledge of photographic plates is essential to their use for scientific subjects. There is no need to emphasise the increasing reliance placed on the photo-film for detection and measurement of the most diverse phenomena. One can recall sadly uncritical work by men of whom better is to be expected. In one instance a scientist of world-wide reputation published results on the chemical action of radium, in which the opacity, in H. and D.'s nomenclature, was taken as a measure of chemical action. In another, where a photographic measure was used to determine the absorption of X-rays solutions, the authors stated that, "as has been shown by Porter and Driffield, the density depends somewhat on the development." The italics are my own. It is very desirable that the number of those working on the quantitative problems of photography should be increased, and one welcomes Mr. Wallace's work both for its object and its substance, and he, I, I know, recognise and encounter such criticisms as follow put forward in no carping spirit.

To deal with all the points fully is impossible. The proposal to establish the grating replica as a standard dispersion piece seems a valuable step toward standardisation, particularly if the same uniformity can in the future be secured in their reproduction, and the generous way in which Mr. Wallace is putting them in the hands of fellow-workers deserves every recognition. The spectrograph described ("B.J.," May 24, p. 388) seems admirably suited for the purpose. One point only seems worth mentioning, viz., the use of milk-glass before the slit. Most forms of milk-glass alter the spectral distribution of the light incident, and if free from pronounced selective absorption. The writer

has found that a very good diffusing medium can be prepared for photometric purposes by the use of starch, by a modification of a method suggested by Foucault (cf Crova, *Ann de Chim.* [ii] 6 342).

Finest starch-powder is further refined by rubbing with distilled water and straining through fine gauze. After settling it is mixed with dilute water-glass solution, thoroughly stirred, and allowed to dry on carefully levelled glass plates. The quantities taken vary, of course, with the opacity required. Such films possess excellent diffusing power for a comparatively low opacity, and examined spectrophotometrically show no selective absorption from  $\lambda$  4300-7000.

Mr. Wallace prefers the Brace spectrophotometer, and describes a form well adapted for spectro-sensitometrical work. Whilst not denying the probably greater sensitiveness obtainable by the Lummer-Brodhura contrast method, I think Mr. Wallace underestimates that given by the Hüfner, as the very fine dividing line may be caused to vanish by just throwing the telescope out of focus. The Hüfner instrument also has the advantage that fog-readings may be automatically subtracted, which would not be so easy with the Brace. In the use of the polarisation method for reducing intensity there is, as Mr. F. Twyman (<sup>1</sup>) has recently shown, a considerable source of error, to which all polarisation spectrophotometers are liable, viz., the polarisation of the light of transmission through the dispersion prism, whether it be of the ordinary 60 deg. type or another. This is greatly reduced, and can be entirely avoided in the Hüfner instrument by proper choice of the glass and angles of the Hüfner-Albrecht rhomb, but probably infects Mr. Wallace's instrument to the full extent. Its chief effect is on the lower

<sup>1</sup> "Phil. Mag.," 1907.

densities, leading to too low values, for example, in the under-exposed portion of the H. and D. curve.

Mr. Wallace has made measurements of the spectral and total variation of the intensity of daylight, and considers that in spite of these it should be generally adopted as the normal light in sensitometry. With regard to the first, blue sky and white cloud are not a very great range of conditions, and even here Mr. Wallace's measurements exhibit a difference of 50 per cent. in the yellow maximum compared with the blue, nor would it be quite fair to reduce this difference relatively by longer exposure, as this would naturally affect the blue less as being nearer the region of over-exposure. Precht and Stenger<sup>(2)</sup> have investigated the variation in the spectral intensity of daylight by determining photometrically the ratios of exposures behind three screens—blue, green, and orange, under diverse atmospheric conditions. The ratios varied from 1:3:9 to 1:5:20, there being generally a decline in the green and red action as the total intensity is less. Certainly if Mr. Wallace's method be adopted great care must be taken to adhere to definite weather conditions.

With respect to the modified system of H. and D. sensitometry proposed, one does not quite understand, since Mr. Wallace allows the validity of the law of constant density ratios, why he does not accept the sensitometric import of the *inertia* or point where the straight line in the H. and D. curve cuts the base. If this be taken, it is not absolutely necessary to compare plates, as Mr. Wallace would, at a period of equal development action, which involves the extra labour of determining the development-time curves, and calculating from these the times necessary for

equal amounts of development. Whilst dealing with these points it may be mentioned that the alteration of gradation obtained by exposure to differently coloured lights (Abney) appears, from investigations by Dr. Mees and the writer, as well as by other workers<sup>(3)</sup>, not to affect  $\gamma$ , the development factor, but rather the form of the curve. Again, whilst chemical differences in the parts may affect  $\gamma$ , they are not likely to affect the velocity of development, as Mr. Wallace seems to think ("B.J.," May 31, p. 410), and these two factors in the development-curve must be kept distinct. The use of a secondary check-plate with daylight would really involve simultaneous checking of the secondary plate on an artificial normal, and even more work than Mr. Wallace proposes.

Returning to spectro-sensitometry, it is possible that Mr. Wallace under-estimates the value of definite speed tests behind broad-banded filters, combined with reference to the spectrum. For the spectrum curve (density against wave-length) hardly gives quite reliable sensitiveness numbers, even when, as Mr. Wallace suggests, Abney's method of interpolating the measured density into the density-exposure curve and so obtaining an equivalent light-intensity is used. This is owing to the aforementioned variation of the density-exposure curve with the wave-length. None the less, Mr. Wallace's precautions, viz., constant maximum of action at, say, 2.5 density, constant development conditions, etc., are calculated to give the most reliable results from this method. One will await with interest the further instalments promised of this series, in which probably some of the points touched here will be more fully dealt with.

S. E. SHEPPARD, D.Sc. (Lond.).

<sup>2</sup> "Zeit. wiss. Phot.," 1905, III., 27.

<sup>3</sup> "Theory of Photography Process," p. 297.

## MODERN PHOTOGRAPHIC PLATES AND FILMS.

A good camera is of assistance in photographic work, but a reliable plate or film is an absolute essential, for while it is possible to muddle along with weak, rickety apparatus, there is no salvation possible when faulty plates are employed, and, although this question of plate is, for ordinary work, not so serious a matter to decide nowadays as in years gone by, yet it is well to have some notion of those peculiarities each make exhibits, and then be able to adopt the one which seems best to lend itself to particular needs.

There are no bad photographic plates—at least I know of none—on the English market, but even so, there are differences observable in results given by one make, as compared with those of other brands, and it is our business to find those best suited for our own work. This is not a difficult or lengthy process; it simply means spending an hour or so, making a few test exposures, then comparing results produced.

### An Easy Means of Plate Testing.

For the purpose of these tests, perhaps the most convenient means is the Chapman-Jones plate-tester, a small quarter-plate screen, which, when exposed in front of a sensitive film or plate for a specified time to some standard form of light, will, on the plate being developed, tell at one glance both the general sensitiveness of the emulsion with which it—the plate—is coated, and also the extent to which it is sensitive to yellow, green, and reds; thus, by making one exposure and developing it, we may test any plate and see just the extent to which it is likely to fulfil requirements. The only precaution necessary is to deal with each test in exactly the same manner; that is, always to expose the plate at same distance from the same volume and quality of light for exactly the same period of time, then to develop in same kind of developer, used at one standard strength and temperature, and to continue the plate

or film to its action for one fixed length of time. Then we may see just the differences each plate shows, and note whether they seem better or inferior to those already dealt with.

This testing of plates may seem a dreadfully technical task, but believe me it is no such thing. It may be done in a odd spare moments, and in return gives truly valuable information with regard to what may, and may not, be expected from any sensitive-coated film or glass plate, while it certainly renders anyone independent of puff advertisements which may suggest greater advantages than practical experience justifies.

### Speed of Plates.

What a bone of contention this question of slow versus rapid plates has always been; yet it is simple enough, depending entirely upon the object for which the plates are used. For instance, in making a series of copies from prints, engraving etchings, and such like, there would be no substantial advantage in doing the work with ultra-rapid plates. Indeed, the reverse, for apart entirely from difference in cost of materials there is less difficulty in obtaining negatives giving strong black and white prints when slow plates are employed. On the other hand, there is no particular advantage in choosing very slow plates, when, say, ordinary landscape subjects are being done with stand cameras and timed exposures of several seconds' duration. For this purpose a moderately rapid plate answers perfectly, reducing the time of actual exposure to reasonable limits, and so avoiding many risks which accompany unduly protracted exposures on outside subjects. But when it comes to work with quick shutter exposures, then real fast plates are not only necessary, but possess every advantage, and nowadays they have been brought to such perfection that the results produced by them are in every way as technical



as are obtained on any form of slow plate, given a called time exposure.

The whole question simply resolves itself into selecting kind plates in regard to the class of work to be done with them.

#### Colour-sensitive Plates.

Here we tread upon more difficult ground, for matters are reduced to properly understand which demands at least a knowledge of colour and its equivalent value in monochrome. Failing this, it is only possible to go groping along, producing results more or less satisfactory, without being able to avoid faults or to attempt in any way to remedy them.

Photography of to-day is in quite a different position from of a few years ago, for as a result of the demands (made by those more artistically inclined) for plates which should be capable of recording other colours than the blue and violet of the spectrum, most, if not all, of the makers of plates and films produce some sensitised to green, yellow, and to the red rays. This is an enormous advance, for it means when a strong colour to be translated it may, when those plates are employed, be done with some degree of accuracy, for the results produced will give a more true representation than is possible when the ordinary plate only is available. The latter has been useful in the past, and is necessary when extreme speed is the chief matter of importance. It fails, however, in artistic work, for the all-important reason of its undue sensitiveness to light rays which are invisible to human eyes, while it exhibits a corresponding sensitiveness to those colours which form so important a feature of nature, as viewed by humanity at large. With regard to colour-sensitive plates there is a deal of unnecessary variety. They are, after all, nothing more than just good ordinary plates, to which in process of manufacture one or more dyes have been incorporated, so as to increase their sensitiveness to special colours; the doing of this in no way detracts their usefulness for ordinary purposes, and to deal with them is about as useful as it would be to resent an offer by host to guest of a little choice wine with dinner, a good cigar and coffee afterwards.

Another matter needs keeping in mind, especially when plates are chiefly employed for rapid shutter exposures, when the least sensitiveness of emulsion is necessary. Under these circumstances it is impossible to expect any ultra-rapid plate in present conditions of manufacture to be at all correctly sensitised for colour, and there is a present limit to speed in relation to greens, yellows, and reds. Therefore, where the blue

and violet sensitiveness is pushed beyond a certain point, and that speed quality is utilised to its full extent, then there is little if any visible alteration in the resulting negative or print from what would be the case had an ordinary plate of extreme speed been used. It is for this reason yellow or olive screens have to be used, in order to destroy the excess of sensitiveness to blue and violet. While this remains the state of affairs, it really means there is no advantage in pushing the speed of colour-sensitive plates beyond a point when sensitiveness to the less active colour rays may exert their full influence during such exposures as may be given.

Some day it may be different. Then the ideal plate may come, screens be relegated to museums, colours be automatically recorded in true relation one to another. But for the present, when it is desired to deal with subjects demanding rapid shutter exposures, we can only obtain full exposure and at the same time some reasonable measure of correct colour-rendering, by employing, in addition to the best plates, lenses of wide aperture; that is, by passing a strong flood of light to make up for any reduction of general plate speed.

#### Colour Screens.

The use of screens of coloured glass or stained gelatine slows down the effective exposure just in proportion as it either allows the whole colour rays to pass unobstructed, or cuts them off to any lesser or greater degree. What is needed, and what experimentalists are striving to arrive at, is a dye which will effectively cut out any excess at the blue and violet end, while allowing the yellow and reds to pass unobstructed and unaffected. When this is done, the effective speed of a plate will be retained at a much higher ratio.

The old saying of the strength of a chain being just that of its weakest link may be applied to this question of the orthochromatic speed of a plate. It is simply governed by that of its slow end of the colour range, for which it has been especially sensitised, if, when used, it is intended to utilise to the fullest extent the influence of those same colours.

I am afraid this is a very unscientific description, but it may help to make clear the principle which governs this question of colour-sensitive plates, sufficiently, at least, to enable unscientific folk like myself to use them, and reap the undoubted benefits they bestow.

Photographers aiming to be artists in their own medium must understand something more than is contained in a six-penny guide-book, for it is as true to-day as in the past, the greatest artist in his own medium is also the truest technician.

W. THOMAS.

## THE DAYLIGHT SENSITOMETRY OF PHOTOGRAPHIC PLATES AND A SUGGESTED STANDARD DISPERSION-PIECE.

### IV.

#### Relative Speed.

The method now advanced by the writer consists in selecting some plate whose quality and general behaviour present a reliable unity against which all other plates may be compared. In the "27" Gilt Edge we have a plate which may fairly be considered to meet the requirements, because, in spite of the fact that occasionally it has suffered a slight drop in speed, it is characterised by a remarkable uniformity.

Firstly, the speed of a plate is required to be known. It is cut in a manner that it, together with a "27," may lie in the holder and be exposed at the same time behind the revolving sector-disc to some light-intensity. After exposure, each plate is cut into two halves, and all are developed at the one time and at constant temperature, being removed from the developer in pairs after the lapse of 8 and 12 minutes respectively, and then fixed, washed, dried, and stored.

From these measurements is extracted  $\gamma$ , and the time necessary to reach, say,  $\gamma = 1.0$ , is read off directly, and used as a time factor for the development of another pair of exposures upon two more of the same plates developed at a similar temperature.

The measurement of this second pair of plates will in turn give curves which lie parallel to one another, and from which the relative speed may be obtained.

One measures, therefore, the distance apart of the curves (horizontally), and, remembering that the exposure increase for each step rises in powers of two, the difference in speed between the two plates for a given intensity of light of similar spectral composition will be two, raised to a power the value of which will be determined by the distance measured; e.g., the mean distances apart of the two curves in Fig. 9 is 3.2, then  $2^{3.2}$  is the difference in speed; or, the exposure time would have to be increased 9.19 times in order to obtain similar density.

In this method of relative speed determination there is the extra work entailed by the measurement of the "27" plate with every determination, but such work really amounts to very little in actual time, and has the added advantage in the use of daylight in place of some artificial "standard" of more or less doubtful value.

Experimentally, the writer has not been able to so accurately expose and develop a third pair of plates as to have the plotted results actually superpose, the difference from a mean curve being  $\pm 0.02$  of a density unit in the most favourable instances, and running up as high as  $\pm 0.05$  in exceptional instances. Further discussion upon this and kindred points is reserved for a following paper.

#### Colour-Sensitiveness ( $\chi$ ).

When Hurter and Driffield advanced their epoch-making methods for the sensitometry of photographic plates, the use of a candle in this connection was allowable, because at that time the orthochromatic plate was but little used and less generally understood. At the present writing there is scarcely a manufacturer of photographic plates throughout the world who does not prepare one or more brands of colour-corrected plates, and it is merely a question of a very brief time until the use of the orthochromatic plate will be imperative for everything save the photography of black and white.

When we consider the colour-sensitive plates of the present day as a whole, there are four points which strike even the casual observer as characteristic: (1) the strong sensitiveness to the blue-violet; (2) the secondary sensitiveness to the yellow-green; (3) the low sensitiveness to the blue-green; and (4) the lack of sensitiveness to the red. It is evident that these values should be definitely known, and that, whatever method is adopted for their estimation, it should be comprehensive enough to thoroughly differentiate them.

Mees and Sheppard have proposed the constant  $\chi$  as representing the ratio of the inertia of the blue-sensitiveness to the inertia of the yellow-sensitiveness. Their method of determining this value (which is an improvement upon the system of Eder) consists in exposing a plate to their screened acetylene light behind the sector-disc, which plate is still further screened by the interposition of a colour-filter transmitting only the red light to  $\lambda$  5900 (A-D).<sup>24</sup> Another plate is exposed in the same manner, but with the interposition of a green filter transmitting light from  $\lambda$  5900 to  $\lambda$  5000 (D- $\frac{1}{2}$ F), while a third plate is exposed through a blue filter transmitting light from  $\lambda$  5000 on ( $\frac{1}{2}$ F+). The densities of these plates are then measured, and the ratio of the inertias is obtained.

In the opinion of the writer, the division of the spectrum into three parts furnishes altogether insufficient information for either the scientist, plate-maker, trichromatic worker, or student of orthochromatism.

A plate exposed through the red colour-filter may give a very high value, and thus indicate a red-sensitiveness which does not exist, the action being due entirely to the orange at, say,  $\lambda$  6000, to determine which reference must be made to the spectrum. A somewhat different criticism applies to the results obtained by exposure through the green filter, whose transmission ends in the region of photographic low-sensitiveness in the blue-green. The elimination of this insensitive gap (or results tending to such elimination) is of considerable importance in practical plate-making, and therefore the relative values of plates for this region should be definitely recorded; the division of the spectrum at this point by the green and blue filters makes such determination impossible.

The method, however, has a certain broad value for the estimation of sensitiveness when required for use with wide-banded colour-filters, such as are generally used in trichromatic work; but it is unquestionably true that it cannot compare in quantitative estimation with a series of daylight spectrum negatives where the action of the plate for every wave-length of light is definitely apparent. As any system of sensitometry to be popular must be rendered as simple as is consistent with definiteness, then what could be easier than to quote the density-readings at, say, six points<sup>25</sup> of the spectrum measured, if any further numerical evaluation be required?

<sup>24</sup> The spectral transmission value of this colour-filter should be very carefully determined, as it is composed of rose bengal and tartrazine. This latter dye even in concentration transmits the ultra-violet at  $\lambda$  8700. The rose bengal of course transmits the violet very fully.

<sup>25</sup> The six points referred to may be at  $\lambda\lambda$  3800, 4100, 5100, 5500, 5900, 6100, for all of the ordinary orthochromatic plates. In cases of special red-sensitiveness then the density-value of a seventh point may be added.

#### Development of Spectra.

In the development of the spectrum plates obtained by exposure in the spectrograph as described, special care must be taken to make the following constants: (a) the constitution of the developer; (b) the temperature of the developer; (c) the time of development (as determined by the curve and corresponding sector-strip). Due attention to these points will result in negatives directly comparable with one another.

#### Measurement and Interpretation of Spectra.

In a series of spectrum exposures upon two different plates, one of each is selected for measurement whose region of maximum opacity corresponds approximately to a density of 2.5. This is readily selected by comparison with a standard density plate, on which the measured densities have been plainly marked.<sup>26</sup> No difference makes absolutely no difference whether this spectral maximum is in the yellow or in the violet. The only thing to look for is a maximum of 2.5.<sup>27</sup>

In the practice of the writer this is still more readily determined by setting the analyser circle of the spectro-photometer at 3 degrees, moving the spectrum plate in front of the collimator slit until it arrives at that one whose maximum opacity approximately equals the field in the viewing telescope; then that spectrum is marked for measurement. With a similar procedure on other plates we obtain spectra which may be compared directly with one another, because, generally speaking, they represent as their maximum an optical action of 256 light-ratio units, under identical conditions of development.

Using a narrow slit in the spectrophotometer, the spectrum selected may now be measured, and its curve plotted in the usual manner with the densities expressed as ordinates and the wave-lengths as abscissae; or, if preferred, the ordinates may read light-unit ratios, the values being obtained by interpolation upon the curves already obtained from the corresponding sector-disc negative previously exposed and developed at a similar temperature, and taking the true ratios as units. This method was advanced by the writer in a former paper,<sup>28</sup> and serves the very useful purpose of indicating at a glance the ratio of opacity to exposure for differing wave-lengths.

In such a spectrum record we obtain a quantitative estimate of the plate under test. Aside from the spectrum selected for measurement we see at a glance the true region of maximum sensitiveness evidenced in the shorter exposures. The growth of density in the least refrangible region with increase of exposure is readily marked, and its relation to the blue-sensitiveness may be easily approximated when the exposure time is known. If, for example, the spectrum selected for measurement as having normal exposure be the result of an exposure of  $a$  minutes, then the value  $x$  of the light-units acting at any point on some other exposure  $b$  may be expressed as  $\frac{b}{a}$ .

where  $c$  is the value of the light-units corresponding to the exposure selected for measurement. Furthermore, we do not have to depend upon the impression of a glass scale (for example), in order to record spectral position, in which there enters an element of uncertainty consequent upon accidental displacement of either that or the dispersion-piece, or looking at a print from such a record, the observer has absolute means of knowing whether the scale is in true position or not, to what extent the negative may be over-exposed. On the other hand, the daylight record leaves no element of uncertainty, because the Fraunhofer lines indicate at a glance the exact wave-lengths, and also serve to show over or under-exposure.

In all of the spectra exposed above normal there is present an amount of "fog" which arises from the "spreading" of the light in the region of maximum sensitiveness, and interior reflection in the spectrograph; furthermore, the overlapping ultra-violet of the second order spectrum is apt to lead to false conclusions in the estimation of colour-sensitiveness. For that reason the remaining two exposures are made after introducing the wedge between the collimator tube and the front board of the camera, the increase in the angle of incidence being small.

<sup>26</sup> Such a plate may be obtained from a Scheiner or a Hurter and Driffield sector-disc.

<sup>27</sup> Because 2.5 is conveniently the highest allowable density for reliable direct measurements.

<sup>28</sup> "Preliminary Note on Orthochromatic Plates," "Astronomical Journal," 153, 1905. It should be mentioned, however, that the values given in this form paper were from visual estimates, in place of the present measures, although the following paper (*ibid.*, 22, 350, 1905) confirms by experiment the values first derived.



thus causing a corresponding displacement of the spectrum on plate. An ammonium picrate colour-filter is then introduced in the slit to completely absorb the overlapping violet. These or two exposures are necessary to the correct appreciation of the extent of sensitiveness in the red. The appearance presented on a negative plate as has been described is shown in *f*, Fig. 1. It should be definitely understood that this suggested method of daylight sensitometry is advanced as a practical everyday means of arriving at reliably comparable results suited to the requirements, not only of the general worker in photography, but also of those who make use of the photographic plate in obtaining records of scientific value. No one is more conscious than the author that it has some points which may in time be improved upon, but it at least serves the useful purpose of definitely pointing out in condensed form the greater number of pitfalls and inaccuracies which beset the path of sensitometry, and further indicates a means of obtaining exceedingly good results with the minimum of time and expense. It will be obvious that the method is primarily suited to those who are users of plates, rather than to those whose work is principally towards the manufacture of the material. For this class, however, there is no reason why the method may not be extended to embrace the requirements suited to their needs.

#### Summary.

may summarise the foregoing and tabulate the entire process as follows:—

The advancement of the replica-grating as a standard dispersion-medium together with a simple form of spectrograph suited to its use. A suggested method of daylight sensitometry (making use, as far as possible, of the laws discovered by Hurter and Driffield), of the following is a résumé:—

Exposure of one  $2 \times 4\frac{1}{2}$  plate scored down the back, but not through, together with one  $2 \times 4\frac{1}{2}$  Seed "27" plate, for, say, 10 minutes, in the sector-disc machine.

The scored plate is broken through into two secondary slips, and four plates are now developed (preferably together) with a standard developer, for a constant length of time, and at a constant temperature, with the exception of one of the secondary slips which is in the developer for exactly double that of the others.

Measurement of the density strips and extraction of  $\gamma$ ,  $t_n$  and  $e$ .

Exposure of a second pair of  $2 \times 4\frac{1}{2}$  plates, and development for the time necessary to obtain equal amounts of development action as from *d*, retaining composition of developer and temperature as in *a*. Measurement of same and extraction of speed-ratio.

Exposure of one  $3\frac{1}{4} \times 4\frac{1}{2}$  plate to a series of eight exposures in a spectrograph, varying from two seconds to eight minutes, and further exposures on the same plate with the collimator wedge and through the ammonium picrate screen.

Measurement of selected spectrum for quantitative colour estimation.

ROBERT JAMES WALLACE.

#### INTERNATIONAL PHOTOGRAPHIC EXHIBITION AT DRESDEN, 1909.

Preparations for this undertaking go actively forward. On May 11 the committee was appointed and a committee for the carrying out of the exhibition was elected. It becomes more and more evident that the exhibition will prove to be an undertaking which will call for the energies of all branches of activity connected with photography.

Universal interest in the enterprise prevails, and from all parts of Germany, as well as from foreign countries, numerous volunteers send in their names, accompanied by unanimous expressions of encouragement of the scheme. And since the South German Photographic Union has announced its intention of abandoning its special exhibition of 1909 in Munich, in favour of one in Dresden, and has determined to take part in and help forward the undertaking, the experts throughout Germany with but few exceptions are agreed to produce something worthy of the occasion.

The composition of the programme and the practical construction of the exhibition make it desirable that any one-sided influence on the programme or on any one branch shall be avoided. Every group shall be brought into the work of authorities of that special branch. Every group shall be, from beginning to end, represented, and have its own special board (or committee) of experts.

With the judicial establishment of the directorate on May 11, at which the representative of Government was present, the work has made great strides towards the creation of its formal foundation. One thing, at all events, is apparent—viz., that the International Photographic Exhibition in Dresden, 1909, will take place, and on a comprehensive scale.

The offices of the exhibition are to be found at Dresden-A., Neumarkt 1, Hôtel Stadt, Berlin. All communications should be addressed there.

#### ORTHOCHROMATIC PLATES IN COMMON LAW.

[The following report reaches us without any indication of its sender. We can only say that we have been able to learn nothing of the existence of the Court referred to, although further inquiries at Bow Street have led to some hopes of light being thrown on the case in the suburbs. The Croydon police have the matter in hand.—Eds., "B.J."]

**SERIOUS CASE OF ASSAULT BY A PHOTOGRAPHER.**—Josiah Jeremiah, of no fixed abode, was charged at the Wellington Street Police Court with hitting E. J. Wilks on the head with a tripod leg. The prosecutor, who appeared with his head bandaged, alleged that in the course of a discussion as to the ingredients of the familiar penny sausage, the prisoner lost his temper, and committed the assault complained of.

The prisoner, in defence, admitted striking the prosecutor under circumstances of great provocation. Prior to his taking up photography he had been in the sausage trade, and knew for certain that the usual penny article contained, roughly, three parts of road sweepings to one of horseflesh. Prosecutor had quoted a "German authority," to the effect that the average ratio was 24 to 1. He (the prisoner) contended that anybody who quoted a "German authority" deserved rough handling. It wasn't playing the game.

He also pleaded that he had inadvertently acquired the pernicious habit of using "ordinary" plates in his photographic work. This had so blunted his moral senses that he was now incapable of distinguishing between right and wrong. In confirmation of this remarkable statement he drew the attention of the Bench to some editorial remarks and correspondence appearing in a photographic contemporary. The magistrates, after perusing the papers handed up, decided that justice in the case would be met by binding the prisoner over in his own recognizances. He would also be required to give an undertaking to use only orthochromatic plates and filters in future. The articles and correspondence they had read revealed a serious danger to photographers in general. It appeared to be a case for the Board of Trade, with whom they should communicate.

#### Patent News.

The following applications for Patents were made between May 21 and May 25:—

**SCREENS.**—No. 11,848. Use of opalescent screens in photography. Alfred Walter Dollond, 5, Montague Gardens, Wallington, Surrey.

**REFLEX CAMERA.**—No. 12,027. Improved folding reflex camera. Paul Ponge, 153, Croydon Road, Anerley, London.

**LENSES.**—No. 12,061. Improvements in lenses. George Lindsay Johnson, 322, High Holborn, London.

**PENDANT.**—No. 12,117. Improved photographic pendant. Clarence Flint, 44, St. Paul's Square, Birmingham.

#### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**MIXED DEVELOPER.**—No. 10,284. 1906. The invention consists of a developer containing both paramidolphenol and hydroquinone, combined in such a way that new chemical bodies are formed.

The manufacture of the new chemical body of paramidolphenol and hydroquinone which constitutes the subject of the invention may be effected as follows, by stirring together 100 grams each of the paramidolphenol and of hydroquinone with 200 grams of

glycerine or alcohol in a mortar into a paste, which is then poured into two litres of water, whereupon solution takes place immediately. If to this concentrated solution an equal volume of a sulphite solution, containing 25 per cent. of potash is added, a bulky, flaky white precipitate is deposited, while the supernatant liquid is first colourless and later on becomes bluish violet. The precipitate is thrown on a filter and washed several times with a 5 per cent. solution of potassium metabisulphite, in order to prevent oxidation of the precipitate, which is then dried in a current of dry sulphurous acid.

One gram of this compound will then yield a well available developer with 10 ccs. of the following solution: 50 grams crystallised sodium metabisulphite, 50 grams crystallised sodium sulphite, 50 grams dry carbonate of potash, and 5 grams potassium bromide, all dissolved in 1 litre of water.

It is remarkable, that when using the chemical compound, the temperature of the developing liquid is of minor importance in the development of the picture; the picture appearing, as shown by experiments within a certain standard period of time, independently of the temperature of the developing liquid, no matter whether this liquid shows 64, 55, or 46 deg. Fahr.

Reference is made by the Comptroller of Patents, in pursuance of the Patents Act, 1902, to the specification of Letters Patent, No. 27,931, 1896, granted to Julius Hauff. Karl Buisson, Emmendingen, Baden, Germany.

**GYROSCOPE CAMERA STAND.**—No. 10,757. 1906. This invention relates to aerial photographic apparatus and has particular reference to a device for holding a photographic camera in set position, more especially apparatus set into the air for the purpose of taking photographic views in a given direction.

It comprises a gyroscope, consisting of a vertical fly wheel connected to the instrument, the fly wheel being mounted so as to be rotatable about two horizontal axes at right angles to each other. After the instrument has been set, the fly wheel is caused to rotate at a very high speed, so that during the action of the fly wheel, which is suspended by means of a universal joint, the instrument can no longer turn about its vertical axis. The invention comprises means for applying a gyroscope to a photographic camera which is projected into the air. Alfred Maul, 29, Gohlisenstrasse, Dresden, Germany.

**FILM PACKS AND COLOUR PHOTOGRAPHY.**—No. 11,346. 1906. The invention relates to that type of film in which the films are carried or attached to a pleated band, each pleat having a separate manipulating tab.

In order to enable a number of such films to be developed at one operation in a developing machine the films are secured to a washable strip, so that the attachment shall not be affected by water, by means of a non-soluble cement or by making the film and strip of a single piece alternately sensitised and opaque.

Colour filters composed of suitably dyed transparent gelatine or collodion sheets may be attached to the pleated strip, or may form a part of it, the filters being arranged in sets suitable for trichromatic work, in order that exposures for the respective colours may be made in rapid sequence. Or the colour filters may constitute quite a separate additional strip, folded within the other one, each pleat having its own manipulating tab as before.

The colour screens, instead of being in sets of three for trichromatic work where three negatives are required to make a complete picture, may instead be those forms of screens which render all the desired colour effect on one film at one exposure, such as the ruled screen of Professor Joly, for example, or the films themselves may be prepared by any suitable means for giving the whole range of colour effect in one negative; as, for example, in the several well-known processes of Lumière Brothers, Professor Joly, and Dr. Smith.

The pleated strips or other attached films or backings may have an extra tab, termed a retaining tab, to each fold or film, at the opposite side to the pull tab, for securing same in position. The pleated strips may be made more flexible, for taking sharp bends quickly, by making a series of fine and close corrugations across its width, which also stiffen it in the other direction. John Edward Thornton, Altrincham, Cheshire.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Development by Time.

Mr. R. Child Bayley, writing on the method of finding the time to develop plates, says: Three quarter-plates are exposed on view from one of my windows, all for exactly the same time worked out strictly by the exposure meter. They are developed side by side in the developer selected, and the temperature of this developer is noted, as subsequently described. The time at which they are put in the developer is carefully noted the dish is kept covered. One plate is taken out as soon as judged by looking at it, back and front, that there is any likelihood of development being complete, the second when I should think undoubtedly properly developed as well as I can tell in the room, and the third has about as much longer than the second had than the first. Each is rinsed as soon as it is taken from the developer, the time is noted, and it is slipped into fixing bath. When fixed, it is easy to see which has been properly developed, and the time which that one had in the developer is taken as the standard time for that temperature. Should one of the plates appear to have had the correct time, it is easy to deduce from their appearance what the time should be. I heard it urged against this plan that it is absurd to think that the correct time of development can be ascertained in so simple a manner. If the essentials are observed, and particularly the following (below), it will be found that, "absurd" or not, it works. The essentials are:—

1. The selection of a suitable subject. A building with sun on it with some of it distinctly in shade, and with sky showing, is at the best and the most generally available.
2. Correct exposure. Information derived from incorrectly posed plates is sure to be misleading.
3. Proper care in measuring the temperature and the time of development.

### Tripod Substitutes.

A couple of chairs make a splendid stand (writes Mr. W. Knowles in the "Photographic Monthly"), if you place one up down on the other, and then a sheet of cardboard, a piece of board, a large book, or even a large picture from the wall, on top of the upturned legs. When out cycling, why not make a bicycle answer for a stand? Yes, but it is a bicycle, not a tripod, you say—the thing won't stand up. Indeed! Perhaps not the orthodox way; but stand it on its head, turn it upside down as though you were going to mend a puncture (thank goodness it is not!) and adjust the pedals so that one will hold your camera when propped up with a bit of stick. Surely you can get a bit of stick from the hedgeside to prop the pedal up. Yes, it is interesting to while away a half-hour in the village churchyard after a good lunch at the inn, but what a pity you have not your tripod, so that you might copy the curious epitaph on that gravestone. A snap-shot in the hand is no use. It will require at least a second, for you must stop down to get the letters sharp. Just set the shutter and press the camera up against that gravestone opposite, press it hard with one hand, and with the other touch the trigger. Ample exposure and no shake at all. In the same way press the camera against a door jamb, or a stoop, or a gate post, for an exposure.

**NORTHUMBERLAND AND DURHAM PHOTOGRAPHIC FEDERATION.**—Jas. Whittle, 39, Bridge Street, Morpeth, is now hon. secretary to whom all communications should be addressed.

**DR. C. E. KENNETH MEES.**—The current number of "Le Procédé" contains a portrait of C. E. Kenneth Mees and a brief biographical notice, from which we see that he was born in 1832, entered London University in 1858, and commenced his collaboration with Dr. S. E. Sheppard in 1901, with the result that the two young investigators have published a lengthy series of papers on sensometric and photo-chemical subjects, most of which have been read before the Royal Society, the Chemical Society, or the Royal Photographic Society, and have now been published in one volume Messrs. Longmans.



## New Books.

Investigations on the Theory of the Photographic Process." By E. Sheppard, D.Sc. (Lond.), and C. E. Kenneth Mees, D.Sc. (Lond.). London: Longmans, Green and Co. 6s. 6d.

Students of sensitometry and of the theories of the process connected with the development and fixation of a photographic plate will thank the authors of these papers for performing the equivalent of the tedious but necessary process of taking stock at the first term of operations. If we employ a commercial process it is with no desire of casting any aspersions of "shop" on the contents of the volume. Indeed, the most casual glance at the pages will show the absurdity of any such insinuation. In the few pages we may venture to utter any sort of criticism at all of a paper which in the present state of knowledge of the process is written by very few persons indeed are competent to criticise, it is the authors should not have given effect to a belief which we do not doubt they hold—namely, that their work is of great practical importance—and have been at some pains to subject it to a process of digestion, or semi-digestion, by which the general conclusions from their investigations should be brought within the comprehension of the many unable to extract it for themselves from the mass of facts and curves. The duty for the present must be left to the authors and willing to play the parts of Huxleys and Tyndalls to the Darwins. Or shall the task be postponed for a decade to some time for possible unverified conclusions to receive the needed attention? We dismiss the suggestion as uncharitable, and would leave the expositor to his task.

The authors preface the narration of their investigations with a discussion of the bearing of the modern physical conception of photography on development and with a description of the apparatus, used by themselves, with which they have carried out their work. Instruments, it is not too much to say, have already been widely adopted by others desirous of making similar measurements for research or commercial purposes. Thus in this portion of the authors' decisions in the matters of standard lights, exposing times, temperature regulators, photometers, and spectrophotometers will be preserved for reference with interest by those who are foreseeing the need of such instruments.

The use of this apparatus for the systematic examination of dry plates is the subject of the third part of the volume. The interpolation, constituting the major contents of the volume, concerns papers on microscopy of the image, theories of the latent image and of its development, of the action of restrainers and of developers which have been read before societies and have been known to the photographic general reader mainly from the occasional references to them. As we have already said, the authors may be congratulated on their appreciation of the needs of the student in selecting them.

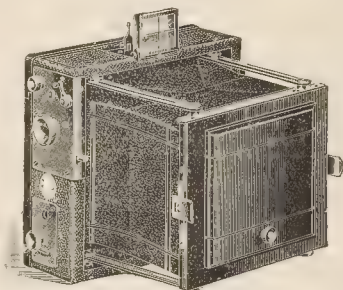
Life at Home: How to Study and Photograph it." By R. Kearton, F.Z.S. London: Cassell and Co., Limited. 6s.

This is the fifth edition of the original issue of 1898. Mr. Richard Kearton once more tells of the fieldcraft which he has perfected in the course of stalking his furry and feathered friends sufficiently to enable him to take a camera. We see that the artificial tree trunk and the sheep have to be replaced by other properties in which Mr. Kearton can stand or lie for hours waiting for his subjects to pass. An artificial rock and a similarly fictitious sod house are other heroic measures for him, and he illustrates the various methods to which the naturalist-photographer is put in undertaking his work. And when the photographer of these subjects has mastered the vales and hills of the country-side there still remain the sensations of being lowered over the precipitous face of a cliff to pay a surprise visit to the shag or eyrie, on which kind of excursion Mr. Kearton is shown. The volume is not, as might be most largely occupied with these feats of nerve, but in its later chapters much timely advice on the methods of the photographer of natural life must follow. The book contains a large number of illustrations in the text and a photographic album.

CECIL SMYTH is now acting as the London representative of Messrs. W. and A. Wainwright, of Croydon.

## New Apparatus, &c.

The High-Speed Focal-Plane Folding Camera. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C.



Messrs. Staley send for our inspection one of these cameras of the popular folding focal-plane type, which they advance chiefly for high-speed work. The illustration shows the form of the camera, which, from the practical point of view, is a very convenient instrument. The shutter has a rapid wind, and is set, from the outside, over a wide range of speeds. The camera, without lens, is sold complete with three double dark slides at £3 11s. 6d.

## New Materials.

Royal Standard P.O.P. Made by Cadett and Neall, Ashted, Surrey.

From samples of this new gelatine printing-out paper, sent to us by the special distributing agents, Messrs. Kodak, Ltd., we find it to be a P.O.P. of distinctive qualities, certain of which should possess especial interest for photographers in this country whose work has to be done under variable and trying climatic conditions. For the paper has a hardened emulsion and is remarkably immune to variations in the temperature of the washing water, retaining, without special measures, a firm surface, which facilitates certain and rapid work in the glazing of prints by squeegeeing to glass.

As regards ready and economical toning, it appears to us to be a satisfactory paper, whilst with the borax toning bath it yields a pleasing warm colour. The paper is supplied both matt and glossy, and, in both surfaces, as postcards.

## CATALOGUES AND TRADE NOTICES.

FERDINAND HRDLICZKA, 9 to 11, Lerchenfeld, Gürtel, Vienna, XVI/2, sends us a prospectus of a new flashlight installation for studio and at home portraiture. The apparatus is advanced for serious work, but is highly portable.

DIRECTORY OF DARK ROOMS.—The issue of our contemporary, "The Photographic Monthly," for the current month is a particularly bulky one, owing to the inclusion of a directory of dark rooms, running to several thousands of entries. British inland and seaside resorts occupy the larger proportion of space, but the principal Continental towns appear in their own portion of the directory, whilst there are some entries which conceivably may be of use to the traveller. The literary pages of our contemporary, we are glad to observe, show no signs of diminished interest; and the present number presents a variety of amateur topics, with the aid of half-tones, which are actually illustrative.

"VELOX" COMPETITION.—Messrs. John J. Griffin and Sons, Ltd., announce a monthly competition, in which prizes of two guineas, one guinea, and twelve consolation prizes of 5s. each are offered for the best print on "Vigorous" Art Velox paper. The prints must be mounted and must bear the name and address of the sender on the back. The competition is open only to those amateur photographers who have not gained an award in any previous competition. All prints must be addressed "Velox Competition," Griffin's, Kingsway, London, W.C., and must reach the firm by the last day of each month. Mr. F. J. Mortimer, editor of "The Photographic News," will act as judge.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JUNE 7.

Tunbridge Wells Amateur Photographic Association. Open Night.

SATURDAY, JUNE 8.

North London Photographic Society. Outing to Hampton Court.  
North Middlesex Photographic Society. Outing to St. Albans.  
Mill Camera Club. Outing to Shoreham and Otford.  
Bowes Park and District Photographic Society. Outing to Benfleet and Canvey Island.  
Worthing Camera Club. Outing to Pulborough and Stopham.  
Hackney Photographic Society. Outing to Hendon and the Brent.

MONDAY, JUNE 10.

Bradford Photographic Society. "Fashions and Schools in Pictorial Photography." A. Bracewell.  
Southampton Camera Club. "The Making of the Negative." T. M. Weaver.

TUESDAY, JUNE 11.

Hackney Photographic Society. Novelties in Apparatus and Materials.  
Birmingham Photographic Society. "Mounting." Frederic Lewis. "Ozobrome." F. Cadby.

WEDNESDAY, JUNE 12.

Rugby Photographic Society. Outing to Braunston and Ashby St. Ledgers.  
North Middlesex Photographic Society. "The Oil Process of Printing." A. R. F. Evershed.

THURSDAY, JUNE 13.

London and Provincial Photographic Association. Queries and Answers.  
Handsworth Photographic Society. "Aristo-Edinol." C. P. Proctor.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, June 4, the President, Mr. J. C. S. Mummery, in the chair.

The Secretary, Mr. J. McIntosh, gave a demonstration of the making of light-filters for orthochromatic photography, prefacing his actual demonstration with an explanation of the principles involved in the correction of orthochromatic plates by means of a light filter. Mr. McIntosh's method was to employ a fine transparent sheet gelatine, which he purchased from Huiskey's, in the Barbican, E.C. This was obtainable at a very cheap rate, and was remarkably free from flaws and streaks. A sheet of convenient size was immersed in the solution of dye or mixture of dyes, and the dish rocked until the gelatine became flaccid. The density of the dyeing was conveniently adjusted by a greater or less time of immersion. In the case of a pale green it was better to dilute the solution in order that the necessary intensity was not reached before the gelatine had been completely softened, as if this precaution was not taken the absorption of dye would probably be uneven. In other dyes the intensity was easily reduced by immersion in plain water. The dyed piece of gelatine was then laid on a piece of clean celluloid, slightly smaller than the gelatine, the celluloid itself resting upon a piece of cardboard or other porous material. The overlapping portion of the gelatine filter adhered to the cardboard, with the result that the screen dyed perfectly taut and even and was easily stripped off after dyeing. It was then cemented with Canada balsam between two pieces of plain parallel glass. Mr. McIntosh's preference was for a thick sample of balsam as conducing to freedom from air bubbles.

In conclusion the lecturer exhibited a number of examples of colour rendering of a group of flowers obtained on various plates, the most remarkable of which was that on the "Diford ordinary," used without any screen, which in its rendering of the reds was quite equal to the examples shown with screened orthochromatic plates.

In the subsequent discussion Mr. E. J. Wall objected to the green filter recommended by Mr. McIntosh for correcting the sensitiveness of plates of the average erythrosine type, but Mr. McIntosh, in disputing the objection, pointed out that no green dye was used in this filter, it was one of blue and yellow, and enabled him to give the necessary rendering to the greens. Mr. J. C. Warburg was surprised that the lecturer should use naphthol red, which was one of the few dyes which entirely cut out the red of the spectrum, but the lecturer pointed out that as the great majority of the plates which he had been discussing in reference to filters were insensitive to red this property of the dye in question was of no importance to him.

A hearty vote of thanks to Mr. McIntosh on the proposition of the Chairman brought the proceedings to a close.

CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.—On Mr. R. J. G. Dowse read a most interesting paper on "Slides," Mr. Schultz in the chair. The author, after a preliminary remarks as to standard sizes, component parts of etc., said that there were several methods of making slides—bromide, gelatino-chloride, carbon, collodion, and albumen would confine himself to the gelatino-bromide and chloride processes. Having obtained the negative there are two getting the latent image on the lantern plate—by contact if it is the same size as required on the slide, or by reduction a camera, if the image is too large. A slide which is too de be reduced by two methods: (1) the well-known Howard reducer, which increases contrast; (2) ammonium persulphate reduces contrast. Thin slides may be intensified by bleaching mercury bichloride and re-developing. The author then d various toning processes. Gaslight plates may be developed tones by over-exposing and using a diluted developer, well re with ammonium bromide and carbonate. Slides may also after development, copper giving red tones, iron giving blue (Prussian blue), and gold giving blue-black to blue, and even was stated. Carbon slides are made by printing on carbon and developing as usual, but transferring to prepared glass of paper. The image must be much lighter than for a print, part of the image has to be transparent. Some slides were in the colours as supplied by the Autotype Company. For the finished slide, mask of black paper and cover glass t adhesive paper strip, tape, or even metal strip are employe numerous points raised in the paper were well illustrated by prepared slides. The author next referred to slides in colours by the Sanger-Shepherd and pinatype processes. Some lent slides in natural colours, lent by Sanger-Shepherd and C projected on the screen at the same time. After the pap slides lent to the society's exhibition by Mr. C. W. Tidm shown on the screen.

HOVE CAMERA CLUB.—The annual meeting of the Hove Club was held at the headquarters, Western Road, last week the presidency of Mr. A. R. Sargeant, J.P. The report a membership of 115 as against 125 last year. The committee r the death of the hon. secretary, Mr. W. H. Bone, and an ex-pr Mr. G. B. Woodruff, J.P. The balance sheet showed a bal hand of £10 9s. 7d., and this was adopted. Officers elected ensuing year were: President, Mr. A. R. Sargeant, J.P. presidents, Alderman J. Colman, J.P., Mr. W. A. Hounson Mr. A. W. English, Mr. C. Job, Mr. W. Clarkson Wallis, a E. E. Manwaring; hon. secretary, Mr. Stanley Read; hon. tr Mr. F. L. Jemmy; hon. auditor, Mr. C. V. Shattock; com Dr. C. S. Simpson, Dr. E. J. Spitta, and Messrs. L. A. Gill Mennich, F. J. Phillips, W. W. Palmer, G. W. King, and Foskett.

THE UNITED STEREOSCOPIC SOCIETY.—In connection with the of M. Victor Selb, vice-president of the society, Dr. S. Walsh gave a third social evening to the London members on the 2nd at his residence at Shepherd's Bush. During the evening interesting specimens of stereoscopic slides were shown am members, several of which were taken at recent outings co with the society. Attention was particularly called to M. novel stereoscope, also his three-colour transparencies, whic much admired by the members. Other slides worthy of not those of Messrs. S. W. Shore, F. Low, H. A. Miles, and a s hand-coloured slides and transparencies by Mr. P. Snow. The is fortunate in possessing some excellent workers in stereoscop a great improvement of work has been noticed in the n sets recently. It is mainly due to the helpful criticisms given members.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—On Monday last, the members of above Society, Mr. W. F. Slater, F.R.P.S., senting Messrs. Kodak, gave his lecture and demonstrati "Development." The lecturer proceeded to show that by th method of time development, which is distinct from factori best result possible under the circumstances of exposure w tained. It was not possible to get out of a plate what w already there latent, nor did the addition of bromide to a dev for over-exposures improve matters, for that salt only des the gradation. An under-exposed plate, if developed as a co



one, will give as much detail and give as good a result as possible. The lecturer therefore claimed that a standard plate at a standard temperature, and developing for a fore-determined length of time according to the density of negative obtained, was the only proper method. Over-exposures which are very dense could be treated with Farmer's reducer, which, by bringing the half-tones more than the high-lights, would then give excellent printing negative. A plate having received a certain exposure, no amount of tinkering with the developer would make improvement in the final result. The amount of detail was determined by the exposure and nothing else. It was a mistake to suppose that any particular developer has more power in getting detail out of a plate than another, if properly used. The lecturer then proceeded to develop a spool of film in the Kodak operation being simplicity itself. The film was placed in a tank containing pyro-soda developer at a temperature of 60° Fahr., and developed for twenty minutes, the only attended-for being an occasional turn up of the tank. At the end of the allotted time the film was taken out and fixed, and then brought round for inspection, the result being technically all that was desired. At the conclusion an animated discussion took place as to the merits of time development for subjects having strong contrasts also for pictorial work, but Mr. Slater maintained his opinion that by the method just demonstrated all that the negative could be brought out, and in the best possible

## Commercial & Legal Intelligence.

**VENTNOR BANKRUPTCY.**—Mr. Alfred James Ford, photographer, of Ventnor, appeared for his public examination at the Court of Bankruptcy, Isle of Wight, Bankruptcy Court, last week, before Mr. Justice. The statement of affairs showed a deficiency of £411 and no assets. The debtor attributed his failure to bad competition, and insufficient knowledge of the trade. In reply to questions put by the Official Receiver, debtor stated that he had been in business just over three years ago. He had never been in business before, and knew nothing about the photographic business. He had received £610, given to him by his parents, and he spent that, chiefly in alterations and additions to the premises, in the erection of a studio, that money being really sunk at the time. He had been losing money right from the start of the business. Liquidation was concluded, subject to the signing of the short-terms.

### NEW COMPANY.

**WESTMINSTER PHOTOGRAPHIC EXCHANGE.**—Capital £10,000 (£1). The business carried on by E. E. Edwards and A. J. as the Westminster Photographic Exchange. No initial public subscription. First directors (not less than three nor more than five): E. E. Edwards, A. J. Leather, and J. E. Hodd (chairman). Qualification of first directors, 100 ordinary shares. £50 each per annum. Victoria Street, S.W. (93,480.)

## News and Notes.

**MR. HARRINGTON,** who, with Mr. C. R. Unteutsch, is the owner of the well-known New Zealand firm of Harrington and Co., is on his way to England, via Japan and America. He is to reach London about July 12, and will interest himself in the photographic business of the New Zealand market. Previous to his departure from Sydney Mr. Harrington was the guest at a "bon voyage" picnic given to him by his employees, by whom he was accompanied with a handsome travelling trunk as a memento of their

**RAINES SERVICE.**—Messrs. Raines and Co., of Ealing, London, have issued their 1907 list of prices, which, as seemed inevitable, is entitled "The Raines Service." We are glad to have the opportunity of drawing attention to the consistently high-class standard maintained by this enterprising firm in its work for professional photographers.

**KILLING FORKIES** (in last week's "Answers to Correspondents").—These pests are known as earwigs in the south. "Forkies" is a short form of "forky tails," and I think pretty general over Scotland as their name. "G. G. G." might try some garden insect destroyer, or wash out his place with carbolic soap.—SCOTTIE (Glasgow).

**MR. WOODHOUSE PARKINSON,** secretary of the Whitby Camera Club, and whose camera work has wider recognition than that afforded in Whitby alone, has opened Waterloo Studio, Flowergate, as a high-class portrait studio. Mr. Parkinson has devised and carried out a scheme of lighting which will enable him to work under the best possible conditions, and he has the advantage of being an experienced artist in both water colours and oils, which will enable him to bring to bear in his portrait work a knowledge of composition and posing, which will be very useful. The Waterloo Studio is the one occupied for so many years by Mr. F. M. Sutcliffe prior to his removal to his present premises.

**"THE PLANET."**—The issue for June 1, in addition to much interesting information on current topics relating to politics, music, art, etc., contains four illustrations of typical scenery and life in New Zealand, which are the first of a series, entitled "Greater Britain."

**THE PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.**—On Saturday, June 8, the members will hold their second annual photographic visitation, under the leadership of Mr. Hector Maclean, when, by special permission of the Duchess of Marlborough, Deepdene will be visited and photographed. The house itself contains many objects of photographic interest, notably the Etruscan room and the antique statuary, whilst the views in the grounds are remarkably fine, and some of the "specimen" trees and contents of the glass houses will doubtless come in for their share of attention, especially from members of the nature history section. In the afternoon it is hoped to visit Camilla Lacy, a historic mansion in the same neighbourhood, but should this not prove possible, a suitable arrangement of an equally interesting character will be substituted.

**"CRUTCHES TO HELP CRIPPLE CHILDREN."**—A publication under this title has been issued by Messrs. Bemrose and Sons, Ltd., 4, Snow Hill, London, E.C., at 1s., in aid of the Lord Mayor's Cripples' Fund. The entire profits are to be devoted to this admirable object, yet the purchaser who expends his shilling on it will surely feel that for once charity comes easily to him, seeing that among the literary contributors are numbered W. S. Gilbert, Alfred Sutro, G. R. Sims, Manville Fenn, Max Pemberton, and W. L. Coultney. The illustrations include three-colour reproductions of modern works of art to a considerable number.

**THE "TICKA" TITLE COMPETITION.**—Messrs. Houghtons have issued a series of twelve humorous postcards, specially designed for them by Mr. Charles Harrison, the well-known "Punch" artist. These illustrate the use of the "Tickka" camera in various parts of the world, and prizes of two guineas each are offered for the best title for each picture. Each title should either introduce the word "Tickka" or in some way be applicable to that instrument. The cards may be obtained free from photographic dealers in all parts of the kingdom.

**DR. C. E. KENNETH MEES** has been elected a member of the permanent committee of the International Congress of Photography, which is occupied in the consideration of plate speeds and other photographic measurements.

**MESSRS. O. SICHEL AND CO.,** of 52, Bunhill Row, London, E.C., announce that they are now showing a large selection of photographic accessories of all kinds, including a seven-piece accessory, nine-piece gate accessory, 9ft. pillar with base, extending settees, etc., an inspection of which will doubtless prove of interest and use to professional photographers.

**FRAUD IN HAWICK.**—At Hawick recently, Mary Morrison or Douglas pleaded guilty to fraudulently obtaining framed photographs from a shopkeeper in Bourtrees Place. It was stated that she had represented that her husband was going to San Francisco, and desired to take with him some views of Hawick, which she got away with her, and promised to pay for them next day. Having been several times convicted of similar and other offences, the accused was sent to prison for thirty days.

**FOR THROWING HYDROCHLORIC ACID** upon Mr. John James Avery, photographer, living in Sandringham Road, Hackney, Lillian Sarah Woodcock was sentenced by Mr. Justice Bigham to twelve months' hard labour at the Central Criminal Court last week.

MR. ALFRED WATKINS.—We are glad to be able to report that the President of the Photographic Convention of the United Kingdom is recovering from the recent motor accident. Mr. Watkins writes us with his own hand that he is able to come downstairs on a crutch, that his general health is good, and that he is on the way towards being able to walk again. Our readers, we are sure, will wish Mr. Watkins a speedy and complete recovery.

ARTIFICIAL LIGHT DEMONSTRATION.—We are asked to announce that a demonstration of the Schmidt Jupiter flash lamp, which has attained a wide circle of supporters among professional photographers in Germany, will be given at Belgrave Chambers, 72, Victoria Street, S.W., on June 20. On the same occasion an opportunity will be given of inspecting many examples of the use of the lamp in the shape of portraits, figure studies, and groups. Further particulars may be had from Mr. A. Strauss-Collin, Bush Lane House, Cannon Street, E.C.

THE "RAJAR" CAMERA, offered monthly by Messrs. Rajar, Limited, of Mobberley, Cheshire, for the best print on "Rajar" P.O.P., has been awarded to Mr. C. F. Emeny, 8, Gainsborough Street, Sudbury, having been judged the best received during May. The paper on which the print was made was purchased from Mr. James Brown, chemist, Sudbury.

## Correspondence.

\*.\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\*.\* We do not undertake responsibility for the opinions expressed by our correspondents.

### A WINDOW TILTING TABLE.

To the Editors

Gentlemen,—I see in the "B.J." recently a reference to a device to enable one to photograph from a window without a tripod by setting up two boards, which are, after all, unhandy to carry about. Some thirty years ago I used another device for the same purpose, which I carried in my pocket and could use anywhere where the English windows (rising) were adapted, but not so easily with French windows opening on the inside. On the lower part of the front of the camera I had a nut inserted with a thumbscrew to fit

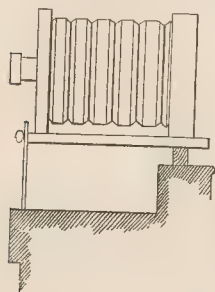


Fig. 3.



Fig. 1.

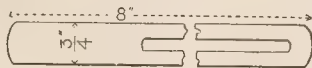


Fig. 2.

in it (Fig. 1). Then I had a piece of brass (flat) made about 8 to 10 in. long  $\frac{3}{4}$  to 1 in. wide, and  $\frac{1}{4}$  in. thick, and in the middle of it a slot made in which would run nicely the screw above mentioned (Fig. 2). This brass piece would rest on the window sill, and the bed of camera on the window frame, and make a perfect tripod (Fig. 3). I could raise or lower the front of camera at will, using the slot and screw.—Yours very truly,

A. LEVY.

4, Avenue Pinel, Asnières (Seine).

May 19, 1907.

### BLISTERS IN BROMIDE PRINTS, AND THEIR ELIMINATION.

To the Editors.

Gentlemen,—The interesting discussion which has been going on for some time past on the subject of the blistering of bromides leads me to offer a suggestion which, if acted upon, would, I believe, put an end to the evil.

There is abundant evidence in what has been lately written on

the subject to show that blisters are nearly always present in one might call an "embryonic form" in bromide papers, but they only show themselves under certain conditions of treatment.

The conditions favourable to their development seem unmissably to indicate their origin, and, if so, the certain means for their avoidance. All the evidence points to the blisters arising from excessively minute air-bells imprisoned in the film of gelatine. Under ordinary conditions the hardening of the gelatine around such bubbles of air so effectually isolates them and binds them down their presence is not suspected. This is the condition of the so-called "non-blistering paper" of the ordinary worker. But when more drastic methods of treatment are brought into use, such as sulphide toning and the like, there is probably a weakening of the mechanical resistance of the gelatine. Under such conditions contained air would be free to move, and when many minute bubbles are in close proximity one with another they would tend to coalesce, forming one larger bell—to wit, a "blister."

The facts that softening agents, soft water and the like, softening chemicals tend to "produce" blisters, and that hardening materials such as alum tend to give immunity from them, all point to the above explanation as being, in the main, correct.

What, then, is the remedy? Eliminate the air from the emulsion, and the evil will be cut off at its source. But how is this to be done? Before seeing how to get rid of anything it is well to ascertain how one came in possession of it. Where does the air, which I allege to be in the emulsion, come from? It comes from the water with which the emulsion is made. Water naturally contains a large amount of air. Freshly drawn from a tap or spring generally contains sufficient to form visible bubbles on the inner surface of the glass containing it. Water can easily be freed from air by boiling it, and if emulsions were not viscous they could be made of air by using water which has been recently boiled through for a few minutes. But the viscosity of the emulsion and the readiness with which water reabsorbs air would go far to neutralise the benefit of using boiled water. The necessary stirring and agitation of emulsification and the agitations of washing would be enough to induce quite an important re-absorption of air.

The only true remedy for the evil, then, is *pumping*. When emulsion is otherwise ready for coating, it should be placed, quite warm, in a cylinder fitted with an air-tight cover and connected with an air-pump so as to produce and maintain for about half an hour a vacuum of about 26 to 28 in. of mercury. Under these conditions the air contained in the emulsion would expand into bubbles large enough to rise to the surface, where they would form a sort of scum.

Paper coated with an emulsion so prepared would, I believe, be free of blisters, no matter what sort of treatment it received in manipulation.

NELSON K. CHERRILL.

### CINEMATOGRAF EXHIBITIONS IN THE EAST.

To the Editors.

Gentlemen,—In your issues of December 28, 1906, and April 1907, I read both letters under the headings "Britishers. W. Up," and "Britishers Not Asleep." As an Englishman, and a resident of this town for over twenty years, both letters interested me very much.

From the enclosed you will glean that neither of your correspondents is quite correct in his statements, one as regards British shows, and the other as regards charges for seats.

I have visited most of the shows that have visited this town, and am quite sure that there was no appreciable difference, and quite sure that on no occasion have I paid less than \$1.50 for a seat, and sometimes \$2 (value of the dollar 2s. 4d. now). "See people coming" would very soon prevent their shows being crowded, which they are nearly every night.—Faithfully yours,

W. T. WOOD.

Kuala Lumpur, Selangor, Federated Malay States,

May 8, 1907.

[The article referred to by our correspondent criticises the prices of previous writers, and concludes as follows:—"As far as our experience goes, the prices here range from \$2 to 25 cents. The risk attendant on this business are so great that we cannot conceive any show ever paying its way at a maximum charge of 50 or 30 cents."



mission. There have been numerous cinematograph shows lately, and the charges have in each case been about the same. We have also, however, been much upon a par, though probably the films we have seen was one run under European supervision. Particular show had electric fans, a feature which distinguishes it from any of the others. As far as an outsider can judge, these shows get their plant and films from the same source, and are as absurd to condemn the European ones as inferior to those of the Asiatic competitors. They are all on about the same level, and no one takes seriously the suggestion that any of these are superior to those of the London halls."—Eds., "B.J."]

### A WAVE OF ORTHOCHROMATISM.

To the Editors.

Sir,—In reference to your footnote to the report of my paper, whilst I am open to admit that Mr. Stevens' flower studies are beautiful, I would point out that so far as I have seen of them they are composed of white blooms, and even these would, I think, have been much improved had Mr. Stevens been able to use colour-sensitive plates with properly adjusted filters. One can take white flowers, obtain the texture which is of so much importance in this work upon ordinary plates, and at the same time lose all the value of the green stem. Again, was not Mr. Stevens about the only worker who did this class of work in those days, an exception which proves the rule?—Yours very faithfully,

ERNEST HUMAN.

Park, June 2, 1907.

To the Editors.

Sir,—The points, as I understood, raised by Mr. Salt, in your issue of the 10th ult., were:—Is it desirable or otherwise to use ortho plates and filters? Whether an ortho plate under every condition without filter will do all that an ordinary plate is capable of. Nos. 2 and 3 of the landscapes I sent you I think proved that under those conditions the ortho and filter gave all that was possible, and no process effect. The No. 1 seascape I do not think has been a whit better on ortho, and it could not possibly be taken with a filter from a moving steamer in 90th of a

second, and shall be glad with your comment on them, as they are of the same subject taken simultaneously, both on ortho and on one with and one without a filter. There is a variety of results in the flowers, with differing shades of green in the leaves, etc. I have numbered these 1 and 2, and should like to know which you consider the best rendering of the whole subject. I have already given my experience of the ortho plates for landscape work without a screen, and it seems to agree with that of your correspondent, "A Colour Painter." I very much question if the filter does not always cause some loss of atmosphere, which is, of course, of little importance. Still, I am open to instruction.

PROFESSIONAL.

There is very little difference between the two photographs, but I should judge No. 1 to be a slightly better rendering.—Eds.,

### DARK-ROOM ANÆMIA.

To the Editors.

Sir,—I notice your article re chronic anæmia caused by dark-room work. You say that you have not come across any case like mine. I am sorry to say that I am exactly such a case, having been in two good situations for that very reason. I have 15 years' experience as enlarger, and experience in general dark-room work, but had to give it up by my doctor's orders, and took as a printer in P.O.P., C.C., platinum, etc., in the open air, trying to regain my health that way. Whenever I have any dark-room work to do I do it in the evening, as I develop films, etc., for 4 or 5 hours. I think four to six hours a day quite long enough for a dark-room worker, and it should be paid much better, as it is in the system when middle age comes on. I refer, of course, to those who spend their whole time as enlargers and dark-room workers.—Yours faithfully,

G. GILKES.

1, The Villas, Feltham, Middlesex.

## Answers to Correspondents.

- \*<sup>a</sup> All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \*<sup>b</sup> Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \*<sup>c</sup> Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \*<sup>d</sup> For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- W. W. Sanderson, 8, Kensington Terrace, Newcastle-on-Tyne. Photograph of Professor Hubert von Herkomer.
- E. Wilson, 18, Gloucester Road, Boscombe, Hants. Photograph of H.M.S. "Dreadnought."
- F. Sadler, 41, Ridley Street, Birkenhead. Five Photographs:—A View of Lake in Birkenhead Park. A View in Bladon Woods, Birkenhead. The Boat-house in Birkenhead Park. The Birkenhead Town Hall. The Congregational Church in Oxton Road, Birkenhead.
- S. H. Greenway, 27, Abington Street, Northampton. Photograph of the Northampton County Cricket Club.
- W. H. Page, The Grove Studio, Ventnor. Photograph of the Rev. B. W. Colquhoun, Vicar of Ventnor.
- F. A. Cooper, 32, Hamilton Square, Birkenhead, Cheshire. Five Photographs of John Bull.

R. R.—The Japanese papers are:—"Shacin Shimo," 4, 10 ch. St. Kobikicho; "Tokio and Shasin Showa," 18, Neihome Minami Sukumacho, Shiba, Tokio; but we cannot say which is the better for your purpose.

OWNERSHIP OF NEGATIVE.—A gentleman instructed me to photograph a group, and ordered a number of copies from me. Now he wants to claim the negative as being his property, and will only pay a trifle for it. Being an amateur photographer he intends taking further prints from it, and so save the expense of giving me the order. Now what I want to know is, does the negative belong to him or me?—ENQUIRER.

The negative must remain in your custody unless you specially contracted for its delivery at the time of taking the order. Prints may be taken from it only at the order of your customer.

GLAZING P.O.P.—Is there any known method by which to glaze P.O.P. prints after same are trimmed and mounted without injuring the mounts? If so, I should be glad to know, as it would doubtless be very useful for postcards as well. Would you kindly describe the method as to how to apply and use same, and where to obtain it?—M. G.

Prints may be given a higher surface with a hot burnisher, such as supplied by any of the large dealers for regular professional use. Messrs. Fallowfield, for example, will send you particulars.

SELF-TONING.—1. Having noticed that my gaslight prints showed signs of fading in a very short time, I consulted the representative of the firm from whom I obtained the paper. He said the cause of my trouble was the way I mixed the acid fixer; the chemicals should not be mixed with warm water, as that caused sulphur to form in the bath. In your article in this week's "B.J." you advise the use of warm water in mixing the acid fixer for bromide paper. Will you kindly give me a reliable way of mixing the acid fixer, and also what to avoid which is likely to affect the permanence of gaslight and bromide prints? 2. Also can you tell me what is the cause of P.O.P.s which have been toned to a rich chocolate after a few months or years, turning to a warm yellow in the shadows? Is it due to insufficient fixing, or is it due to something in the toning? The sulphocyanide bath was the one used in all the cases I have noticed. 3. Do you consider self-toning paper sufficiently permanent to warrant a good-class professional photographer using it?

1. If the chemicals are mixed in the correct order—that is, the hypo and sulphite first, and then the acid and alum, there is no harm in using warm water. But on no account should acid and alum be mixed with the hypo until the sulphite has dissolved. 2. We cannot say we have any experience of the defect occurring

after so long an interval. We have known of a somewhat similar effect being produced immediately with sulphocyanide baths. We are inclined to attribute it to lack of ripening of the bath. 3. If a sufficient time is given for fixing, i.e., such a time and strength of hypo as would ordinarily be thought necessary for P.O.P.

- D. F. H.—You have done exceedingly well under the conditions you mention, but teaching yourself entirely from a book—however good—is slow work. Still, read all you can, see all you can, and take every good hint that is given from practical workers. Your being in the country is no bar to your learning; postal lessons are quite effective, and would advance you greatly. You should certainly persevere, for you have a delicate touch and colour sense, but no particular strength in modelling, and your shadows are much too cold in tone, especially the flesh shadows. Your background is nearly all the same colour; break it up with variety of tints, it is too monotonous. Soften your sharp edges more, and in a very short time with careful study you will undoubtedly make a considerable advance.

RETOUCHING AND OPERATING (Reply to "Anxious.")—Your work in both branches is weak but promising—very promising as far as the retouching is concerned, but you want guidance. The female portrait presents better results for retouching and operating than the man, but your lighting is very defective, and you really require practical advice in both arts. With regard to your retouching, use a finer and longer point, and try to get your effect with less labour and lead. Grade into the half-tones and feature lines, with lighter weight on the pencil, for variety in touch is everything if you wish to avoid a merely mechanical and studied stipple. Use a proper background—they are very cheap—when taking sitters, and your work will then present a more professional appearance. We make it a rule never to suggest the probable salary a correspondent may secure, as we have no wish to set a standard rate. Make the best terms you can either by answering advertisements or advertising in our columns.

SHORT EXPOSURES.—Can you inform me as to how a photograph of an object is taken in 1-1,000th part of a second? Many advertisements state that the camera is fitted with a shutter working up to 1-1,200th of a second. I have two cameras fitted with focal-plane shutters and first-class lenses—one lens works at  $f/4.5$ , the other at  $f/5.8$ , and have never been able to get a good negative, exposing to 1-200th of a second. I have a list of plate speeds supplied with the Wynne meter; the fastest speed is given at  $f/1.11$ . If it takes the sensitive paper two seconds to change to the index colour, working at  $f/7$ , the exposure is about 1-128th of a second; at  $f/5$  the exposure would be about 1-256. It is very seldom that the sensitive paper will change to the index colour in two seconds, and I find that I have to give about one and half times the exposure given by the meter to get a good result; therefore I am at a loss to know how photographs are taken in 1-1,000th part of a second as advertised, and it seems to me that a shutter working less than under 1,300th of a second is a useless attachment working to less than under that amount.—W. T. WOOD.

It is not claimed that such short exposures will give properly exposed negatives, and they are possible at all only under the very best conditions of light, and with a large aperture. But you should have no difficulty in getting fairly well-exposed negatives at  $f/4.5$  in 1-1,000th second, using a pyro-metol or rodinal developer, or any other developer about half or third strength. We advise you to make test exposures, neglecting the meter indications. Though the results will not be fully exposed they will no doubt be equal to the average work at such short exposures.

- S. E.—We do not quite understand how prints bleached in such a strong solution can intensify. This is quite contrary to our experience and that recorded by Mr. Douglas Carnegie in the "Almanac," p. 679. We think that the real trouble lies in the shadows apparently blocking up on drying, as one of the prints sent us, when wetted, was extremely rich and juicy in those parts, though when dry quite devoid of detail. The best strength for the bleach is about 1 oz. of bromide,  $\frac{3}{4}$  of ferricyanide, to water 30 oz., and the sulphide should be about 100 grains to 20 oz. of water. If there is actual intensification then the only remedy is to expose fully and develop for a

shorter time, so as to obtain a less intense print at first, then bleach. But as we have stated above, we doubt the intensification, and would suggest that wetting one of the prints will prove to our correspondent that we are right in our advice as to the print blocking up on drying; and if so, pain the print with the varnish recommended on p. 811 of the "Almanac" will improve matters. It is needless to state if the prints are not thoroughly bleached there would be intensification, for one would have the brown sulphide deposited on the black silver image. A hasty test of one of the prints sent rather points to this.

- J. A. AND SON.—Alfred Underhill, 32, Clarendon Road, Croydon, Surrey.

LENS QUERY.—I shall esteem it a favour if you will kindly give me a little information about a C.D.V. portrait lens I have, marked as follows: "No. 556. Vallantin Optin. de 1840 à 1845. Contrme. des Ateliers des MM. Lerebours, Paris." There are stops at all, neither a place for same, and I should like to know the aperture. Diameter of lenses 1 $\frac{1}{2}$  in., distance (inside) between front and back lens about 2 in.—LENS.

The lens is probably not a C.D.V., but the old quarter-plate lens, as it is not fitted with stops, which the C.D.V.'s usually have. It has evidently been made many years. If there is no fitted phragm between the glasses, the aperture is, of course, 1 $\frac{1}{2}$  in. If there is one, you can easily measure its aperture, which will give you practically the effective aperture of the instrument. Vallantin's lenses, at one time, were in fair repute, and so were Lerebours'.

- H. H. O. F.—We will take the matter up and report.

WHITE PAINT, ETC.—1. I shall be glad if you can give me information how to make white paint to block mounts. 2. I have iron dishes, 30 x 25, they seem to rust, can you give me remedy.—BOUDON.

1. The white paint used is, we believe, merely Chinese varnish or oxide of zinc rubbed up with gum water or dextrine solution. 2. Dry the dishes thoroughly after cleaning off all rust with emery powder, and then give them a coat of Brunswick black or one of the numerous bath enamels obtainable at any oil merchant, allow to dry thoroughly, preferably near a fire, and then give a second and third coat in the same way.

AXIS.—There is a French patent (No. 339,216) of the Neue Photographische Gesellschaft for a similar process. Bromide plates are bleached in solutions of copper salt, containing ammonia or other chloride. You will find a brief note in the current "Almanac," p. 792.

- A. MACBEAN.—The Lumière N. A. Company, 4, Bloomsbury Street, London, W.C., can supply you.

WORKER.—Whole-plate is the best size. We can only refer you to the "Almanac" for the various cameras.

AMERZ.—Weak acetic acid.

E. P. C.—We can understand ink rubbing off, but it appears to be quite bleached the prints. We should advise you to change the brand.

ANXIOUS.—The print is a real photograph. It is an ordinary bromide, it seems to us. You say the hot water has had no effect, but evidently it has loosened the hardened film on the card.

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## The British Journal of Photography

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## SUMMARY.

of the present issue is devoted to the Reflex Exhibition, ens this day until July 6.

apparatus. On pages 442 to 451 will be found a review of atus now collected at the house of the "B.J." It supplies if none too lengthy, review of nearly all the reflex instru- present on the market

week's editorial the distinctive advantages of the reflex camera are dealt with, principally with the object of show- the perfection of the reflex system has come in time to give to hand-camera work under the more difficult conditions ich both the pictorial worker as well as the Press photo- s compelled to operate. (P. 438.)

lex camera has the strong advocacy of Mr. Gordon Chase oses of studio portraiture, Mr. Chase uses it in a special evised by himself and explained on page 439. The same used for "at home" portraiture.

Thomas contributes some notes on the very practical hich led him to adopt the reflex principle for his pictorial hief among them was the ability to focus accurately with rture lens and to use a colour-screen. (P. 440.)

machy is now exhibiting a collection of his oil prints at the otographic Society, 66, Russell Square. A review of some l prints and a critique of M. Demachy's recent writings on f photography among the arts appear on page 451.

death is recorded of Herr Ottomar Anschutz. (P. 455.)

the patents of the week is one by Viscount Maitland for ng the accurate trimming of prints. (P. 453.)

ew introductions which we review are the "Airastyle" (air- d a spirit-sensitiser for carbon tissue of the Autotype Com- P. 453.)

## EX CATHEDRA.

### The Reflex Exhibition.

By the time these lines appear the exhibition of reflex cameras and photographs at the house of the "B.J." will have been opened, and may be visited by the public until July 6. A large proportion of our space this week is devoted to a description of the apparatus, not a few items of which, it is true, would need more lengthy reviews were they alone being dealt with. In describing, however, a number of cameras of the same general design, the only course to pursue is to emphasise the different features, otherwise the notices would become indescribably wearisome from repetition. For the three articles on reflex work which immediately follow "Ex Cathedra" we would ask a careful reading, as well as for two others by Mr. Arthur Marshall, F.R.P.S., and Mr. F. Martin Duncan, F.R.P.S., which we shall publish in next week's issue. The details of the makers' apparatus will also be found to contain notes by the way on reflex work of interest even to those who have not a particular camera in mind.

\* \* \*

### To Visitors.

To those who have some particular requirement in view in acquiring a reflex camera, or have set some definite limit to the money they are prepared to spend on an instrument, we would be allowed to offer a word of suggestion, namely, that they should carefully go through the descriptions in this issue, and on their visit ask to be shown the apparatus which most appeals to them. They may with advantage obtain also in the meantime the maker's circular, as in many cases there are accessories which space forbids us to enlarge upon, but which nevertheless affect one's opinion of the camera. The exhibition, which at the last moment has been reinforced by one or two cameras from houses not previously announced, is open daily from 10.30 to 4.30, and on Saturdays from 10.30 to 12.30. There is, of course, no charge for admission, but visitors are requested to inscribe their names and addresses in a book on entering. The actual apparatus is, of course, not for sale during the exhibition, and enquiries as to purchase of similar articles should be addressed to the respective firms.

\* \* \*

### Testing Shutter Speeds.

Mr. Arthur Payne describes, in the "Photographic Monthly" for June, what he claims to be a new practical method of testing shutter speeds. Briefly stated, the method depends on the comparison of the results obtained with a small aperture and an accurately timed longer exposure with those produced with a large aperture and what should be an equivalent shutter speed. Thus he points out that five seconds at  $f/64$  is equal to all practical intent to 1-15th second at  $f/8$ , hence if the shutter is correctly marked for 1-15th second, two plates exposed in these differing condi-

tions should give the same result. For fuller details the article should be consulted. This does not seem to us to be an altogether promising method, as the results depend on the visual comparison of two negatives exposed on natural scenes. If the results happen to differ materially simple inspection will give very little information with regard to the amount of the error in the shutter speed. If, however, the exposures be made in a series of graduated densities, it should be possible to estimate the error with a near approximation to accuracy. We suggest this variation of Mr. Payne's method as one well worth trial.

### The Treatment of Bichromate Sores.

\* \* \*

At a recent meeting of the New York section of the Society of Chemical Industry, Dr. Riederer, in dealing with the subject of bichromate poisoning, stated that the men employed in the chrome works were cured by being moved to the lead works. Obviously, the remedy is almost, if not quite, as bad as the disease, as lead poisoning can be easily set up. He suggested, therefore, another method, which consists of treating any sore with a 5 per cent. solution of sodium bisulphite. Nine months' experience of this method have proved very conclusively the efficacy of the treatment, and workers in the chrome plant are now provided with the bisulphite solution for washing purposes after work. The use of bisulphites or metabisulphites for destroying the traces of bichromate in various photographic printing processes is, of course, well known. The use of the same salts by those who are sensitive to bichromate will, if Dr. Riederer's statements are correct, completely obviate this trouble.

## REFLEX CAMERAS.

### I.

THE present exhibition of reflex cameras at our offices must surely be regarded as a demonstration of the attraction of this type of camera for a number of makers, and of its adoption by workers who are among the leaders in different branches of photography. The greater attention which the reflex camera has received of late is no doubt the result of the high perfection to which the instrument has been brought by makers who were pioneers in its introduction, as well as of the clearer recognition by photographers of the advantages of the mirror method of full-size focussing. These latter, we find, are not so well understood as they might be, and we propose, therefore, in this first article of a short series, to consider briefly the aid which the modern reflex grants to hand-camera photography.

Before we say anything of the more important advantages of the reflex camera, we should mention one point which bears indirectly only on the quality of hand-camera work done with it, namely, the impossibility of inadvertently making an "exposure" with the lens covered—an act of absentmindedness or haste of which the user of an ordinary finder camera is bound to be occasionally guilty. The mirror automatically puts things right in this respect at the start, and leaves the user to look only after the setting of the shutter and the uncovering of the plate or film. In certain makes of camera this check upon the user is carried further by the provision of a blocking mechanism whereby the shutter cannot be re-wound after an exposure until the mirror has been depressed. Thus, while this feature of the reflex is not a positive facility, it is a valuable auxiliary, as it leaves the hand-camera user with one (or two) fewer things to think about, with the result of a higher percentage of effective exposures.

But it is in the ease of focussing and arranging the subject on the ground glass that the power of the reflex is

most fully in evidence. One might almost have assumed that there was no need to emphasise these properties of reflex type of camera, yet, so hard do custom and prejudice die, that it is not uncommon to meet hand-camera workers who will not concede any advantage to the size focussing over the methods of scale focussing on judgment of the distance of the subject. Granted after a somewhat lengthy course of practice a high degree of skill in judging distance is attained, it is extremely rare to find it very wide in its scope; it is usually confined to a certain class of subject, and as soon as a subject in different surroundings is approached the power of accurate judgment of distance falls off, and may leave the worker astray. We believe this fact is generally recognised by those familiar with hand-camera workers. Walter Kilbey, who writes after a long experience of hand-camera work, says on this point in "Advanced Hand-Camera Work":—"The man who has been used to working in the streets, and has acquired his knowledge of distances there, will be rather at a loss when working in an unconfined situation such as an athletic sports ground and will be very liable to judge distance incorrectly for this reason: that a given distance in a long street appears greater than in the open field, and *vice-versa*."

Then again, although such skill in distance-judging can be attained as to ensure fairly certain work at the average distances of 10, 15, and more feet up to an infinity of 100 ft. in the case of a lens of about 5 in. working at  $f/16$  power attainable by ordinary beings is totally insufficient in the two distinct conditions of (a) photographing objects nearer than 6 ft., and (b) using a lens of large aperture, extra-long focus. The first of these two conditions is not common as the second, but is nevertheless no imaginary case. In the ordinary run of tourist photography, interesting objects, tablets, bits of ornament, etc., are met with which are beyond the powers of the ordinary hand-camera, unless converted for the nonce into a microscope, but yield immediately to the reflex.

In regard to the tax which the modern large aperture lens lays on the skill of the hand-camera worker, it will be remembered that the judgment of distance must be increasingly exact as the lens aperture is increased, or as the greater focal length employed. A glance at any table of "depth of focus" will show the narrower limits within which accurate focus is obtained, and yet—and here is the point of importance—modern hand-camera work involves both these limiting factors. Our impetuous aesthetic standards will have none of the semi-exotic negatives which passed muster in the past (large aperture or of the rather wide angle given by the lens of "normal" focus (long focus). These are the views of the tourists; the non-artistic public is even more exacting in its demands for photographs of events, social, sports, and what not, the photography of which necessitates extremes in the use of large aperture and long focus lenses. The only way to successful work in these conditions, we repeat, is in the reflex camera. To give but one example of the everyday application of the methods referred to, let us quote Mr. Arthur Marshall in "The Vagabonds in Friesland," wherein he describes his method of tourist photography at the rate of about fifty pictures per day with a reflex camera. Writing of the 5-in. lens he says:—"A useful though costly accessory to a camera is a first-class 12-in. focus lens working at  $f/6$ . Many of the pictures in this book were taken with this lens. Of course, the single combination of the small lens gives an image as large, but the rapidity of the larger lens is useful in cases where the other would be useless." Mr. W. Thomas, in the article on another method for the sake of orthochromatic rendering, possible with a hand-camera only under the above conditions, de-



ival at the same method of work. Neither of these workers, we venture to say, would expect a reasonable percentage of good negatives in any hand-camera of the reflex type.

There is still one other point which we must not omit—we postpone some notes on reflex cameras them- until next week, and that is the perfect certainty the reflex imparts to the use of a rising front on a camera. No other device for the purpose of showing a picture obtained on the plate when the lens is closed and there have been some elaborate ones—can be

compared for certainty and simplicity with the reflex camera. Even as to this point we have sometimes been told that a hand-camera is none the worse for the lack of a rising front. You tilt the camera, and in making a reproduced negative, enlargement, or lantern-slide, you correct the convergence of the lines. Apart from the trouble of these operations, there is great danger of dwarfing the subject, even though the lines are parallelised, a fact which does not appear to be generally recognised even by champions of the reduction of the hand-camera to the simplest elements.

## THE VALUE OF THE REFLEX CAMERA IN PROFESSIONAL PORTRAITURE.

The following article, Mr. Gordon Chase, the well-known professional photographer, of Tunbridge Wells, describes his own use of the reflex camera for studio portraiture. Mr. Chase employs an adaptation which allows of silent, short time exposures, and speaks appreciatively of the method.—Eds. "B.J."]

RELY no photographer has ever spent a day's work in a studio, occupied in his regular business of portraiture, without having brought before him the advantage which would be to his work were some ready means at his disposal for the precise effect obtained upon his ground-glass at the moment of exposure. It is perfectly true that in the ordinary course of posing a sitter almost any amount of facial movements is permissible, and even the pose itself may be modified

that I have installed a camera of this type in my own studio for any children portraiture that comes along. The stand, illustrated on this page, I made myself from my own design. The camera is a half-plate Adams "Videx" pure and simple; but to avoid



The Author's Camera Stand for Reflex Studio Portraiture.

at the negative suffering from any lack of sharpness. Yet, the limits within which a sitter must be kept in order to secure sharpness in the negative are comparatively narrow, and it is no easy matter for a photographer to avail himself of a variety of poses, particularly in the case of children, if they are possible. For some time past I have been experimenting with a reflex camera for studio use, inasmuch as an instrument of this description obviously solves the problem which I have stated above. The results have been so far satisfactory



The Camera in Use.

the sound made whenever the focal-plane opens and shuts at time of exposure I decided to remove sky-shade and fix on a pneumatic shutter, which, beside being a shade for instantaneous work, would silently expose all time exposures. The focal-plane makes just the same sound at instantaneous, but it is

over before it affects the sitter. When using it for time the focal-plane shutter is set at time, the blind wound up half-way to leave opening opposite plate and velvet shutter closed. The "antinous" release is pressed and the mirror rises without affecting the focal-plane blind, and leaves the plate ready for exposing. At this stage the camera is the same as an ordinary one being exposed by ball and tube, and any exposure can be given.

I might add, for any "At Home" portraiture I take the "Videx," no tripod, stand it on a small table, and use it as a reflex, only using the pneumatic silent shutter instead of the focal-plane, unless out of doors, in which case I use it at "instantaneous." The lens is a rapid "Uno-focal" anastigmat, working at  $f/4.5$ .

The pictures which are included in the collection of reflex camera work at the *British Journal* offices have the backgrounds purposely selected, ranging from a red plain one, dull black window accessory, to a plain cream one, in order to give an idea of the difference which results in the negatives; but it will be seen that they all come up with sufficient detail and exposure.

If I were asked what were the chief advantages of the reflex camera from the professional photographer's point of view I should say, first, and most important of all, rapidity. One keeps one's hand on the focussing knob and the other holds the "antinous" release, and I cannot imagine a more rapid transition from a fleeting pose or expression to its fixation on the photographic plate.

Secondly, portability, compared with the ordinary studio model. The reflex is certainly very much lighter and more convenient, and it disposes of that bane of the professional studio, the focussing cloth.

Thirdly, but very little experience is needed to convince the user of the reflex camera of the enormous facility which it affords as regards focussing. Scarcely a single child sitter comes to one's studio but what some adjustment of the plate is necessary before the final exposure is made. In the case of the ordinary camera three movements are necessary, in the case of the reflex only a single adjustment of the focussing pinion.

As arranged in my own studio, there is one advantage in the reflex camera which certainly deserves mention, and that is the perpendicularity of all the lines in the picture; the camera is always kept vertical; there is no swing back, and there is no necessity to stop down the lens. As arranged also in the draw-

ing, the camera can be placed within sixteen inches of ground, a great advantage in the case of little children who taking portraits showing their legs and feet. Even if an ordinary studio camera be placed at a low position, the photographer finds considerable inconvenience in focussing upon the vertical so, whereas when working with a reflex the position is the most convenient conceivable.

However, in all expedients for simplifying the photographic work the proof of the pudding is in the eating, and it shows therefore interest any of those whose inclination is towards



A Specimen of Studio Portraiture obtained by the Reflex Method. This portrait, with a number of others, is shown in the Reflex Exhibition.

reflex camera for their own work if I say that using a changing box containing twelve plates, one need not leave the studio during sitting—it is generally whilst slides are being changed the best poses are noticed—and can generally rely upon being able to submit about ten proofs for selection without throwing out first the usual percentage of "moves," which cannot be avoided in ordinary practice with the flap shutter. The sensation of certainty, and the absence of that "faint" feeling on a hot summer day after an interview with a strong-minded child or a group of animals, are recommendations of the reflex which need no emphasis to professional photographers.

GORDON CHASE.

## WHY I USE REFLEX CAMERAS.

[In the following article, Mr. W. Thomas, whose confessions in matters of practice concerning pictorial work are deserving of a careful attention, gives his reasons for adopting the reflex type of camera for securing negatives which are satisfactory not only as regards composition, but in the important respects of full exposure and good tone-rendering.—Eds. "B.J."]

AMONG my photographic treasures the negative from which the small illustration to these notes was made ranks certainly as one, for it represents an incident which formed the turning point in my method of working when dealing with outdoor subjects.

On the introduction of flat-field lenses it was not long before opticians began to open out the apertures of small lenses especially intended for use on hand-cameras, and among the first so to do in this country were Messrs. Dallmeyer, who, some years ago, experimented with the intention of producing lenses working at  $f/4$ , and able to cover a quarter-plate whilst giving a perfectly illuminated image with no falling away in quality or definition towards the edges of the plate. When their investigations had resulted in a work-

ing model, the late Mr. Thomas R. Dallmeyer asked me to put it to practical trial, for which purpose one of the new lenses formed part of my working kit on a sketching and photographic trip up the Yorkshire coast, where I happened to be especially concerned in obtaining a series of photographic illustrations of the herring fishery.

I had looked many times with envy at the fish sales which took place inside the covered sheds along the fish pier, and on more than one occasion had hazarded an exposure, with but little success. Movements of the people could only be caught and suggested by means of brief shutter exposures; and even the most sensitive plate, with a lens aperture of  $f/8$ , so far as my personal experience went, had proved inadequate to give fully exposed negatives.



ing fitted the new lens on a small camera, I wandered to the harbour. A number of test exposures were made working at its full opening,  $f/4$ . Then, going on the to make a few colour notes *inside* one of the sheds, some nanced to be brought in, and presently to be sold by t. It seemed a fitting opportunity to expose the last which was done. The illustration shows the result, al data being as follows:—Lens aperture,  $f/4.5$ ; plate, rial Special Rapid"; focal plane shutter, speed 1-25th of a ; developer, metol-hydroquinone.

ing allowances for loss of quality through mechanical and rapid machine printing in a newspaper, there yet should air amount of detail shown in the shaded parts of build- hich, by the way, had very dark wooden roof and walls) and modelling suggested on the dark side of each figure group; at least, if it be not so, it will be entirely the of the blockmaker or printer, for in the original negative rints the whole appears fully exposed and well graded.

### The Road to Orthochromatic Hand Camera Photography.

developing the first batch of plates exposed the results a surprise, and opened up prospects of work hitherto one had been unable successfully to with when giving shutter exposures. Especially did large lens aperture promise well in connection the use of orthochromatic plates and colour screens, mise subsequent experience has fully borne out; for now, with increased sensitiveness of colour-corrected plates, and as stained with dyes, which cut out a large proportion of ore active light rays, while allowing most of the others ss only slightly obstructed, we are able to obtain all the t of colour-plate and screen which hitherto only those stand cameras and giving exposures from one second rds enjoyed.

de-aperture lenses not only pass a flood of light to our s, but also open out a wide range of work for users and cameras; but these immense advantages are accompanied e serious trouble arising from difficulty of focussing with ent accuracy when using the ordinary distance scale. It e done—is daily done; but when a camera is employed y for purposes connected with pictorial work, it becomes, y the least, desirable to eliminate any uncertainty at the critical stage—that of arranging the scene and giving that amount of definiteness to one or more objects which necessary. This may best be done when it is possible to r the scene as a whole, and to see just how it becomes reduced u to the small size it will occupy on the sensitive plate; it is this opportunity of so doing which forms one of the ggest claims of the reflex form of camera, showing, as it (or should) a perfectly true and brilliantly lit replica in ture of the original scene or subject, allowing it to be ted, and alterations made either in placing of the sub- or altering focus from one degree of sharpness to another, atuating or repressing, and all right up to the moment of ing the exposure, with the certain knowledge that just as appeared on the screen so will it be when the plate after

exposure is developed. This, however, is only possible provided the camera is truly adjusted—if register of the image as thrown on the ground-glass screen is the same as when it is projected on to the sensitive plate or film.

Reflex cameras are not toys; they need during construction careful workmanship, and that of a skilled nature, and hence cannot be produced at so low a cost as ordinary cameras; but when they are wanted for important work, any cost they may entail, providing it be within reasonable limits, and not mere fancy extravagance of idle display or unnecessary features, is



worth paying; and however many pounds the cost of a camera may run to, an effective instrument will prove ample return. Once a really reliable camera of this style, in conjunction with a wide-aperture lens has been handled, few, I fancy will ever care to return to a more or less blind method of working and trusting to guess-work in focussing. Such has been my own experience when the reflex camera is what it pretends to be; but if it should be improperly or carelessly constructed, then woe betide the wretched owners, for failure—wholesale failure—is bound to be their portion.

W. THOMAS.

PRESENTATION.—At the annual general meeting of the Northern technic Camera Club, the students of the Photography Classes (ion 1906-07) showed their appreciation of the instruction given hem and of their teacher by presenting Mr. W. T. Wilkinson with mpanion set of pipes, pouch, and silver vesta box suitably ared.

HE "BLUE BOOK," the year book of the Scottish Photographic ection, for 1907, is to hand, with abundance of evidence as to ctivity and energy of the body it represents. The book itself enlarged by twelve pages, and, owing to the increasing number

of Associates, it has been necessary to print 3,500 copies of the pre- sent issue. Amongst other features, it contains a list of federated societies, the rules of the Federation, list of competitions, calendar of the chief photographic events of the year, a list of photographic experts in various branches of photography who will give advice to any Associate applying to them, and a gazetteer of places of photo- graphic interest in Scotland, together with the names and addresses of local reporters and dark-rooms. The book being only of waistcoat pocket size is very convenient to carry about. The secretary of the Federation is Mr. John B. MacLachlan, Blairgowrie.

## THE EXHIBITION OF REFLEX CAMERAS.

THE collection of photographs which, in the words of the catalogue, "illustrate the facilities" of reflex cameras, is obviously miscellaneous in character, and it was inevitable and desirable that it should be so if the exhibition is to carry out, as we believe it does, our intention to make it as broad as possible; in other words, to allow it to make itself, within certain limits of space and technical interest. It will be found, for example, to contain, at one end of the scale, some of Mr. Percy Lewis's beautiful and oft-medalled pictures, and at another the highly factual records of jumping horses and athletic sports. Yet both undoubtedly "illustrate the facilities" of the type of camera, some thirty examples of which are brought together. It is perfectly true that the triumph of the most perfect reflex *may* be equalled by a camera in which the focussing is by judgment, not by eye, but the accent is on the "may," and the difference lies in the percentage of occasions on which the reflex succeeds compared with that of its competitor, that is in the destruction of the handicap under which the less skilful undertake their work. Reference will be made next week to the pictorial aspect of some of the photographs, and we must now content ourselves with pointing out, more especially for the benefit of the less experienced visitor, one or two instances of photography which by the ordinary methods is difficult work, but is made easier by the adoption of the reflex principle. We refer to the same matter in the editorial on another page, but the question will bear repetition in relation to concrete examples. Objects in very rapid motion present no difficulty as regards their sharp rendering on a plate—apart from full exposure—if they are a good distance away, or if, with a very fast shutter, a moderate aperture of lens

is employed. But when they are close, or if a large aperture be used (to secure full exposure), the difficulty of securing them when they are sharply focussed increases enormously. The such photographs as "Feeder and Striker at 'Cat,'" (No. 43), "Bowling at the Nets" (No. 44), by the Rev. H. Burton, the of sporting subjects shown by the Kodak Company, or the "Tennis" of Messrs. Watson (No. 67), are of a kind which many may be exposed to get one print for exhibition, though the need not be better in one case than the other. Actually state of plate expenditure alongside prints obtained would be the first of the value of a reflex camera, and one under which we hope it would show up well.

To take an entirely different class of work, "Going Off to the Gun" (No. 26), by W. Thomas, is an enlargement from one single negative taken through a yellow screen with a shutter exposure. The rendering of the sky at the same time as of the dark red sails of the fishing boats is evidence of its method of production, the essence of which was the use of a large aperture lens on a reflex camera. The figure study, "Bother the Children" (No. 13), also by W. Thomas, is a similar instance, this time, not of the use of orthographic rendering, but of the need of the large aperture and of sharply focussing when working in dark places. Cognate difficulties will no doubt have been experienced by our readers, and a study of the methods of others, side by side with the actual apparatus itself, proves of service to the photographers desirous of making the best use of their experience and of advancing the standard of photography, one of our aims in planning the exhibition was accomplished.

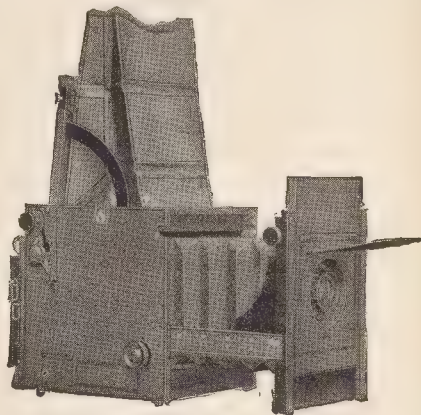
### A REVIEW OF THE APPARATUS.

NOTE BY REVIEWER.—The task of describing the many different instruments collected in the exhibition is one which is rendered difficult by the very diversity of the means taken to obtain the common end, as well as by the limits of space, if the desirable course of assembling the reviews of all in one issue is to be followed. Fortunately, many of the cameras specified below were well known to me; some had been in regular and appreciated use, whilst others were seen for the first time only a day or two ago. Yet while the method of rapid review has its opportunities for error, it has also the advantage of assisting the reviewer in seizing on the points peculiar to the different instruments, the result of which is, it is hoped, apparent in the pages which follow and have, it should be stated, greatly exceeded the number originally thought sufficient for the purpose.—G. E. B.

#### Adams and Co.

OF the "Videx" of Messrs. Adams and Co. a long article might be written without exhausting the many excellent features of this widely-used instrument. Messrs. Adams have long been continuously at work upon hand-camera construction, and it is not too much to say that the "Videx" represents a degree of perfection of design beyond which it would seem impossible to go. In the "Videx" the focussing and the shutter release are placed on the right and left of the camera respectively, an arrangement which the makers put in the very forefront of reflex camera work on account of the facility which it offers for focussing a moving near object right up to the instant of exposure. We shall refer to this question in a leading article next week, but we may mention here the very great favour extended to this system by a press photographer with whom we have discussed the relative advantages of such a system, and that of focussing on a given distance, and then waiting for a figure or other moving object to come into focus. The experience of our friend was absolutely in favour of the constant focussing up to the instant of exposure, or perhaps we more correctly describe his attitude if we say that he regarded the ability to do so when necessary as an essential feature of a reflex instrument, and we know that in his case and in that of others employing the same system, the manipulation of the focussing pinion with the object of keeping the subject in sharp focus has become a matter of habit. The "Videx" is, of course, a double extension instrument, the longest extension from lens panel to plate being 11½ inches (quarter-plate). The extension bars give a very rigid support to the front. The rising and falling front is likewise actuated by rack and pinion, and works with all the ease which such a movement should have to be of real comfort in practical work. In addition to the rise and fall, the "Videx" possesses the unique feature of a swing front, which not only tilts the lens upwards or downwards, but automatically brings it back to the position of "squareness" to the

plate, the whole process dispensing with supervision by the eye of the operator, and being done by touch. The swinging panel is reversible, and may be used the other way of the plate, although the reasons for it in this latter position are not so numerous as in the former, for, as a little consideration will show, the very common instance

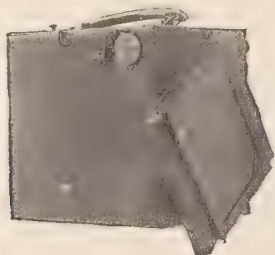


which a subject such as a procession or a crowd of people is being photographed from a standpoint above them—often the only one a press photographer can get—the use of the swing front will enable the photographer to bring into focus both foreground and distant even with the lens at the large aperture of  $f/4.5$ . The movement is an "extra" to the "Videx," but one which a press photographer



cular and many an amateur worker will find of the greatest use.

The lens panel is hinged so that the back of the lens is instantly visible for cleaning, and the same operation gives access to the mirror, which can thus be dusted in a few moments before commencing work. The lens, too, is well sunk into the front, a point of great importance when using anastigmats of large aperture, the access of extraneous light to which must be prevented as much as possible, or at least easy to obtain veiled negatives. The same applies to almost all lenses when working against the light. A lens hood is also provided to the same end, and is used also to cover the lens entirely. Coming to the shutter, the "Videx" has all the advantages of other cameras, of rapid adjustments and of alterations to the speed whilst the shutter is set, and the plate remains uncovered. Moreover, the shutter alone provides for time exposures instead, as is usually done, of raising the mirror of the camera for commencing the exposure after setting the shutter open, and closing by releasing the shutter. The difference is perhaps not of the greatest importance, when, as in the "Videx," the mirror rises without tremor, but it may be somewhat convenient to make time exposures altogether with the shutter.



What is to our thinking the great virtue of the "Videx" construction is the very rapid change from instantaneous to time, necessitating only the turning of the "T. and I." disc, and the setting of the blind aperture to "T.," a most convenient and workmanlike device.

The range of speeds in the quarter-plate size is from 1-8th to 1-1,000th of a second, and are all obtained by altering only the width of the aperture in the blind. This is done by simply pulling out the winding lever on the right and pressing it backwards or forwards until the desired speed mark on the dial on left comes opposite to the pointer.

A fine adjustment can be made at the instant before exposure. The mirror and the means for the examination of the image are very easily looked after in the "Videx." The former is well balanced, and its motion on release is, as we have just stated, marvellously gentle. The camera is very efficient and comfortable 8 in. in height is employed, and is fitted with self-erecting springs, and fitting very comfortably around the eyes. When out of use it folds in under hinged portion of the camera top, the handle on which affords a very convenient hold of the camera.

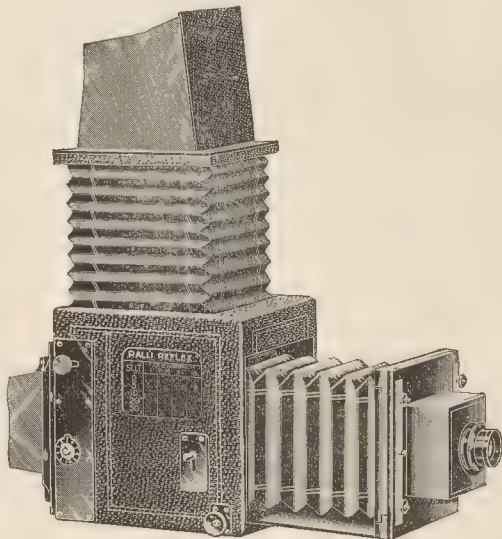
The "Videx" is fitted with revolving back, changing the plate, all ready for exposure, from horizontal to vertical, and vice versa, and like other movements of the camera is contrived in exceedingly compact space, and is made, for smoothness of working, of German silver.

The extension struts of every "Videx" will be found marked with numbers at which the "Adon" telephoto lens works when at this distance from the plate, this addition facilitating exposures when using this compact form of telephoto lens.

We have some lingering doubt as to whether we have not omitted to mention some minor facility of the "Videx," but we believe the provision of the small drawer (which springs open) in the base in which a light filter or other small accessory may be carried, completes the enumeration of the virtues of this modern instrument, as fully supplied, though Messrs. Adams also fit several accessories for investigation, chief among which is a mirror on the front, with which to photograph exactly at right angles to the line along which the instrument is pointed. The outside dimensions of the quarter-plate instrument are  $6\frac{1}{2} \times 7 \times 5\frac{1}{2}$ , and the price, without lens, but with three double slides, is £22.

### W. Butcher and Sons.

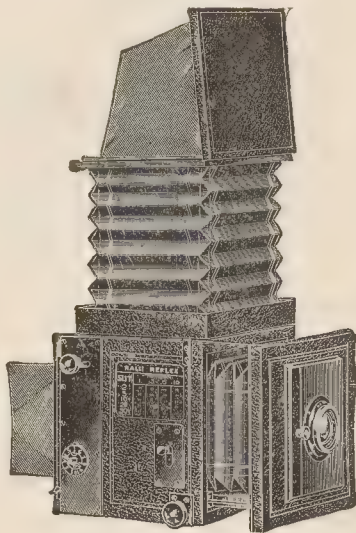
MESSRS. BUTCHER send a quarter-plate reflex which they style the "No. 6 Ralli," which presents one or two features out of the ordinary. The front carries a panel to which is fitted a box which, in turn, carries the lens. The panel may be placed with the box either behind or in front of it. The former arrangement recesses the lens and shields it from direct light; the latter affords an addition to



The No. 6 "Ralli."

the normal camera extension. The device, too, renders lens and mirror very accessible for cleaning.

The hood consists of an upper headpiece, supported on an upright bellows extension, and is adjustable to any height by a lazytongs strut inside it. The mirror, shutter, rotating back, and focussing



The No. 5 "Ralli."

arrangements are similar to those of other cameras, providing for the mirror being always down unless latched up, and giving instantaneous exposures up to 1-1,000th of a second, and time exposures without the mirror—i.e., with the shutter alone. The price of the camera without lens and with three slides is £8 8s.

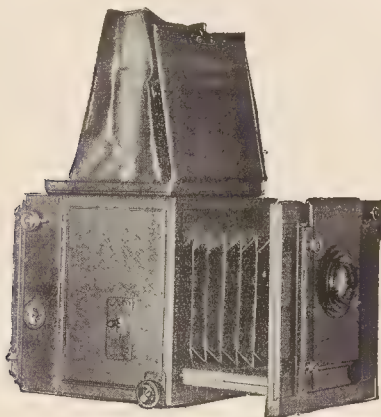
## THE NO. 5 RALLI.

This instrument, shown in half-plate size, is similar in general arrangement to the No. 6 of the same series, the chief point of difference being that the front is fitted with a rotating lens panel, which gives a rise of front either way of the plate. This adjustment is necessary when turning the camera on its side for vertical pictures. The lazytongs hood and other accessories are the same, and the price of the camera, with three slides and without lens, is £7 7s.

## City Sale and Exchange.

THE "Planex" camera of the City Sale and Exchange is notable for its long extension, which, in the quarter-plate size, is 12in. from lens-panel to plate. The extra extension is obtained simply by pulling out the front and then using the rack, for which latter a set screw is provided. The front has also good rise and cross movement. The camera has a self-erecting hood, rising to 5½in., and is fitted with detachable reversing back. The shutter arrangement provides for a range of exposures by means of alteration in the spring-tension of the blind aperture, a convenient short table for which on the camera gives speeds from 1/10th to 1/1000th of a second. The alteration in speed is made by winding the shutter until the slit is at the top of the plate, when, on pressing in the button on the left, the aperture can be opened to the full height of the plate necessary for time exposures, and, of course, to apertures for intermediate speeds. For this latter the two separate levers on the right hand are set to "T," when pressure on the release opens the shutter and a second pressure closes it, the movements taking place without the assistance of the mirror. The tension adjustment allows of the speed of the shutter being altered immediately before exposure to the extent of one-half.

A stereoscopic form of the "Planex" is made of slightly different design as regards the shutter mechanism. The alteration in the width of the slit in this and in the half-plate pattern before us is made by winding the blind until the bottom edge of the upper blind is level with the upper edge of the inner frame of the back. The lever on

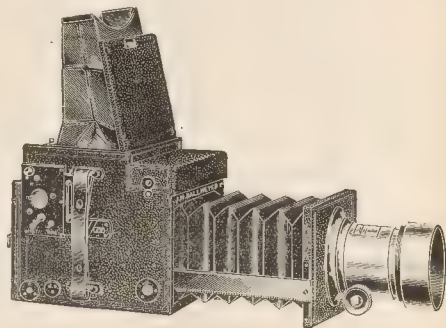


the left of the camera is then pushed to the top of its slit, and the shutter winding key can then be turned in either direction to give the width of slit shown on the indicator on the left. When the one required has been obtained the lever on the left is pushed to the bottom of the slot again, and the shutter can then be wound for exposure. The full width of the plate can be obtained and time exposures made by means of the two levers on the right of the camera. A feature of the "Planex" in both patterns is, that, unless specially locked in the up position, the mirror is always down, protecting the plate. The price of the quarter-plate "Planex," without lens, and with three slides, is 7 guineas; that of the stereoscopic "Planex," taking a plate 5½ x 3½, without lens, and with three double slides, is 9 guineas. The latter camera takes pictures suitable for postcard size.

## J. H. Dallmeyer, Limited.

UNDER the name of the "Naturalist's" camera, Messrs. Dallmeyer show a special model of the camera body made under Kershaw's

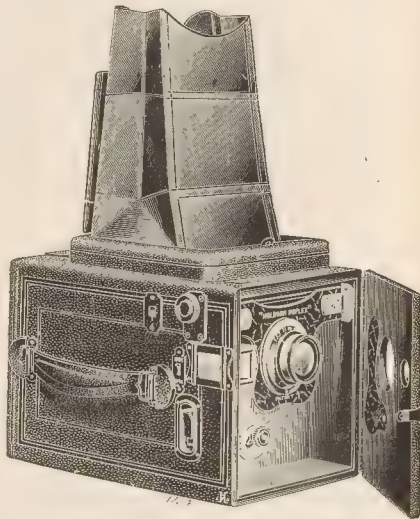
patent, which they have now adopted in place of the former design of instrument sold by them. The great feature of the camera is its long and rigid extension, fitting it for use with telephoto lens, one of which is shown in position, and will be found to bring the bar entrance of "The Old Bell" on the opposite side of Wells



Street from the "B.J." offices agreeably, if ineffectively, near. Such delicate work as telephotography the steadiest focussing is, of course, an important point, and Messrs. Dallmeyer provide an additional aid in this direction in the tightening screw which they provide for the focussing pinion, by the use of which as stiff a focussing movement as may be desired is obtained. Another convenience is a small drawer in which the focussing magnifiers, necessary when working the small apertures of the telephoto lens, may be kept. The apparatus thus provided is by no means exclusively a naturalist's camera, but a camera for various special branches of photography, where exact rigidity is of importance.

## Houghtons, Limited.

SEVERAL examples of the "Holborn" reflex cameras, made by Messrs. Houghtons, which are shown, represent a type of reflex camera with plane shutter, and are in other respects constructed on the lines



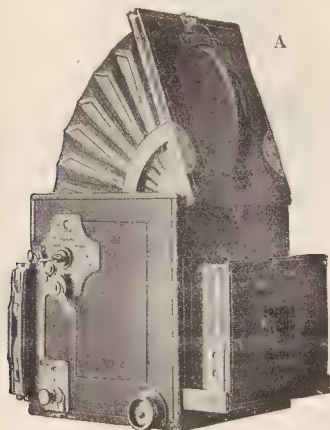
of the "Ilex" series of cameras. They have the "Ilex" magazine changer, a changing device which, as regards certainty, may be classed with the bag changer, and is superior to the latter in rapidity of action. This changer occupies the rear portion of the camera. The instruments are built to focus a horizontal picture with the mirror; an upright is focussed by scale and sighted in the finder. Mirror and shutter are set simultaneously by drawing down the



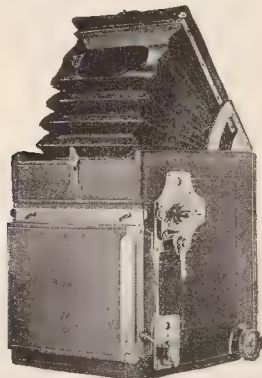
which projects from beneath the camera, and when set to "simultaneous" are both released by pressing down the lever on the right. When set to "T," the mirror may be released into the position and the shutter opened by one pressure and kept so released. The finder for vertical pictures is of the "brilliant" type. For the size of plates which they take the cameras are of small size, measuring, in quarter-plate,  $5\frac{1}{2} \times 6\frac{1}{2} \times 9$ , and they are substantially made and self-contained. The prices vary from £5 5s. to £10 10s., depending chiefly on the lens. The changer and shutter are practically identical in all, the latter giving exposures down to 1/1000 of a second.

#### Kodak, Limited.

The cameras, of quite different design, the "Auto-Graflex" and "Reflecting Premo," are shown by the Kodak Company. The "Auto-Graflex" is represented by a number of examples, claims



to be first. We may best commence by drawing attention to two characteristic features of the instrument, and then refer to the more ordinary movements. The focussing hood of the camera is shown in Fig. 1, which while it affords an unobstructed view of the ground glass, has its peculiar design in order to accommodate a mirror in the inside of the hoodboard, A. This, to allow



the camera being raised to the level of the eye and a picture taken, is often of service in cases when a view is secured over a fence, or on the many occasions of press photography. The notable features are the very quick wind, half a revolution, and the key required to set the shutter, and the easy way in which exposures are obtained, this latter and all other adjustments being made from the outside. As the shutter adjustment is rather out of the ordinary, we will briefly explain it. The shutter has five slits, the widest being the full width of the plate, the narrowest about 1/8 inch. Any one is brought into action by turning the winding key, the apertures being shown on an indicator as T (time) 1/2, 3/8, 1/4, and 1/8. The speed with a given slit is

altered by increasing or reducing the tension of the spring, the range, to take the - slit as an example, being from 1-160th to 1-25th of a second: with the 1/8 slit it is from 1-1,000th to 1-175th, so that the range is more than sufficient for the variations needed whilst doing a certain class of work. The tension alteration can, of course, be made with the shutter set and the plate ready for exposure. For time exposure the disc on the mirror lever is set to T, the shutter aperture also to T, and the mirror released to the "up" position. Pressure on the right-angled lever then commences exposure, and a second pressure ends it, the movement being very gentle and preferable in the case of most cameras to using the mirror for commencing the exposure, as with the shutter (at low tension) there is no risk of vibration, which is more than can be said of all cases of exposing by mirror, particularly when the tripod stand is not the most rigid.

Focussing and release are on opposite sides of the camera.

The "Graflex" is a single extension instrument, the quarter-plate size having an extension of 6 1/2 inches from lens-panel to plate, and external measurements of 6 1/2 by 5 1/2 by 7 inches. The back is supplied to take dark slides, roll-holders, or "Premo" film-pack, and the price, without lens, quarter-plate, is £15 12s. 6d.

#### THE "PREMO" REFLECTING CAMERA.

The "Reflecting Premo," as shown in the drawing, is fitted with an extending bellows in front, which, on its baseboard being released, emerges from the camera body and locks itself into position. The lens is brought forward in the usual manner. The camera is



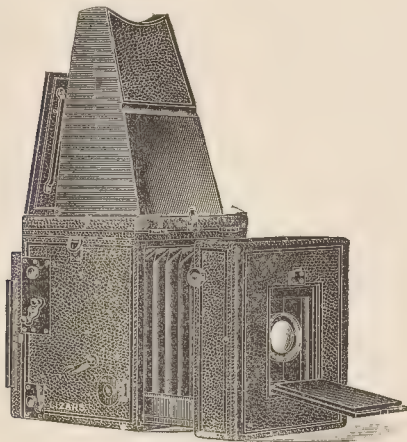
fitted with an extra tall hood (9 inches to ground glass), which is firmly held by a lazy-tongs support, and instantly collapses on being pressed back into the camera. The focal-plane shutter is adjustable to ten different apertures, which are changed after the shutter has run down, by pressing the right-hand button on the camera top and turning the winding screw to the required number on the scale, and to six tensions of the spring, likewise adjusted, before or after exposure, by pressing the left-hand knob and turning the right-hand key in either direction. By suitable combinations of slit and tension exposures (as shown in the table in the lid of the camera) of 1-200th to 1-75th may be given. For time exposures a button on top of camera is turned to T, the full aperture of the blind (No. 10) is set, the mirror lowered, and the shutter wound. Pressure on the usual release then opens the shutter, and moving of the button to "T" closes it. The camera, as exhibited, also has time, bulb, and instantaneous shutter on the lens, and exposures are made with it in the ordinary way after setting the focal-plane shutter fully open. The release of the camera is on the opposite side from the focussing.

The 5 by 4 instrument measures when closed 8 by 7 1/4 by 5 inches, the extension from lens-panel to plate is 8 3/4 inches, and the price £17 15s.

**J. Lizars.**

THE "Challenge de Luxe" Reflex is shown by this Glasgow firm in the quarter-plate size, which is built to give an extension of  $10\frac{1}{2}$  inches and afford half an inch rise of front, with rack and pinion adjustment. The well recessed mounting of the lens deserves attention, and, in addition, the front of the camera is provided with a hinged panel which acts as an efficient lens shade and locks flush as protective shutter for the lens. The hood springs up, is self-erecting, to the height of  $7\frac{1}{2}$  in., and is mounted on a hinged frame, which immediately exposes the focussing screen, and on the latter being removed, gives access to the mirror. Both of these latter movements are of course of advantage in practical work, as focussing on a wet or dirty screen is an uncertain process.

The focussing screen is placed on the right, the shutter-release on the left of the camera, and the other adjustments of "T and I,"

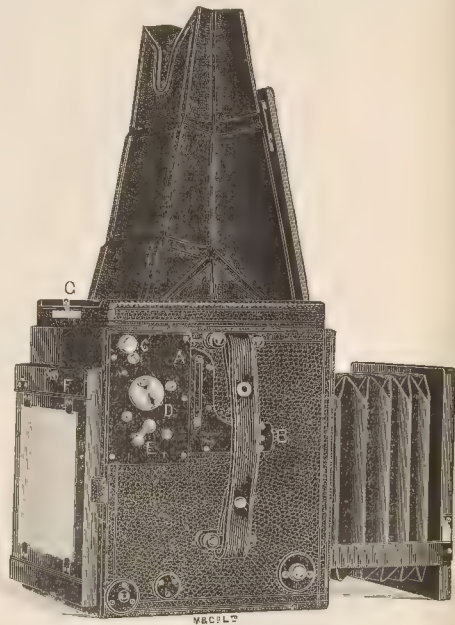


alteration of blind aperture, and "Antinous" release are conveniently disposed. One excellent feature of the shutter is its quick wind, less than half a revolution. The alteration of slit is done with the plate covered, by winding the existing aperture to the top of the plate and then narrowing or enlarging the slit by pulling out and turning the small key on the right. The tension of the shutter spring is made adjustable to five different strengths, and the table of speeds— $1/10$  to  $1/1,000$  of a second—is conveniently placed on the camera. The instrument is fitted also with rotating back and with hooded focussing screen for direct work without the mirror. With three double slides, the price of the "Challenge de Luxe" is £12 without lens. The outside dimensions of the closed camera are  $5\frac{1}{2} \times 7\frac{1}{2} \times 7\frac{1}{2}$ .

**Marion and Co., Limited.**

THE "Soho" camera (Kershaw's patent) is one of the later models of the reflex type, and is supplied by Messrs. Marion in postcard, quarter-plate,  $5 \times 4$ , and half-plate sizes. One leading feature of the instrument is the short focus of lens which may be used with it. The quarter-plate is arranged to take a 5 or  $5\frac{1}{2}$  in. lens, and the makers tell us they have fitted as short as  $4\frac{1}{4}$  in. This is obtained by the movement which the mirror first makes on being released. It first ascends directly, and afterwards, when almost in the horizontal "up" position, makes a move forward. The reverse takes place when the mirror is put down, the mirror moving slightly backwards before descending. As a result, a rather larger lens can be accommodated than would be the case in a camera of the same size without the aid of some such device. On putting down the mirror the mechanism also raises from the bottom a cut-off piece, with which the mirror, when completely down, forms a light-tight junction shielding the plate. In the "Soho," focussing is done on the left hand, whilst the other adjustments are on the right. That for the mirror takes the form of a short rod moving in a vertical slot, A in the figure. When the rod is up the mirror is up, and vice versa. The shutter has very distinct time and instantaneous adjustments, and a quick wind which re-sets the blind in less than  $1\frac{1}{2}$  revolution of the key D. The speed indicator is on the left-hand top

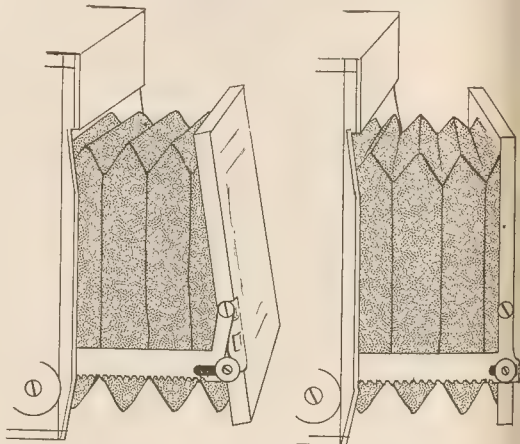
corner, and gives the speeds direct. The adjustment of the lat is done (with the plate covered) by pulling out the milled screw C about  $\frac{1}{8}$  in., and turning to the required figure, the screw



having been set with the notch in it opposite to the mark on the camera. The extension of the front is very rigid on the base



struts on each side, and in the quarter-plate size gives  $10\frac{1}{2}$  in. from lens panel to plate. The camera has reversing back, square mark



Showing the Two Movements of the Swing Front.

focussing screen and hood, giving a height of 5 in. above the plate and firmly supported by a hinged metal strut.

We should mention in this connection the focussing magnifier which Messrs. Marion fit to the hood of the "Soho," and of most



reflex cameras. It consists of two paired lenses, which may be selected to suit individual eyesight on particulars being given of spectacles worn; and, in addition to permitting of very exact focusing, excludes extraneous light. The price of these magnifiers is £s. per pair.

One should draw attention, too, to the swing-front movement which is fitted to the camera at an additional cost of from £2 to £3. It gives swing movement to the lens panel, not only of the usual "looking-down" form, but also and at the same time a sideways swing like the side swing of a camera back. This latter adjustment is made simply by moving the focussing screw, while at the same time pressing in. The effect is obtained in either direction simply by misaligning the movement of one rack. The camera has also a rise of front in the quarter-plate, the outside dimensions being  $5\frac{1}{2} \times 6\frac{1}{2} \times 7\frac{1}{4}$  inches. The price in the same size with three double backs is £12.

### Newman and Guardia, Limited.

"Square-Reflector," which is the reflex camera made by Messrs. Newman and Guardia for general and tourist requirements, is characterised by the arrangement of focussing and release both close together on the right-hand side, where, also, the "time to instantaneous" movement and the mirror adjustment are made. The two-hinged level is also on this side, and is brought into a position in which it can be seen by a quick glance from the hood when the camera is watching the image on the screen. One minor but immensely convenient feature of the mirror adjustment is the fact

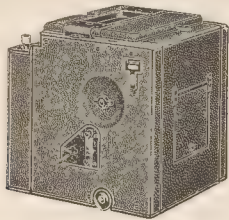


FIG. 1.

the position of the adjusting lever, \ or —, corresponds with the "down" or "up" position of the mirror, and this shows at a glance whether the plate is covered or not. Yet the user is not left to his eye alone, for the locking mechanism of the camera prevents the shutter being wound and the back being reversed until the mirror is up, and thus renders it impossible to expose a plate or film when, as in using a changing-box or a roll-holder, not shuttered after each exposure as it is when using dark slides.

As its name indicates, the "Square-Reflector" is built square, and rotating back, which quickly assumes the horizontal or the ver-

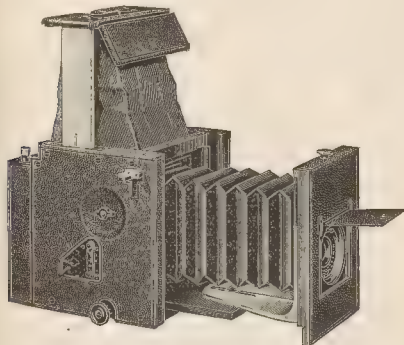


FIG. 2.

position, and carries with it the shutter and dark slide, changing-box, or other plate-holder in readiness for exposure. The focusing screen is distinctly marked for the "upright" and "landscape" picture.

In its normal extension the "N. and G." takes a lens of as short a focus as  $5\frac{1}{2}$  in. in a quarter-plate size, a facility which every reflex

camera does not possess. It should be mentioned that when racked home the Zeiss "Protar," or other suitable lens, is at focus for infinity. The double extension is obtained very quickly and without racking by releasing a screw below the baseboard and at once pulling out and clamping. The rising front is very conveniently actuated by the central screw seen in the drawing.

The lens usually supplied with the "N. and G." reflex is the Zeiss Protar, of  $f/6.3$  aperture, which is specially mounted for the purpose, so that the front combination is instantly removable to allow the back to be used as a lens of double the focus at  $f/12.5$ . Space is provided for the front component in the small chamber at the side shown in Fig. 3, and we can say that the operations of extending the front and removing the front lens are the work of not many seconds, and may be done whilst the worker has his eyes on the subject for which he is making the change. The complete lens is removed by pressing the two small handles in the special mount. The two separate components may then be replaced in the original mount and used on another camera if necessary.

Mention has already been made of the block system by which the shutter is prevented from being re-wound until the mirror has been turned down, but it should be added that the shutter works at a constant tension of spring, and obtains the range of speeds (1-10 to 1-800 of a second) in the quarter-plate by reducing the width of the slit, the 1-10 speed being the full aperture of plate. This adjustment of speed may be made when shutter is set, and

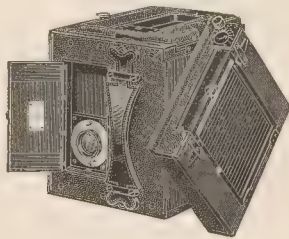


FIG. 3.

up to the moment of exposure—the speed scale is in quite the most convenient position for viewing in the case of a vertical picture, and almost equally so for horizontal pictures—and Messrs. Newman and Guardia's reputation for the accurate marking of the speeds is one which is universally acknowledged. The "N. and G." hood differs from that of most patterns in being erected on aluminium supports, which spring into position on the hood being pulled up. The hood can be lifted out of its clips at the base and the ground glass cleaned, and the latter can also be removed to dust the mirror. For critical focussing a binocular eye-piece is supplied.

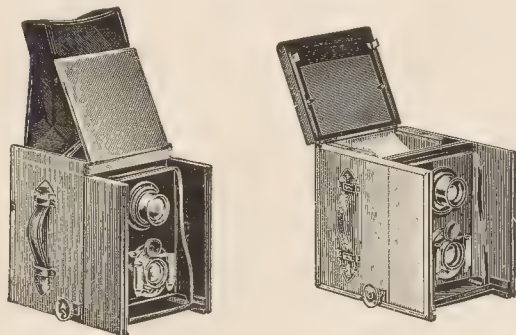
The camera back is built open, and thus allows of the use of film pack, dark slides, changing-boxes, and other exposing apparatus, for several of which a specially registered carrier is supplied.

The large rise of front—one inch—and its comfortable adjustment by the milled screw seen on the front in Fig. 2 are two excellent features of the "N. and G.," as are also the recessed position of the lens and the lens shade, which also acts as a cover or cap for time exposures. When closed, the measurements of the camera are  $6 \times 6\frac{1}{2} \times 6\frac{1}{2}$ , and the instrument is free from projecting parts which may be accidentally damaged. The thorough workmanship of the instrument is of a kind on which the makers justly pride themselves. The price of the camera without lens and with three slides is £27 10s.

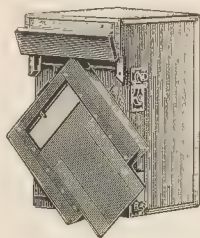
### Ross, Limited.

THE reflex principle in a different form is embodied in the two cameras shown by Messrs. Ross, Ltd., in which two lenses are used, one for focussing and one for exposure, the image from the upper one being cast, by means of the mirror, on a horizontal focussing screen. This adaptation amounts to the old twin-lens camera deprived of the inconvenience of examining an inverted vertical picture. In the quarter-plate camera shown the lower of the two "Homocentrics" is fitted with the Koilos shutter, the  $5 \times 4$  having an Ernemann focal-plane. In other respects the two cameras are identical. Both have rise of front with rack adjustment, in both the top of the camera is hinged and is released by two catches in the front, and thus permits of the mirror and ground glass being readily adjusted. Both have a turn-

table back, to use which the hinged piece at the back of the camera is released by the button on the right, when space is afforded for the rotation of the back. The hood is of ample dimensions, and rises seven



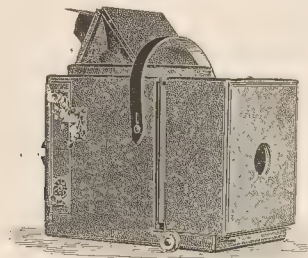
inches above the ground glass. The cameras are covered in hard black leather of practically everlasting wear, and are most substantially made in other respects. The size of the quarter-plate when closed is



$5\frac{1}{2} \times 6 \times 9$ , and the prices complete, with two Homocentric lenses,  $f/6.3$ , and three dark slides, £17-18s. In the  $5 \times 4$  the dimensions are  $6\frac{1}{2} \times 7 \times 10$  in., and the price, with lenses and slides as before, £24 12s. A smaller and less expensive pattern of the twin-lens reflex is made without the reversing back. It is in other respects similar to the two patterns shown.

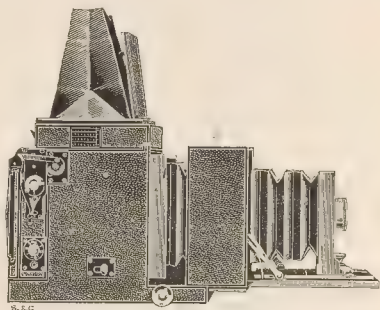
#### Sanders and Crowhurst.

THE "Birdland" camera, an example of which is not in the exhibition at the moment of going to press, but which it is anticipated will be on view when the collection is opened, is an instrument of a particularly wide range of movements, and is manufactured specially for the more serious branches of photography, not solely for naturalistic work, although that is the primary object of its design. The  $5 \times 4$  size, which we are now reviewing, has a normal extension of  $8\frac{1}{2}$  to 9 inches from lens-panel to plate, but the distinguishing feature of the apparatus is the very great extension



obtainable with it. The front board of the camera pulls down and locks to form a baseboard, on which an extra extension of six inches is at once obtained by pulling it. A subsequent use of the rack brings the total extension to no less than 22 inches from lens-board to plate. In this  $5 \times 4$  size the camera has a rise of front fixed by a set screw, and, when fully extended, is remarkably rigid. The shutter is a Goerz model "A," which provides for instantaneous exposures up to  $1/1,000$ th of a second, bulb automatic exposure from

$\frac{1}{4}$  to 5 seconds, and also time exposures. One good feature of the shutter is its remarkably quick wind, only about one quarter of revolution. The shutter-blind is of the two-aperture pattern, but higher speeds being obtained by increasing the tension of the spring. The change from time to instantaneous exposures is thus very conveniently made. A focussing lever is placed on each side of the camera. As regards the hood, the makers adopt a two-fold system first, the ordinary one in which the ground glass screen is examined from the aperture of the hood vertically above it; and, secondly, by means of a second form of hood with which the camera can be held at the eye-level, and an inverted image seen in a mirror fixed in the front of the hood. This second system is brought to a still further



degree of perfection by means of a different pattern of hood, which forms a solid prism-shaped erection over the ground glass and carries a telescopic focussing eye-piece. This latter accessory is specially serviceable for telephoto work, as it permits of the most accurate focussing even at a comparatively small aperture. In respect of construction, the camera is throughout of very substantial build and while its cover of green leather particularly fits it for the purposes of the naturalist-photographer, appearance is not in any way sacrificed. The price of the camera without a lens in the  $5 \times 4$  size is £25; quarter-plate £20 17s., in each case with three slides.

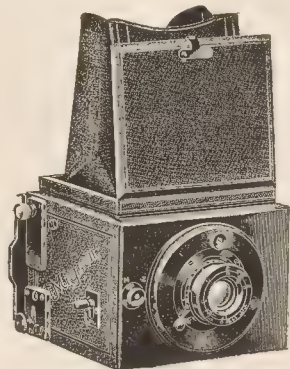
For use with the camera the makers supply a specially short tripod giving a position of only about 2 feet from the ground, and supplied with a top measuring  $7 \times 8$  inches in the form of a tilting table, by which the camera can be firmly pointed at any angle, or may even be directed vertically upwards or downwards.

#### Spiers and Pond, Limited.

THE new "Specto" reflex of this firm is not to hand at the time of going to press, but it will doubtless be among the exhibits when the exhibition opens, and we shall notice it in due course.

#### O. Sichel & Co.

A SMALL reflex taking the now popular size of plate of  $2\frac{1}{2}$  in.  $\times$   $3\frac{1}{2}$  in. is shown by Messrs. Sichel. It carries a focal-plane shutter giving



time and instantaneous exposures, and has the good feature that the mirror automatically returns to the "down" position unless specially

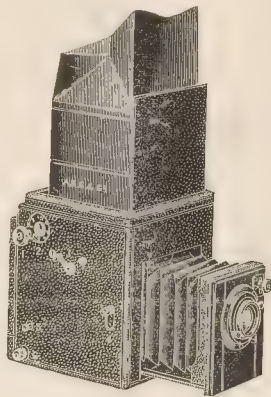


sh to remain up. The focussing is provided by the lens which supplied in a mount of this description. It costs, with a  $4\frac{1}{2}$  in. anastigmat ( $f/6.8$ ), £7 7s., or without lens £4 5s. These prices include six single metal slides. The camera is a very compact one, appears to us to be strongly made. It is sold also in a superior form with reversing back.

#### A. E. Staley and Co.

The "Royal Reflex" long extension camera is shown by this firm, presents several distinct features. The mirror lever acts also as the shutter release, and does not of itself lock the mirror in the "up" position. The mirror is thus always down unless released "up." For this, the small locking knob immediately behind the release bolt must be moved, but the auxiliary movement may be made almost simultaneously with the first. The shutter is provided with adjustable slit and tension, both of which movements may be made while the shutter is set and the plate waiting exposure. That of the slit is done by pressure on the grooved knob on the left of the camera, and turning the knob on the right-hand side until the required aperture (1 to 8 millimetres) is indicated in the opening. A separate "T" aperture of slit is provided in the same way for time exposures. The tension is adjusted in the usual way, and the two movements together are

safeguards the plate during rewinding. The focal-plane shutter is adjusted as to width of slit and tension in the same way, and the time exposures are given with it. The camera extends to  $7\frac{1}{2}$  inches from lens-panel to plate, and will take a lens



of as short a focus as  $4\frac{1}{2}$  inches. It has rotating back, rising and cross front, and collapsible hood 5 to  $6\frac{1}{2}$  inches from the ground glass. It is sold, with 6 single light metal dark slides, at £7 7s.

#### Talbot and Famer.

MODEL C is shown of this firm's series of reflex cameras, the London agents of which are Messrs. Taylor, Taylor, and Hobson. This model is not of the focal plane pattern, but provides for exposures up to 1-100th of a second. The mirror is set by pulling down the cord emerging from the bottom of the camera, this same operation also setting the shutter. The speeds are altered by increasing the tension of the shutter spring, just as in a Thornton-Pickard roller-blind shutter, and are marked for 1/10, 1/20, 1/40, 1/60, 1/80, and 1/100. For time exposures the shutter and mirror are set in the ordinary way, the small stud on the right is then pulled out and the release pressed to raise the mirror. The exposure is ended by pressing the small stud. The camera is fitted with a sliding reversing back for vertical and horizontal pictures, the back being made separate and square, so that it may be used either way of the plate.

A rise of 1 inch of the lens is provided with very convenient rack adjustment at the base of the camera on the right. Release and focussing are on opposite sides, and the hood,  $5\frac{1}{2}$  inches in height, has a very strong hinged strut. When closed, the camera measures  $5 \times 7\frac{1}{2} \times 6\frac{1}{2}$  inches, and costs, with three double slides, but without a lens, £5 15s. It is fitted also with focussing screen for direct work on a tripod.

#### Taylor, Taylor, and Hobson, Limited.

to obtain the speeds tabulated on the side of the camera from 1-1,000th to 1-6th of a second.

Time exposures are given without the aid of the mirror, by turning the slit to "T," setting knob No. 4 also to "T," and locking the mirror in the "up" position. The knob No. 7 is then pulled back to open shutter, and again pulled to close a series of exposures, which are made in less time than it takes to describe them, and dispense with the mirror.

The hood is built square, and, in the  $5 \times 4$  size, is  $5$  to  $7\frac{1}{2}$  inches from the ground glass. The camera has a double extension, the length from lens-panel to plate in the  $5$  by  $4$  size being 5 inches. The extra length is obtained by pulling out two small bolts, pulling forward the front, and again locking with the front. The back has a rotating turntable, and rising, falling, and front movements are also provided. The total dimensions of the  $5$  by  $4$  camera when closed are  $6\frac{1}{2}$  by  $6$  by  $7\frac{1}{2}$  inches, and the camera without lens, but with three double slides, £8 8s. In quarter-size the price is £7 7s.

#### THE MITE DE LUXE.

This reflex camera for a  $3\frac{1}{4}$  by  $2\frac{1}{2}$  plate is in many respects similar to the foregoing. The mirror, however, is arranged to catch in the "down" position, its lever, which is also the shutter release, being to be depressed to obtain it in the "up" position. It thus

The well-known firm of "Cooke" lenses, in its contribution to the exhibition, shows the first actual evidence of its entrance into camera manufacture, a branch of work which, as we have long known, it has been their intention to undertake sooner or later. The camera, which at the moment has not been christened, is designed for use with a "Cooke" focussing lens in which, as our readers should know, focussing of nearer objects is done not by moving the lens from the plate, but by shortening the focal length by a slight movement of the negative component of the lens. The use of a lens of this type thus dispenses with one necessary movement in the camera, and the lens is so mounted that it can be used in another camera. Messrs. Taylor take a short cut to portability by omitting the reversing back and building the camera to take the picture the landscape way of the plate, and in regard to lightness, the use of aluminium, vulcanite, and thin wood, is applied to reduce weight consistent with the retention of strength, with the result that the weight, complete with focussing screen, is 2lb. 12oz. in the quarter-size.

As regards the manipulation of the camera, the makers arrange all the adjustments to be performed by the right hand, whilst the camera

is grasped by means of the carrying strap on the left. The instrument is fitted with a locking device, which prevents the plate or film from being accidentally uncovered, an adjustment which is applicable to reflex cameras with peculiar ease, and finally the outside is commendably free from projections, the total outside dimensions being  $6\frac{1}{2} \times 5\frac{1}{2} \times 4\frac{1}{2}$  inches.

The camera has rising front, each way one quarter the height of the plate, that in the vertical direction being geared to the finder, and tilting its lens, as the front rises, so as to show the exact view on the plate. The focal plane shutter is of the single-slit type, and allows of the width of the slit being increased or reduced after the shutter is set. The setting mechanism works very silently, and time, bulb and instantaneous exposures—the latter within the range of 1-10th to 1-800th of a second—can be given. The shutter, as already stated, cannot be set whilst the mirror is up.

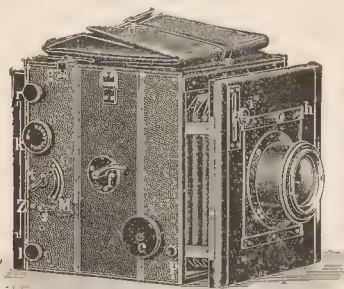
In using the shutter, the winding key is pulled out and turned backwards and forwards until the required actual speed is seen in the recessed aperture just above the key. The "hand" exposures, as Messrs. Taylor term the usual "bulb" exposures, are made by setting the lever above the winding key to H, setting the blind aperture to 1/10, and winding the shutter one revolution only, that is to leave the plate uncovered by the blind. Pressure on the release then raises the mirror and commences the exposure, and the plate remains exposed until pressure is withdrawn.

For time exposures, the lever is set to T, a smart decided pressure on to the release then raises the mirror, and exposure continues until the lever is moved from T to H. All three forms of exposure may be made by the Taylor-Bowden release, or by pneumatic bulb having a similar fitting.

To the hood, which is of light metal, an adjustable stereoscopic eyepiece is provided, its distance from the ground glass being  $4\frac{1}{2}$  inches. The back of the camera is built open so as to admit dark slides, changing-box, film pack, Mackenzie-Wishart slides, or indeed any of the usual plate or film-holders. Mention should also be made of the convenient fitting for holding single metal dark slides. Pressure on a bow spring releases the slide or permits of its insertion. A similar quick lever secures the ground screen which is fitted for focussing direct, a useful provision when using the camera on a tripod.

### Vogtlander and Son.

The standard reflex camera of this old-established optical house, represented in this country by Mr. F. G. Phillips, of Charterhouse Street, E.C., is quite distinct in construction and manipulation. The hood is square pattern ( $4\frac{1}{2}$  in. each way), and is erected by hinged spring struts inside it, which maintain a clear view of the focussing screen at eight to nine inches. The board carrying the hood is hinged and turns back, exposing the focussing screen, which in turn



is instantly removable, giving access to the mirror for dusting, etc. The extension in the quarter-plate size is 10 $\frac{1}{2}$  in. from lens panel to plate, and the distance from the mirror (at the most forward point in its course) to the inside front of the camera is four inches, distances which will give an idea of the focal lengths of lens which may be used. Usually, the camera is supplied with a Heliar of  $f/4.5$  of 7 $\frac{1}{2}$  in. focus.

The front has both a rise and fall of nearly one inch, and contains a removable panel for the lens, which in the quarter-plate size is under review is mounted in a short extending tube to avoid contact with the mirror in certain positions. In the case of the half-plate camera this is not necessary.

The focussing and shutter release are placed on opposite sides of the camera (on the left), the pinion for the former being provided with a set screw on the right. The lever for getting the mirror also placed on the left, whilst the remaining adjustments of width of slit and tension of shutter are on the right. The selection of blade aperture and tension spring are designed to give a range of speeds from 1-12 to 1-1,000th of a second, in addition to which there is provided a brake for the spring tension (to be used with caution) giving a still slower shutter exposure.

A good feature of the shutter is the fact that it gives time exposures without the aid of the mirror. The blind aperture having been set to full width of the plate, pressure on the release opens the shutter, and a second pressure closes it. Mention should be made of the reversing back of the camera and of the telephoto attachment fixed focus giving a magnification of  $2\frac{1}{2}$  times, i.e., with an equivalent focal length of 18 inches.

### THE VOIGTLANDER BIJOU REFLEX.

One of the novelties of the exhibition is a tiny reflex camera, the only example in England, of a new reflex camera taking a plate about  $2\frac{1}{2} \times 1\frac{1}{2}$  inches. A set of the prints, and some enlargements therefrom from these small negatives will be seen on the walls, and testify to the fine definition of the lens and the exact focus obtained, a task not so difficult with a short lens as with one of longer focus. Although measuring only  $3\frac{1}{2} \times 4 \times 4$ , the camera has yet the adjustments of its larger prototype, including a reversing back and focal-plane shutter. This latter is provided with two slits, both of which may be used for rapid shutter exposures, whilst the wide full width of the plate, serves for time exposures. Alteration of the speeds by increase in the tension of the spring is also provided. The camera is fitted with a changing box carrying a dozen plates, and accommodates, if necessary, a focussing screen for direct horizontal use.

A telephoto negative lens screws into the flange on the camera front, and the Heliar lens being screwed into its other end, a telephoto system is produced of sufficient rapidity for snapshot work, and places subjects within the grasp of the user of such a small camera which would be impossible without such aid.

### W. Watson and Sons.

THE "Argus" camera, which Messrs. Watson show in the half-plate size, is made in two patterns, horizontal and square, the latter having a reversing back placing the plate also in the vertical position.

The camera is of the double extension type, permitting in all sizes of the use of the single component of the "Holo-stigmat" lens with which it is fitted. The makers take advantage of the optical fact which they point out in the "Argus" prospectus, that a single anastigmatic lens placed in front of the diaphragm requires a camera extension which is shorter to a notable degree than that required by the same component used behind the diaphragm, like an ordinary landscape lens, but the size of the image is practically the same in either case. This curious behaviour of thick meniscus lenses, the point out, is due to the contraction of the cones of light within the lens in the first case, and a corresponding expansion of the cones of light within the lens in the second case, which causes the cardinal planes both to lie entirely outside the lens beyond the convex side. The extra extension of the "Argus" is obtained by simply pulling out the front; the rack and pinion is used in the usual way for focussing. A rising and falling front is provided, which normally is one inch each way in the half-plate size, though the construction of the front allows of more in one direction being obtained at the expense of the other.

The focal-plane shutter has adjustments, both of tension and speed, which together give the range of exposures, tabulated on the side of the instrument from 1/25 to 1/800 in the camera shown. The alteration of slit is made, with the plate covered, by turning the winding key till the two arrow marks coincide, the upper pinion traversing



back of the camera is then pushed in on the left, and the head on the right turned until the required width of slit is indicated on the left. Slits of 2, 5, 10, 20, 30, 40, and 50 millimetres are provided, as also one the full width of the plate for time exposures. The tension adjustment is made in the usual way by the pinion passing through the lower portion of the camera. It allows of the head being altered—to the extent of  $\frac{2}{3}$ , the time with the lowest tension—immediately before exposure.

The working of the shutter and mirror is done in conjunction with the lever marked E in the drawing. The mirror, unless latched the "up" position, is always "down," the lever E being then the top of the slot, as in the drawing. On now turning



winding key—which, by the way, sets the shutter in one and a half revolutions—and setting the other adjustments to "I," the camera is ready for instantaneous exposures. It is released by pressing on E, which raises the mirror and releases the shutter. Finally, after the shutter is released, the mirror falls again and shields the plate. As, without needing attention, plate after plate in a changing box or film, a roll holder may be exposed, inserting a shutter every time the shutter is re-wound. The feature is a point in favour of the camera for press or other hurried work, in contradistinction from cameras where the shutter can be re-wound, while the mirror remains down after an exposure.

For time exposures the full "T" width of slit is first obtained, the two other levers set to "T." The shutter is then wound the release pressed down. The mirror is thereby raised and locked in the "up" position, and the shutter opened; a second pressure on the release closes the shutter. In order to get the mirror more into the position for focussing, the front "T" lever is moved to "I," when the mirror is unlatched and falls. These series of movements, though lengthy to describe, are very quickly made, the mechanism impresses us as very strong and capable of standing a good deal of hard usage.

The half-plate size is fitted with a  $\frac{9}{16}$  in. hood, has ground glass screen for horizontal direct focussing if occasion requires, and measures  $8\frac{1}{2} \times 7 \times 8$  inches. Its price, with three slides and a lens, is £12; or with  $\frac{8}{16}$  in. "Holostigmat," f/6.1, £21 2s. 6d. Watson's list, obtainable at the exhibition, should be consulted for the full list of prices.

#### THE "VANNECK" CAMERA.

The older pattern of reflex camera still supplied by Messrs. Watson, and, in fact, one of the oldest cameras on the market, is shown in the drawing, which is a box form of hand camera, arranged to focus the mirror for horizontal pictures, and by scale with a finder for vertical. It provides for three speeds, includes a bag-changer magazine, and measures, in the quarter-plate size,  $4\frac{3}{4} \times 8\frac{1}{2} \times 6$ . It allows of time and shutter exposures.

#### Chas. Zimmermann and Co.

Another camera which is shown for the first time in this country is the "Ernemann" of Messrs. Chas. Zimmermann, possessing a very complete range of movements, and fitted with the already well-known "Ernemann" focal plane shutter. The front is a special feature of the camera on account of its large lens-shade— $4\frac{1}{2} \times 4$  inches—and a great rise, close on  $1\frac{1}{2}$  inches. The latter movement is made by rack and pinion adjustment, the screw of which rises in one quarter inch from its working position. The lens-shade is removable to give access to the mirror. The hood is attached to the top board of the camera, which supports it in the front and by its provision of a carrying handle gives a convenient

hold of the instrument. It is of convenient height (7 inches). Close in front of it, on the camera top, is placed a circular spirit level in a convenient place for observation. The camera is made square, with rotating back, and is adapted to work with dark slides or with the Ernemann changing-box.

The shutter adjustments are those of tension and slit, familiar already on other patterns of the Ernemann camera. They provide for exposures rising from  $1/25$  to the most rapid. Time exposures are given without the use of the mirror, a separate release being provided on the right-hand side of the camera, while that for instantaneous exposures is on the left, on the opposite side from the focussing pinion. Closed, the camera measures  $6 \times 6\frac{3}{4} \times 7$  inches; its price in quarter-plate size being £16 with "Ernemann" anastigmat. Mention should be made of the very neat and effective hood for the vertical focussing screen.

## Exhibitions.

### M. ROBERT DEMACHY'S OIL PRINTS AT THE ROYAL PHOTOGRAPHIC SOCIETY.

M. DEMACHY, having written with all the force and fervour that his graceful style allows, has now followed up his words by deeds: having, on several occasions, made his manifesto as to the incompatibility of "art" and "feeling" in uncontrolled photography, he now invites the world to a collection of over fifty prints in the oil method, saying, as it were, "Is it not all just as I said?"

This important exhibition opened at the rooms of the Royal Photographic Society on June 12, and will be free to the public between the hours of 11 a.m. and 5 p.m. until the closing day, July 27.

It is not in the least doubtful that these pictures will be generally voted artistic, though it must not be forgotten that the term means different things to different people. If we are not mistaken, it very narrowly escapes being a term of opprobrium for some critics. Artistic, at any rate, M. Demachy's prints decidedly are. And in our definition of the term, that would mean that we find them the work of a man sensitive, almost hypersensitive, to every influence that would endue them with a touch of the poetic, the romantic, the precious, and the sensuous. M. Demachy, indeed, seems not to care a jot for a picture that cannot make an appeal to minds open to such influences, and we think that herein lies his great difference from the generality of other workers, also artistic, in whose minds fancy does not breed so readily as logic. He openly avers that these pictures are not photographs; a very wise position to take, as we think, for it disarms paltry and unprofitable criticism. They are merely pictures; fancies, perhaps, would be a truer name, since there are few having the completeness demanded by what is understood as a picture.

Taking them then for what they are, and for what M. Demachy does but claim them to be, we unhesitatingly pronounce them to be extremely delightful excursions into the domain of art. Were they but independent of a photographic basis, M. Demachy might rank as a man of note in that domain. But although he shakes himself as free as he can from this, their birthright, he cannot do so entirely. Their roots hold firm in photographic soil, and give them more sustenance than perhaps M. Demachy himself might, with pride, admit. To cut them free of the debasing commonplaces of the camera would not only rob them of their roots, but to skip from vegetable to animal, of their present backbone into the bargain. The farther M. Demachy disentangles himself the more he risks. Using another metaphor, we might say that, with the life-line of photography, M. Demachy floats admirably, and could he but swim upon the waters of art, he would, of course, no more bother himself with that line than does any other artist who paints, etches, or draws independently of any adventitious aid. For our own part we ardently advise M. Demachy to try. There is such abundant evidence of power in his manipulation of pigment, in his appreciation of "quality," and his charm of lighting, that it is hard to believe that a more direct process, like drawing in charcoal or painting in monotone, should not bring him good results after a short course in draughtsmanship, if that should really be needed.

For the present, however, he takes what he wants of a theme

photographically arrived at, and plays variations upon it as a master in music takes some humble folk-tune and uses it merely as a stimulus to his own musical thought and feeling. No one can deny the pure legitimacy of such a course when the results are not put forward with wrongful claims. The only difference between Bach and Demachy is that the immortal "Variations" do not owe their beauty to anything but Bach's own feelings, he having been quite man enough to write the theme as well, if he had chosen; whilst in the other case the theme is a *sine quâ non* which must be imported. Hence M. Demachy's pictures are exhibited in Russell Square, not in Bond Street, and all the small fry of photography may claim his reception and not be entirely beyond their rights in passing judgment from their own point of view. M. Demachy opens his door to adopt the photographic theme, and in rush all the photographers at the same time, and there is no help for it.

The state of affairs has not improved when M. Demachy hangs a "straight" print cheek by jowl with his variations, for the photographers naturally will seize upon that as constituting their opportunity. "Now," they will say, "here is a girl's head with dark hair of a heavy silky quality that is proper to hair, and has its own sensuous charm, too. Her face is pale by contrast, with modelling delicate and refined: a face that has a distinctive effect by being broadly and largely treated without accentuation of the separate features, contrasting as a whole with the dark hair that frames it in. This effect is truthful, and, to most of us, beautiful. How far has your variation outstripped it in beauty? You have first of all changed the heavy silky texture of the hair, which to us seems to be romantic and dignified, and have given it a light coloured, fluffy appearance, which we associate with barmaids and ladies 'of no visible means of support.' (We do not deny romance and dignity to such ladies, but the association of ideas is against them.) Next, you have put a lot of forcible modelling and shadow into the features, so that, in the matter of contrast, the face and the hair have transposed their effects. You have centralised the dark and reduced the hair to nothing more than a substance easily lending itself to vignetting. If it is hair, it is without character of its own, and of a tow-like texture that is a further remove from beauty rather than an approach to it. Where has your control 'come in' with advantage, in this case, at any rate?"

M. Demachy would, of course, answer that these matters are entirely questions of taste which cannot be discussed, because of a want of commonality of premises. "What I like, you don't." In all probability this essay has been hung to show the enormous scope of control which the oil process admits. M. Demachy would not maintain that, in principle, dark surrounded by light is any more beautiful than light surrounded by dark. As an example of such inversion of tones the print is remarkable.

In another case where comparison is invited between a bromide and an oil print—a street scene—the "straight" print is by no means a fine thing in itself. It is due to an exposure when the effect was particularly flat and unpromising. Another attempt might have resulted in a fine effect of light and shade, and this no doubt more convincing than M. Demachy's oil print of the same print, which has an abundance of effect, but less of plausibility. Its scheme of light and shade is not explained in a title. Sunlight it is certainly not; moonlight it may be; but a hidden arc light seems to us the only hypothesis that would satisfy one who had made a loving study of street effects. We do not deny that it has feeling and charm, which the bromide print entirely lacks; but M. Demachy, who has faith in his process sufficient to remove lamp-posts, has made a *fantaisie* of it. *Fantaisies*, such as his No. 2, may be delightfully fairy things in figure work, but somehow in a street of houses the fantastic seems most fit and proper when confined to the architecture.

"Sourire," "Etude de Geste," "L'Orient," "La Curieuse," are all specimens of this *fantaisie*, this light, almost inconsequent touch, which lifts the work of M. Demachy far into a higher region of achievements. They are quite delightful, because they admit, in their subject and the manner of approach to their subject, a light, unworldliness, best understood to an Englishman by the term "French" (not "frenchy"! ) In such exercises of art, purely for art's sake, we are not troubled, because a lady's garments end in smoke. It does not much matter that we cannot quite trace out the whereabouts of an arm or a knee. These charming pictures are trifles at the best, but a best that few of us can produce, and fewer still

would be without. They are in the realm of *fantaisie*, and as such no obligations, tonal, structural, or optical are insisted upon. Control! Yes, as much as the talented author likes to give us in this department of art. We are in his hands, and they are hands we can trust.

But if we step on to the solid ground of nature, to which alone "trusts the mind that builds for aye," are we satisfied that, all other things being equal, this magic touch that sets us dreaming of things we do not see when awake, is good for us all round, and in every case? Are purely photographic results so hopelessly devoid of truth and charm that the touch of a brush can at any time better them? The beauty of the play of light amongst houses is due to the working of inexorable natural laws. If we love the effect of that play of light, do we act wisely in not striving to preserve them as they are, or as we can catch them by photographic means? In landscape, the effects of natural phenomena are just as distinctly beyond our making. We may try to create them in the studio for ourselves; but we cannot do so at all unless we know them by heart first, and knowing them by heart means years of sharp-eye watching and slavish copying. We have no knowledge of M. Demachy's past history; he may have gone through this mill; but unless he has done so, it is doubtful whether he will ever succeed in improving even a poor photograph of a really fine effect by "controlling"—that is to say, intensifying here, lightening there, and so on, with incentives other than those which would jealously preserve the record of the effect.

And this is the point where we think he leaves us, taking his own road. His undoubtedly sensitive and artistic nature is most influenced by qualities of tone, design, idea, richness or lightness of the result and all those considerations than it is by the sensitivity of the realist who is set afire by such simple things as cloud shadows racing over downs, or the vibrating atmosphere over sunnycornfields. Both kinds of sensitiveness are artistic; but the one we take to the controlling processes and the other to the "straight" print, provided it comes of the best and most skilful photography; and abjures printed-in skies and other abominations that are the laughing-stock of those who can detect them.

It is ridiculous to compare these two artistic natures, still worse to decri one at the expense of the other. They are both valuable to the world, and each the complement of the other.

On Tuesday night the exhibition was formally opened, and a sheet of paper, written by M. Demachy, to introduce his pictures, was read by the president and highly appreciated by the audience, who all listened with marked interest to the article recently contributed "Camera Work" by M. Demachy.

Listening to these readings, we were struck with a thought which seems to put a new complexion upon the claims advanced for the oil process. It is affirmed that the tonal values of pure photography are usually wrong, and may be more readily adjusted by oil painting than by any other method. The question arises, What is meant exactly by "wrong"? "From an artistic point of view," adds M. Demachy, which leads us to suppose that his need for adjustment is after all only the need to alter the scheme of dark and light in a print, prompted by his individual feeling; it is not perhaps that he attempts by alteration to come nearer to a truthful record of the tonal values of nature than the best photography could give him. If, then, his need of control arises from this perfectly gratuitous but artistic desire to readjust the values, the question is not one of falsity of tone values at all, it is simply a question of chiaroscuro in its larger connotation, which includes all the balance of light and dark in a picture, not only that due to shadows.

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"LA REVUE SUISSE DE PHOTOGRAPHIE" in the current number announces its decease, because it cannot obtain sufficient new matter every month to fill its pages.

"BRITISH BIRDS" is the title of a new illustrated monthly published by Witherby and Co., of 326, High Holborn, W.C., which is to be devoted entirely to the study of birds of this country. No. for June, contains articles by such well-known ornithologists as Howard Saunders, P. H. Bahr, P. L. Slator, F. C. Selous, and J. H. Gurney; whilst others of equal note have promised contributions for future issues. The price of the magazine is one shilling per month, or 10s. 6d. per annum, post free.



## Patent News.

The following applications for patents were made between May 27 June 1:—

**DEVELOPMENT.**—No. 12,249. Improvements in developing and fixing apparatus. Arthur Clarence Hayden, Norfolk House, Norfolk Street, London.

**PHOTOGRAPHIC PROCESSES.**—No. 12,304. Improvements in photographic processes. Henry Solomon Wellcome, Arthur Gerald Bates, and Frank Clement Starnes, Snow Hill Buildings, London.

**PRINTING FRAMES.**—No. 12,424. Improvements in photographic printing frames. John Batty, Carlton Buildings, Paradise Street, Birmingham.

**SLIDER HOLDERS.**—No. 12,459. Improvement in colour-screen, or filter-holders for use with photographic cameras. Edgar Samuel Hunter, 88, Chancery Lane, London.

**STANDS.**—No. 12,481. Improvements relating to camera stands. Edmund Healiss Harrison, 165, Queen Victoria Street, London.

**OPTICAL PURPOSES.**—No. 12,662. Improved camera for photographic and optical purposes. Alchanan Cohen, 53, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

The specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**PACKS.**—No. 11,033, 1906. The invention consists essentially in the combination in a sensitised film of this type having film and tab in one, of an anti-curling coating or back and of an opaque medium to prevent the passage of light, either with or without any other coating or layer of material of service for photographing under different conditions. John Edward Thornton, Altrincham, Chester.

**TRIMMING PRINTS.**—No. 11,846, 1906. The invention relates to substitutes for the trimming shapes used for photographic prints. The inventor provides for this purpose a sheet of celluloid, gelatine, glass, or other transparent material having marked thereon a number of geometrical figures—e.g. rectangles, circles, or ovals of different sizes. In addition to these figures marked on the transparent sheet, the sheet is perforated with pin-holes arranged along the lines forming the rectangles at or near the corners of the rectangles, and in the case of circular and oval figures at suitable distances apart on the circular and oval lines forming the figures.

Fig. 1 represents a transparent sheet marked with a series of rectangles of sizes proportionate to the standard sizes of photographic plates, and having perforations at and near the corners.

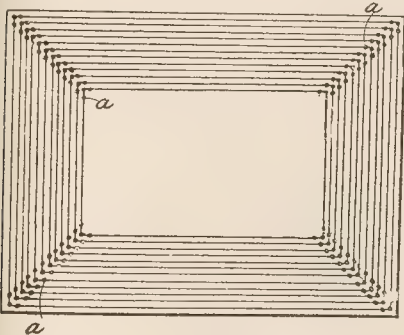


Fig. 1.

Fig. 2 represents a transparent sheet marked with two series of parallel lines extending for the most part across the plate, one series being at right angles to the other, thus dividing the plate into a series of rectangles. At each intersection of two lines is a perforation.

The device is used as follows:—The transparent sheet is laid the face of the photograph or picture and the lines thereon are used in making the selection of the portion of the picture desired

both as regards size and position. Then by a pin or pointer passed through the perforations *a* in the sheet at the corners of the rectangle, or around the circle or oval, selected, marks are pricked out on the photograph or picture, after which the

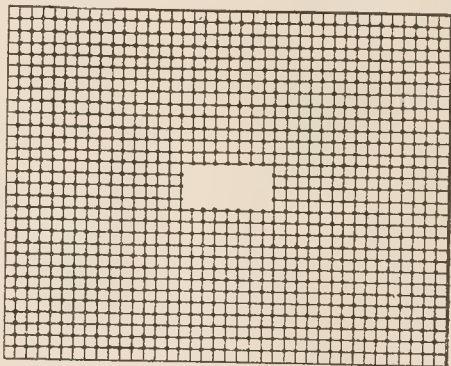


Fig. 2.

transparent sheet is removed and the picture can then be cut out, using the pin-pricks as a guide. One advantage of this arrangement is that the pin-pricks pass through the picture and show at the back thereof, where they can be seen more easily than at the front, and can be used for ruling or marking the outlines of the picture. By this means the face of the picture does not require to be marked. The picture can be trimmed, using a narrow metal rule, which is more convenient than glass, as it is not as liable to slip. Frederick Colin, Viscount, Maitland, Lieutenant-Colonel, Royal Body Guard, 14, Lower Sloane Street, London, S.W.

## Dew Apparatus, &c.

The Airolestyle (Air-brush). Made by the Airolestyle Syndicate, Limited, 35, St. Bride Street, London, E.C.

We have had submitted to us by the Airolestyle Syndicate, Limited, a new form of air-brush, for which many advantages are claimed over the older forms, especially in the matter of durability and simplicity. One important feature of the "Airolestyle" is the shape and position of the needle, which allow the latter being easily removed for cleaning and dropped back into its place at once. Moreover,

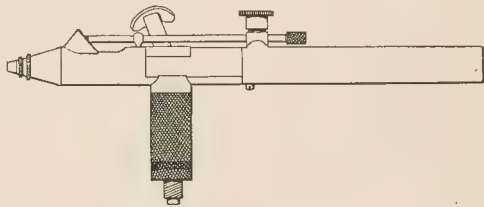


Fig. 1.—"Airolestyle" Ready for Use.

should the point of the needle by any chance become damaged, a new point (two extra being furnished with each instrument) may at once be screwed in in place of the old one.

The valve has but one movement, being simply drawn backward to a greater or lesser degree, according to the amount of colour it may be necessary to pass through. The working is in this respect somewhat similar to the old form; one has only to forget the pulling-down movement to admit the air, the construction of the valve obviating the necessity for this.

Two other points are worth mentioning. The first is that, as the needle works outside the handpiece, there is no opening in the reservoir; thus obviating the risk of colour flowing back into the mechanism. Also, no washers are needed in the adjustment of the cap, a feature which bears out the character of the whole apparatus

for getting all the facilities of air-brush work in the simplest possible way.

The reliability of the brush and the smoothness with which it works are beyond criticism, and undoubtedly the workmanship and finish are of the highest excellence, the adjustment of every part

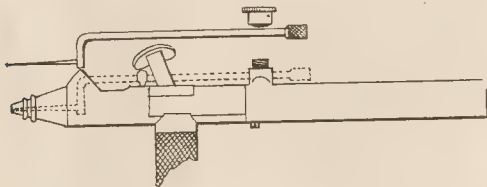


Fig. 2.—“Airostyle” Showing Needle Withdrawn for Cleaning Purposes.

being as perfect as the mechanism of a gun. The firm have every reason to be proud of their success, a great many airostyles being at present in use in the Potteries and other industrial centres, meeting everywhere with the highest approval. The price we understand to be four guineas.

## New Materials.

“Autotype Spirit Sensitising Solution for Carbon Tissues.” Prepared by the Autotype Company, 74, New Oxford Street, London, W.C.

THE Autotype Company, who are introducing a new sensitising medium for carbon tissue under the name of “Spirit-sensitiser,” have been good enough to send us a bottle for trial. Before saying anything about the advantages of the new preparation we may appropriately refer to the usual methods of sensitising, and drying, the tissue, and their drawbacks to those who only require to make use of the carbon process occasionally. These, to an extent, have hitherto prevented many from working the process at all. It is quite true that the trouble of sensitising one's own tissue is avoided by purchasing it ready sensitised, and some years ago the Autotype Company set the example in supplying ready sensitised tissue in small quantities, a practice which, we believe, is now generally adopted. Even when the tissue is bought in small quantities, waste is often entailed, as the purchaser has to take a dozen pieces, when, possibly, only three or four are required for immediate use, and the remainder becomes insoluble before the process has next to be employed.

The usual method of drying the water-sensitised tissue is, of course, bound to be a somewhat slow process, owing to the amount of solution absorbed by the gelatine tissue; and though an improvement was made in it by the Autotype Company about a dozen years ago, when the plan of squeegeeing the sensitised tissue on to ferrotype, whereon it dried under the protection of its own yellow-stained paper, was introduced, even on this system the time of drying occupies some hour or two. These drawbacks are quite overcome by the new quick-drying sensitiser, which is evidently a bichromate salt dissolved in volatile solvents. It is of quite a pale tint, and has a not unpleasant odour. Being affected by light, the bottle containing it should be kept in the dark.

The sensitiser is applied to the surface of the tissue, which is laid on a piece of paper, by means of a Blanchard brush. This is simply a piece of swan's-down, or flannelette, fixed with india-rubber band on the end of a strip of glass. A little of the solution—a very little is required—is poured into a small dish, or saucer. The brush, lightly charged with it, is then passed over the surface, first lengthwise and then crosswise, but in a fairly free and easy manner, so as to avoid regular streaks by traversing the same route repeatedly. It is then hung up to dry, of course, in a darkened or shaded room. The drying takes place in from ten minutes to a quarter of an hour, according to the temperature, and the tissue is then ready for printing. When the tissue has become surface dry a second coating may be applied if desired. This renders the tissue somewhat more sensitive, and, probably, better suited for negatives with very harsh contrasts. But we have not found this necessary even with very contrasty negatives. There is nothing new, it may be mentioned, in sensitising tissue on the

surface only, for such was a frequent practice when the carbon process was first introduced—now more than forty years ago—and the Autotype Company's new preparation has therefore every classical precedent.

In our trials of the new sensitiser, the tissue was dried in an ordinary room with the blinds drawn down. The tissue was pinned on the back of a fire-screen placed on the table. It dried in about fifteen minutes, and was then printed. The sensitiveness, it might be surmised, may be rather less, as so little sensitiser is used, but nevertheless we did not find this to be the case, and precisely the same exposure as for tissue sensitised in the ordinary way was given and proved ample. The prints we obtained were amongst the very best carbon pictures we have ever produced. In developing them, water rather cooler than we are in the habit of employing was used, and the backing paper was stripped off rather quicker than usual, the prints developing quickly and evenly. This will readily be understood when it is considered that it is only the surface of the gelatine—that which forms the image—which is permeated by the sensitiser: the backing paper is not even stained by the bichromates. After several prints had been soaked in the same water, prior to mounting them on the support for development the water was but very slightly coloured, a point deserving notice, as the small quantity of the bichromate salts in this tissue will be a great boon to those who suffer ill-effects in their hand, from working the carbon process.

It may be supposed that the “brush” method of sensitising may give rise to unevenness of the print, but it certainly did not in our experience. The largest pieces we have sensitised in this way, were 10 x 8, and the prints made on them showed no trace of markings, though the brush we used was a somewhat narrow one. The Autotype Company, too, have sent us a 15 x 12 “print,” made on tissue sensitised with the new preparation, applied with “brush.” The tissue was merely exposed to light for a short time and then developed, and the print is of a perfectly even tint all over, without the slightest trace of brush marking. Such a print is of course, a delicate test for evenness.

After what has been said it is scarcely necessary to remark upon the advantages of the preparation. The amateur user of carbon, in particular, will be gratified by the ease with which tissue can be thus sensitised on the day of printing—a boon, surely, in this erratic British weather. Moreover, the process supplies the means of quickly repeating prints which may not be satisfactory in the first instance—a protracted operation by the old process. In short we can commend the preparation to carbon workers, and to those who have not yet made their trial of the process. The sensitiser is sold in bottles containing about 10 oz., at the price of 1s., which includes a “Blanchard” brush.

CREAM CRAYON “SELTONA” POSTCARDS.—The Leto Photo Materials Co. (1905), Ltd., send us samples of a “cream crayon” brand of their well-known “Seltona” product, which they are placing on the market in the form of postcards and “boardoids.” The colour of the surface is a very agreeable pale cream, and the firm matt surface is one which well suits the great majority of work. Both forms of the new variety are sold at the standard prices “Seltona,” namely, twelve postcards and two masks per 1s. packet or twenty quarter-plate “boardoids” at the same price.

## CATALOGUES AND TRADE NOTICES.

The current second-hand list of the City Sale and Exchange, 8, Aldersgate Street, E.C., gives a very long list of bargains in high class hand, field, and studio cameras, shutters, and other apparatus and is a list which anyone in need of fresh apparatus may be recommended to procure, the firm's facilities of suiting the various requirements of customers being very complete. The list is sent free. It contains also the first particulars of the stereoscopic and postcard “Planex” reflex camera.

Messrs. A. E. Staley and Co., 19, Thavies Inn, London, E.C. recognising that good things deserve to be well described, have issued a new and very well arranged price list of their photographic lenses and other apparatus, which is admirable not merely for its stylish appearance, but because the arrangement and typographical facilities reference to it. Very full particulars of the excellent “Euryplan” and “Planastigmat” lenses are, of course, a prominent feature, but there is scarcely any form of modern high-class apparatus



Messrs. Staley are not in a position to supply. Full part of the "Mite" reflex camera, which we review on another page are here given for the first time. The list is quite worth the penny stamps, on receipt of which Messrs. Staley will send it.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JUNE 15.

London Photographic Society. Outing to St. George's Hill.  
London District Photographic Society. Outing to Waltham Abbey.  
London and District Photographic Society. Outing to Highams Park.  
Camera Club. L. and C. P. U. Excursion to Barrow.  
Photo. Art Club. Outing to Woodlands, Emswolden.  
London Photographic Society. Outing to Purley Beeches.  
Ham Photographic Society. Excursion in conjunction with the Coventry Photographic Club, to Binton and Welford-on-Avon.  
North Photographic Society. Outing to Broadway.  
Star Amateur Photographic Society. L. and C. Union Ramble to Barrow.  
Polytechnic Photographic Society. Outing to Dartford.

MONDAY, JUNE 17.

London Photographic Society. "Tri-Chromatic Photography." Hy. J.oley.

TUESDAY, JUNE 18.

Star Amateur Photographic Society. "Making Stereoscopic Transparencies." J. Oliver.  
Photographic Society. "Just Across the Channel." Wm. Rawlings.

WEDNESDAY, JUNE 19.

London and District Photographic Society. "Dry Mounting." Mr. Biss.  
Petition, June 1 Prints.  
Suburban Photographic Society. Portfolio Chat and Criticism of Prints.  
Camera Club. Evening Excursion—Cockersale.  
g Camera Club. Outing to Steyning and Wiston Park.  
Middlesex Photographic Society. "Gum Bichromate." A. H. Piddington.  
North Photographic Society. Survey Excursion to Camp Lane.

THURSDAY, JUNE 20.

London and Provincial Photographic Association. Nomination of Officers.  
North Photographic Society. "The Action of a Lens." W. J. Foster.

### ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held June 11. Mr. J. C. S. Mummery, F.R.I.B.A., (President), declared the exhibition of oil prints by M. Demachy to the members and the public, and read an address on the subject, written by M. Demachy. M. Demachy was of opinion that previous exhibitions at the R.P.S. of a revolutionary process as gum-bichromate has had considerable influence on the growth of that method of printing, and gratifying to see that its exponents were officially represented society. The oil process, after remaining in the shadow for so long, was now striving to occupy the important position it deserved. The whole of the pictures shown were printed on Illingsworth double transfer papers, the different grades of which offered great scope for varied interpretations. M. Demachy was unable to stand how it was ever asserted that numberless facsimiles could be produced by the process. Every square centimetre of the print was in accordance with the worker's judgment, and a facsimile was impossible. According to the artists, notably Lhermitte and Gerroche, who had seen the prints in M. Demachy's studio, the possibilities of the process were very great, and that there was no reason, save ignorance on the part of the photographer, for its values offending the eye. The superiority of the process in reproduction was due to handling alone. It was a useful, but sharp, cut with both edges. M. Demachy hoped that photographers would appreciate the new and great power that local inking placed in their hands. An animated discussion followed, in which Mr. Evershed and Messrs. Tilney, E. T. Holding, F. C. Lamont, W. Thomas, J. H. Gear, S. G. Kimber, Arbuthnot, E. J. and the President took part. The meeting terminated with a unanimous vote of thanks to M. Demachy.

**SUBURBAN PHOTOGRAPHIC SOCIETY.**—The first "Pilgrim's Outing" of this Society took place on Saturday, and was led by H. Snowden Ward, editor of the "Photographic Monthly." The attendance was rather disappointing, since, though the Society numbered over 140 members, only twenty-two enthusiasts, including women, assembled at Wrotham, the centre selected. Three parties, starting from London. One cycled down, arrived early, and got views from Wrotham Hill before the second party arrived. The latter derailed at Kensing about half-past two, picked up a

subject or two at the pretty little village of Inram; then struck the Pilgrim's Road in the hills and tramped in the track of the prehistoric tin merchants along it to Wrotham, passing St. Clare on the way. As the distance was over three miles, they were obliged to leave all the pictures away to their left for a future occasion, or else run the risk of breaking tryst with the third party, which travelled from Catford to Wrotham Station by a later train. One of the pilgrims, by the way, had a heavy whole-plate outfit, which two friends took turns in carrying over the three-mile tramp. At Wrotham the party fell upon the old church, and took it from every possible point of view, external or internal, Mr. Snowden Ward pointing out its peculiarities, the most interesting of which was, perhaps, the unique processional arch broken through the tower to enable processions to make the circuit of the building. Mrs. Carine Cadby was with the party, but had left her camera at home, and, to the regret of everybody, had to leave early on account of her husband's health. After tea at the "Bull" a hearty vote of thanks was accorded to Mr. Ward for the trouble he had taken in the matter. It was practically arranged that he will give the whole day to the S.S.P.S. "pilgrims" who go to Maidstone on July 27, as several of those who made a poor bag in the short time at their disposal at Wrotham are determined to make the trip to Maidstone in the morning, leaving the laggards to follow them down in the afternoon.

## News and Notes.

**BUSINESS CHANGES.**—The old-established business of Mr. Herbert Watkin, Scarborough, has been purchased by Mr. Shaw, of Camberley; and that Mr. Adolf Urban, Leeds, by Mr. Helliwell, Leeds. The transfers were by Messrs. Booty and Co., Walthamstow.

**DISAPPEARANCE OF A REIGATE PHOTOGRAPHER.**—Mr. Arthur Tee, one of the operators in the employ of Messrs. Frith and Co., of Reigate, had been in the neighbourhood of Bath for some weeks taking photographs of the district. He had written from that town to his relatives in a pessimistic vein, and has not since been heard of.

**AT COVENTRY COUNTY COURT** last week, Herbert Pearson, photographer, of High Street, claimed from Joseph Arthur Cross, butcher, 172, Spon Street, £12 12s., of which £5 5s. was for damages to artificial teeth, and £7 7s. for pain and suffering. His Honour gave judgment for plaintiff for seven guineas.

**PHOTOGRAPHIC ARCS.**—Something special in the way of arc lamp lists has come in from the Union Electric Co., Limited, of Park Street, Southwark, S.E. (writes the "Electrical Times"). This is a list (No. 1,362) which deals exclusively with arc lamps for photographic work, a branch of work which has, until now, not received an undue amount of attention in trade lists. The Union Electric Co. has reached, it believes, such a state of perfection in its photographic arcs that it considers they may be called standard patterns. The arcs are illustrated in the pamphlet and are complete with hanging slings, travelling carriages, stands, reflectors, and so forth. Certain of the types listed, for direct current only, are standard patterns for copying and printing work. Open arcs with parabolic reflectors are made for either direct or alternating currents.

**MR. C. CORN**, of the Metropole Studios, Cardiff, and of Islington, London, has taken over the photographic business of Mr. Lundstrom, 16, Hickman Road, Penarth. The premises have been renovated and fitted in thoroughly up-to-date style, and in order to inaugurate what should prove a very popular venture, Mr. Corn held a reception last week, and it is satisfactory to find the head of this enterprising firm, which undertakes all classes of trade work for other professionals, accorded a hearty reception in his new undertaking.

**DEATH OF HERR OTTOMAR ANSCHUTZ.**—It is with regret that we have to announce the death, on the 30th ult., of Herr Ottomar Anschütz, whose name was so long associated with high-speed instantaneous work, particularly that of animals. He was the inventor of a special form of focal-plane camera for this class of work, constructed with such excellence by the Goerz works. He was the inventor also of a special form of cinematograph in which full-size lantern plates were used.

"Hyro" is the name of a private photographic magazine conducted

by a member of the Wimbledon and District Camera Club, with a view to increasing the membership and also of keeping members who are unable to attend the meetings regularly in touch with the doings of the club. Its twelve pages consist of the club notices for the current month, editorial notes on topical matters, reports of club meetings, competition rules, answers to correspondents, and a page for advertisements for which there is no charge. Two of the most interesting features are a tourist article by the secretary, and by way of illustration, and possibly instruction for the younger members of the club, a portrait study, suitably mounted. The whole forms an interesting record of the club's proceedings, and we commend the idea to the notice of other secretaries.

**COMBINED OUTING OF THE LONDON AFFILIATED SOCIETIES.**—On Saturday, June 8, a large number of members of the above-named societies visited Abrook Common, where, owing to the favourable weather, a quantity of interesting work was done. The party then proceeded to Esher for a substantial tea, after which the official group was taken, and speeches made by Messrs. F. J. Mortimer, C. H. Oakden, and Dr. Evershed, the proceedings being concluded with a short entertainment by members of the South London Photographic Society.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, &c. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED :—

- J. H. North, 62, Boar Lane, Leeds. *Photograph of the Town Hall, Leeds.*
- Thos. Clegg, Park Studio, Rawtenstall, Lancashire. *Photograph of the Opening of the Carnegie Library at Rawtenstall, June 1.*
- A. Brown, 14, High Street, Montrose. *Four Photographs:—A View of the Ferry, Ferryden, near Montrose. A View of Red Castle, Lunnon Bay, near Montrose. A View of Lunnon Bay, near Montrose. A View of Marine Avenue from Churchyard Steps, Montrose.*
- T. Bromwich, Oldbury Cottage, Bridgnorth, Salop. *Photograph of Early Closer's Football Team.*
- B. J. Lloyd, 33, Stendale Road, West Kensington, London, W. *Photograph of a Small Flint.*
- F. Overton, 147, Beverley Road, Hull. *Photograph. Being a Copy of a Part Photograph and Part Drawing of New Promenade and Sea Wall, Hornsea.*
- F. C. Macmahon, 23, Academy Street, Inverness, N.B. *Photograph entitled, "The Three Majors" Highland Light Infantry. Photograph entitled, "Sailor's Hornpipe Dancer." Highland Light Infantry.*
- E. E. Carver, 6, Church Street, Maesteg, South Wales. *Two Photographs of the Rev. S. Jackson.*

**NAMING NEGATIVES.**—Can you tell me what is the best way to title negatives? What can you suggest? I might say it is for post-card work.—G. S. P.

The usual plan is to set up the titles in type, photograph down on to a photo-mechanical plate, and transfer by stripping on to the negative, a portion of the film being cut out to receive the title. We have an article in type on the subject.

**COPYRIGHT.**—Am I correct in supposing that one is at liberty to copy and publish photo copies of engravings, issued 1800-1825, without hindrance, and that one had no copyright prior to the Act of 1862?—DOLPHIN.

You will be quite safe in working from the original engravings.

**BLUE-BLACK LANTERN SLIDES.**—I should be very pleased if you would give me some information on the following: I want to make some lantern slides from ordinary negatives, which must be of a decided blue-black colour. I have a trade slide as a sample, and the tone is a cold blue. I have tried various plates (Mawson's, Paget Fast, and Imperial Special) and also various developers (hydroquinone, metol, and pyro ammonia), but can only obtain

a grey or black without any trace of blue. Can this colour be obtained direct, or must I resort to toning with gold? Information regarding plates, developer, exposure (full or under) will be very much welcomed.—BLUES.

Metol is the best developer in our experience for a bluish-black tone, but a pronounced tone is not easy to obtain. The course we think is to develop to a warm colour and tone in a gold sulphocyanide bath. We have got very fine blue-blacks this process.

**LENS.**—It is quite against our rule to express any opinion on the comparative merits of any particular maker's goods. All lenses you name are good. For cabinet portraits, as you say, the lens should not be less than about 12in. focus, but for portraits it would be better longer, as then better perspective obtained, and, as your studio is sufficiently long, we would suggest one of longer focus, say 14in. to 16in. It would be well, for convenience, to have one of about 8½in. or 9in. for very small pictures. A lens of 20in. or 22in. focus, with an aperture of *f*/6, would be very suitable for 15 x 12 groups.

G. H.—This is a question that we are continually answering. has, over and over again, been explained in these columns that when a photographer is paid for taking a photograph, whether portrait, a house, or a view, he has no copyright in the picture that is the property of the one who has paid for its being taken. Again, supposing that the photographer had a copyright in the picture, he can recover no damages for its infringement prior to registration.

DEVON.—Unless you have an agreement in writing you have no much of a case, as there has been no actual transaction. If your mother denies your right to the copyright it is open to you to charge her for the sitting. It is one thing or the other.

W. J. R.—We are sorry that the mistake was ours, as we know your firm would not misrepresent the outfit.

F. S.—Mr. Driffeld has written one number of the "Photo-Minute" (Dawbarn and Ward, 6d.), on the "H. and D." system, but you will not find anything of the slip system in it, as the latter is a method of Mr. Watkins, whose "Watkins' Manual" (any dealer, 1s.), is the book you require.

J. E. A.—Too long for this column. You had better study "Mounting and Framing," by Lambert (Hazell, Watson, and Viney, 1s.).

D. ROSE.—Certainly, you must register the final result, however the result is obtained.

T. M.—Not bad for a week only. T. S. Bruce, whose address you will see in our advertisement pages.

H. J.—Try the Commercial Photo Company, Ltd., Rajar, Ltd., Halifax Photo Company, and Treas Company.

G. K. DEVARE.—The print has been toned both with gold and platinum. Tone slightly in the gold and acetate bath and then with the phosphoric acid and chloroplatinite bath on p. 983 of the "Almanac" for 1907.

R. A. MC.—"The Chemistry of Photography," by R. Meldola, Also "Chemistry for Photographers" (elementary), by C. Townsend. (Dawbarn and Ward, Limited. 1s.)

1. See page 775 of the "Almanac." A brief answer is not possible.
2. O. Schel and Co., 52, Bunhill Row, E.C., is the most likely.
3. There is none.

\**NOTICE TO ADVERTISERS.*—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

Reflex Camera Exhibition. Steps are being taken by the Photographic Convention to transfer the collection of cameras and prints to Hereford for the Convention week.

Further again in an editorial to the movements of reflex cameras and reference to different classes of work. (P. 459.)

Mr. Arthur Marshall expresses the highest opinion of the reflex universal instrument, and particularly because of the means of judging of the "photographic quality" of a subject.

Mr. Martin Duncan, writing on the use of the reflex in Nature photography, sums up some of the essentials of an instrument to be specially for that purpose. (P. 461.)

Notes by Mr. F. C. Tilney on the photographs in the exhibition, regarded as pictures, appear on page 463.

The Professional Photographers' Association reports its intention with a case of canvassing frauds. (P. 470.)

Mr. Hurley Lewis has published a brief interesting confession as to his aim in photographic portraiture. (P. 467.)

An interesting exposure of "spiritualism" by means of the camera was made at Leeds last week. (P. 458.)

Some figures for German imports and exports of photographic requisites for the first three months of the present year.

A widespread interest is taken in Germany in the protection of portraits from disfigurement by advertisements, etc. (P. 458.)

The conclusion of the review of modern progress in colour-sensitising. Mr. E. J. Wall appears on page 464.

Chromatic plates and flexible films are among the patents of the week. (P. 468.)

A suggestion of a lens of uranium glass has been made by Houdaille. (P. 458.)

## EX CATHEDRA.

**The P.C.U.K. at Brussels.** By their unanimous vote last week, the Council of the Photographic Convention of the United Kingdom recommended to the forthcoming general meeting, to be held on Tuesday in the Hereford week, the acceptance of the invitation from the Association Belge de Photographie for the Convention to make the Belgian capital its meeting-place next year. The friendly overtures of the Brussels society with which the leading amateur and professional photographers in Belgium are associated, should, we think, meet with the approval of the Convention as a whole, although the selection of a Continental meeting-place will send the Convention outside these islands for the first time. However, no more favourable venue than Brussels could be named. A comfortable night journey brings the traveller there from London in little over twelve hours, and at a cost (return) of twenty-five shillings. Moreover, the lower cost—something like one-half—of hotel expenses in Belgium will more than compensate for any extra railway fares which those in the North of England would have to pay. For those who prefer a shorter sea journey and daylight, a passage of three or four hours via Dover and Calais, or fifty-five minutes via Dover and Calais, will take them from London to Brussels in about eight hours. One factor, amounting almost to a guarantee of a successful Belgian convention, is the intimate knowledge, acquired from constant visits for so many years past, which Mr. F. A. Bridge has of the country and of the many highly picturesque spots easily reached from the capital. We hope the invitation of the Association Belge will be accepted.

\* \* \*

## Reflex Cameras.

It will interest those who are unable to see the present collection of cameras and photographs at the "B.J." office to learn that almost all of them will be exhibited at the forthcoming Photographic Convention of the United Kingdom, to be held at Hereford from July 15 to 20. There are one or two makers who are unable to grant the loan of their instruments for that occasion, but the majority, according to information received as we go to press, will allow conventioners to have the opportunity of inspecting their manufactures.

\* \* \*

## The Flattery of Imitation.

It has been pointed out often enough how photographers and painters interchange their points of view. The modern amateur pictorialist hangs on to the skirts of impressionism for some reason best known to himself. The painter, or, rather, the cheap illustrator, copies the hit-or-miss snappings of the camera user, giving us a foot and an outstretched arm of a figure, "trimming off" the

remainder of his anatomy. A very accomplished draughtsman in lead pencil shows at the New English Art Club a drawing called "St. Pancras," which is more like a bad photograph than anything else in the world. It may be described as a "bald-headed" print in platinum of a street scene, very flat in tone, and a trifle hard in its edges. Such, at least, would be the ordinary criticism of it from the mind of the average photographic critic. The irony of the situation is that the little sketch has delightful qualities, and is obviously the work of a man of talent—Mr. Muirhead Bone, in fact. Here we have art mimicking, unconsciously, a photograph at its worst, and we find the result good. Can there be any other explanation of so anomalous a state of things than that the hand of man endures a trifle in art with some mysterious charm denied to the purely photographic record? Fortunately, the mechanical work of photography has its own charms also, denied, in turn, to the hand of man. In fact, the two things are essentially different, and cannot be regarded from the same point of view. Such instances as the above only endorse and confirm this contention.

\* \* \*

#### **Landscape Protection in Germany.**

Some interesting light on the care with which the scenic beauties of the country are preserved in Germany is shed by a recent lecture delivered in Munich, which we find abstracted in "Nature." In all parts of Germany, but particularly in Bavaria, quarrying and forestry have been done under State superintendence, in order that a check might be set to the disfigurement of scenery by these operations, as well as by the erection of advertisements, telephone cables, and the like. The traveller in the picturesque and unfrequented byways of Bavaria finds much to be thankful for in the absence of disfiguring acts of vandalism, and one can only express a wish that some similar official aid might be granted to the bodies which in this country have had the same good aim before them, although we have cause to be proud, as Prof. Conmentz, the author of the paper, points out, of the lead taken by London in the retention of woods and forests as public places.

\* \* \*

**A Photographic Exposé of "Spiritualism."** We are glad to see our contemporary, "Truth," in whose pages the legion forms of trickery are pilloried, giving prominence to a recent exposure of an alleged medium in Leeds. The "medium" was a man named Chambers, whose manifestations of the materialisation of spirits have been accepted in spiritualistic circles in the North with mingled veneration and rapture. Some of his dupes were so satisfied of the genuineness of the phenomena which were produced by his mediumship that, with the idea of converting sceptics, they arranged for a photographer to be present at a private séance, with a view of securing negatives of some of Chambers' familiars. After the usual hocus-pocus on the part of the medium and the singing of hymns by the audience, the manifestations commenced, and from within the cabinet where the medium was concealed a variety of spirits made their appearance. One of these was a spirit known as "The Signor," who spoke broken Italian, and was announced as the medium's chief guide. "The Signor" was persuaded to give a sitting to the photographer, and by means of a flashlight exposure a couple of excellent negatives of the spirit form were obtained. The resultant photographs were published in the "Leeds Mercury," and admirably illustrate the bogus character of the manifestations. "The Signor" is obviously the medium himself, divested of his clothes and shrouded in a sheet, which he

is holding in his mouth in order to conceal the lower part of his face. The quaintest element in "The Signor" spiritual attire, however, is his headdress, which is formed out of a chest-protector which Chambers was wearing.

\* \* \*

#### **Uranium Glass Lenses.**

At a recent meeting of the Société Française, Colonel Houdaille exhibited results obtained with a lens made of uranium glass, and recommended it on account of screening effect. He found that in a thickness of millimetres it absorbed ten per cent. of the luminous rays and fifty per cent. of the photo-chemical, or presumably the blue. There is, therefore, an appreciable improvement in the colour-rendering when using orthochromatic plates. Incidentally, it is remarked that there is far more even illumination over the plate than with ordinary glass, the reason being that the convergent lens of uranium glass being less thick at the edges than at the centre, absorbs less of the oblique rays, and automatically acts the rôle of a compensator. No details are given as to photometric determination of this point, data which would be required as the absorption by the glass of the lens is the most important factor in producing unequal illumination. It is remarked also that only in very few combinations could it be used, and not in a lens of the anastigmatic type.

\* \* \*

#### **Coloured Lenses.**

It is stated that M. Atout Taille suggested in 1892 the use of yellow glass for the lens, but the idea of using coloured glasses dates much further back—to 1853, in fact, though then the idea was to use violet or blue glass to ensure perfect achromatism. We believe that Sir V. Crookes was the first to suggest the use of yellow-coloured lenses, in order to obtain better colour-rendering, the idea has been revived times out of number. Sir V. Abney has also suggested coating one of the surfaces of the lens with coloured collodion. Colonel Houdaille, in face of the fact that uranium glass cannot be used for making anastigmats, suggests that a suitable yellow glass would soon be made if the need arose.

\* \* \*

#### **The Photographic Salon.**

The fifteenth Photographic Salon announced to open its doors on September 13 at the gallery of the Royal Westminster Colour Society, Pall Mall East, and to close them on October 26, which is also the closing day of the Royal Photographic Society's Exhibition. The conditions of entry remain unaltered, except that, in the case of France, a special committee composed of M. Robert Demachy and Colonel C. Puyo will make the selection in Paris. In previous years, the avowed aim of the Limited Bazaar is "to exhibit only that class of work in pictorial photography in which there is distinct evidence of personal artistic feeling and execution." As also intimated last year, "pictures sent for exhibition to any other exhibition open in London at the same period are liable also to be disqualified," an announcement which may be emphasised to new comers into the exhibition field as a gentle reminder as to the way they should proceed if they would make friends with those who will sit in judgment in Pall Mall East—not only next September, but in other September years, and whose memories in such matters as the exhibition of duplicates are reported to be little short of infallible. Entry forms for the exhibition are obtainable from the honorary secretary, Mr. Reginald Craigie, 5A, Pall Mall East, S.W., and entries must, if packed, reach Messrs. Bourlet and Sons, 17 and 18, Nassau Street, London, on August 29, or may be delivered in all their native loveliness at 5A, Pall Mall East on September 2.



## REFLEX CAMERAS.

## II.

In the previous article we essayed the, to us, unnecessary of emphasising the advantage of the reflex type of camera. Yet, as we then said, it is not easy to convince occasional experienced workers of the gains derivable from a system which affords a short cut to a facility of working which they themselves have attained by steps which were painful and slow. If we were uncharitable we might attribute their disparagement to not altogether generous motives, for it is no nicer for a clever hand-camera worker to have the wind taken out of his sails by a recruit with a reflex than it is for a teacher of music to see a pianola being delivered in his neighbourhood. In addition, however, to the general points raised last week, there are some others relating to the comparison between focussing cameras and those of the reflex pattern, and others refer to differences among these latter themselves.

The objection alleged against the reflex is that it must, by its very nature, be used from a lower point of view than is often desirable, on account of the exaggeration of such a lower point bestowed on the height of buildings in the foreground. To this it must be said that at two patterns of reflex on the market provide for use at an eye level by means of a mirror in the hood, which reflects the image on the ground glass, and gives the photographer an actual, though inverted, picture, which he can focus and compose as he wants. We have heard, too, of heroic measures as holding the reflex upside-down when arms extended upwards, and viewing the image through the downward hanging hood; but we cannot offer recommendations as to the convenience or certainty of such a method. It may be said, however, that so far as focussing is concerned, this operation may be done at whatever level, the camera then raised to the eyes, and selection of the field made by judgment with the eye, and it will be found possible with practice to use the ordinary reflex with great certainty in this way, as the difficulty—the focussing—does not enter into the operation. In fact, the method is precisely that most commonly used by photographers of sporting and other events in which rapid movement occurs. With the best apparatus usual in the case of such subjects first to get the camera in focus on a certain spot, where the moving figure comes, but at the time of the actual exposure to keep the focus fixed on the subject itself, not on any image of it in the finder. The camera is best at the level of the eyes, and to be done, and a reflex camera is quite as suitable as any other for such work.

This brings us to one other point in connection with the photography of objects in rapid motion, namely, the desire for the instantaneity of action of the reflex camera and the ordinary focal-plane shutter such as the Goerz-Entz, which may be taken as the standard type of the ordinary focal-plane camera. Does the reflex respond as satisfactorily to the release in exposures of objects appearing to the camera or moving across its line of sight at high speed? The question, by whomsoever put, amounts to a confession of inexperience in high-speed photography, for the reason that the personal equation enters into all work when making the exposure, and the practised worker will mentally anticipate the arrival of the oncoming runner or cyclist in order that the exposure may be taken place when the latter has reached the pre-arranged point. In the case of a reflex we are not prepared to say that the interval between pressure on the shutter and the exposure is any longer, but admitting that the adjustment lies in the automatic anticipation of the point at which the release is made, a point which may

be observed when watching the object itself or its image on the ground glass of the reflex.

We may now say a word on the use of the reflex in the making of hand-camera studies of figures in streets, markets, and other places where the chief considerations are to keep the camera out of sight and to be able to bring it instantly into action. In these respects the reflex, saving its power of accurate focussing, is not so suitable as the well-known types of box scale-focussing camera, although, with the hood down and a focussing scale fitted, it is not one whit less suitable. If we were anticipating any proportion of figures among other subjects, we should certainly fit a scale for 10 ft. and 15 ft. to our reflex camera, and should expect to find these marks of service; or we should use a quiet moment to get a figure in focus on the ground glass on about the scale we wanted, and then, shutting down the hood, use the camera thus set. This is solely for the sake of securing figures before they had discovered they were being photographed. The reflex, it should be added, supplies a most ingenious method of securing the same end in the provision of a mirror placed on the lens panel at an angle of 45 degrees to the axis of the lens. The image is thus received at right angles to the direction in which the camera is actually pointing, and thus allows of figure studies being obtained under the very noses of the subjects. We cannot speak from our own experience of this method, but several well-known hand-camera workers have used it with great success, and Messrs. Adams regularly supply one form of it as a convenient attachment.

Coming now to the adjustments of the reflex camera itself, one of the first points of advantage is the co-relation of shutter and mirror, by which (1) the shutter cannot be wound while the mirror is up, or (2) the mirror always falls again after an exposure, unless purposely latched up, or (3) the shutter can be wound but not kept up if the winding key is turned while the mirror is up, thus exposing the plate. The last-named tells us at once that the mischief has been done, which is something, though not so good a movement as No. 1 or No. 2, of which we prefer No. 1 for the reason that on this system it is apparently easier to provide a gentle release than it is on No. 2, in which, in the commercial patterns, the setting lever for the mirror acts also as the release.

A point of importance as regards time exposures is the rapidity with which the shutter can be adjusted to give them. Usually, those cameras in which the shutter alone is used in giving the time exposure are the better in this respect, but in our opinion the best of all arrangements is to open the focal-plane shutter to its full aperture before exposure commences, and use a lens cap or lens shutter for the time exposure. This plan is preferable on account of the freedom from the vibration to which a large shutter such as the focal-plane is liable. There is one other point to which we must refer. Although it is one for individual consideration, yet it should not be overlooked in selecting a camera. It is the disposition of the focussing screw in relation to the shutter release. In some cameras these are placed on opposite sides; in others, near together on the same side. The first system is adopted in order to focus a moving object up to the instant of exposure, following it in the ground glass with the focussing screw, and keeping the finger of the other hand upon the release. In the second system the left hand is given the duty of holding the camera firmly, and the right that of focussing the subject and releasing the shutter, on the principle that the most accurate work is done, in the case of rapidly moving objects, by first focussing on a point in the stationary portion of the view, and waiting until the object just reaches it before making the exposure. Both systems have their supporters among users, though it must be said that

the makers by a large majority adopt the former. However, it is not a difficult matter to have a camera converted from one to the other.

In regard to the other features of a reflex camera, we think we may dismiss them as those of a good hand-camera;

those we have discussed in the foregoing notes relate more particularly to the reflex mechanism, and will, it is hoped, be of service to our readers visiting the present exhibition or studying the reviews of the apparatus there shown which appeared in our columns last week.

## THE REFLEX HAND-CAMERA AS A UNIVERSAL INSTRUMENT.

[As a commentary on the present interest in the reflex exhibition at the "B.J." house, and in the facilities afforded by the reflex type of hand-camera, more than usual importance may be attached to the following article by Mr. Arthur Marshall, the well-known maker of oft-medalled exhibition pictures, from the fact that, with one exception, all Mr. Marshall's exhibition work has been taken with his reflex camera in the first instance. An instrument of this type, as the article points out, is of immense value in judging of the "photographic quality" of a scene.—Eds. "B.J."]

THE qualities in the reflex type of camera which make it nearer to the ideal hand-camera than any other type are the following, viz. :—

1. The exact extent and composition of the image actually affecting the plate may be seen.
2. The degree of the illumination of the subject or strength of the light may be better judged.
3. Full use can be made of any type of lens.
4. Architectural studies can be made with better results.
5. To the study of insect life it is indispensable, or of birds on the wing.

The first point is of the greatest value to the picture-maker. Seeing the image the actual size it is represented upon the plate, with its groupings, composition, balance of lights and darks, its atmosphere and delicate tones of light, or the details in the depths of the shadows—are advantages which not even the stand-camera possesses; more particularly where the study of figures and expressions in face is concerned. These alone give a value to the reflex type which, to my mind, places it far and above any other kind. The brilliant finder of the ordinary type of hand-camera where scale focussing is adopted is most misleading, and not to be relied upon where certainty of work is a consideration—and I presume that it always should be. The pictures appear too small to judge of their most important qualities—namely, grouping and composition, and the proper relation of light to dark—and though the image is very pretty and bright upon the brilliant finder, it is absolutely no index whatever to the actual value of the rays of light which find their way to the plate when the exposure is made.

With the reflex finder this is reversed. The strength of the light acting upon the plate is seen upon the ground glass, and its strength is judged accordingly.

### The Reflex as Exposure Guide.

It is astonishing how easily the eye may become accustomed to the value of such light, and by careful observation of the same the length of exposure necessary may be easily judged also. This, again, is a most valuable feature possessed by the reflex camera, and to which there is no corresponding advantage in the other types of hand-camera.

Exposure tables may be all right as an approximate guide, but seldom have I found the subject which I was taking quite fit any of the headings so carefully worked out. Therefore, I would much rather trust to my own judgment and rely upon the appearance of the image upon the screen and expose accordingly. By means of the reflex camera this is quite possible, but with the ordinary type it is not.

There is no reason why there should be any spoilt plates at all with a reflex camera if a capacity for observation and the exercise of a little judgment are possessed by the photographer, the appearance of the image upon the ground-glass carefully noted, and the exposure made accordingly.

Different types of lenses can, I believe, be adapted to most reflex cameras, especially if the long-focus variety be used. This, again, is an immense advantage.

### An Optical Outfit.

To my own camera I have as a standard lens a Zeiss "Protar" with single and double combinations for ordinary use, a Becksteinheil Unar working at  $f/4$  for rapid work. (To this I have a telephoto attachment of Dallmeyer's.) Then I can use a 10 x 8 Dallmeyer stigmatic lens working at  $f/6$ , which gives very much larger image upon the plate, and which is useful for photographing figures and groups some distance away which would require a rapid exposure. There is certainly no form of hand-camera that I know of where so much is possible. It has all the good points of a stand-camera, with the additional advantages of portability and the power to follow moving objects and to keep them in focus at the same time.

### The Reflex in Architectural Work.

The valuable architectural work possible with the reflex camera gives it an additional value. No matter how carefully one may look through an ordinary finder, or how accurately the levels in the camera are adjusted, the small scale of the finder renders it more or less uncertain whether the lines of the subject are upright. There is always a moment when the camera leaves the levels to look at the finder, and that moment is usually long enough an interval for the perpendicular to be lost and the picture spoilt. With the reflex finder, carefully ruled with marginal lines and vertical and horizontal lines in the centre there is no possible chance of the subject being out of perpendicular, and it can be watched right up to the moment of exposure. For exterior views of buildings and streets there could be nothing better, and except for cases where an extreme degree of rising front is necessary nothing more is required than with a reflex camera can give you.

The study of insect life and birds on the wing (a branch of photography which is becoming very popular) may be better carried out by means of a reflex camera than by any other type. A bee in a flower, a spider on its web, may be represented life size with ease by means of the reflex, but with any other type of hand-camera there would be little chance of obtaining a satisfactory result.

### In Judging of "Photographic Quality."

The quality in a subject which one might call "photographic" is better appreciated and more easily judged by the appearance of the image upon the ground-glass of a reflex than through the ordinary brilliant finder—to my mind a most important point, as the photographer is frequently led astray by the prettiness of a subject when seen through the ordinary finder, and as frequently disappointed with the result of the exposure. The nearer the relation of tones in a subject the more capable is



good photographic rendering. In no other hand camera, ever, is it possible to ascertain the value of this tone relation by means of the finder.

To enumerate a few of the features, where perhaps it is hoped the improvement will in the near future be effected, is perhaps natural after having spoken so highly of the reflex type camera. To secure the reversing frame for upright and horizontal pictures perhaps a little greater bulk is necessary in the camera itself, and a corresponding increase in weight; but, the painter, when he goes out in search of pictures, does not mind carrying his stool, easel, umbrella, paint-box, etc.; should the pictorial photographer make so much of portability and weight? Efficiency and utility are sacrificed often for the sake of portability.

The noise of the simultaneous release of the shutter and mirror is at times rather alarming, and attention should be given to remedy this. It is really the only real disadvantage which I have found in its use. The particular make of instrument which I have used since it came out is very assertive in this matter; and upon one occasion, when snapshotting the King of Spain some two or three times at twenty yards' range, a tremor or alarm seemed to affect his courtiers. It is equally offensive upon many occasions where silence would be valuable; but even with this somewhat unpleasant defect, to my mind it stands to-day head and shoulders above any other type of camera for all the qualities which make a useful, valuable, and, better still, a reliable hand-camera.

ARTHUR MARSHALL, A.R.I.B.A., F.R.P.S.

## THE REFLEX CAMERA IN NATURE PHOTOGRAPHY.

In reference to the number of examples of natural history work in the reflex exhibition, the notes by Mr. Martin Duncan as to the essentials for success in such photography are of special interest.—Ebs. "B.J."]

There are the difficulties with which the naturalist-photographer has to contend, for the majority of his models are shy, restless, wayward creatures, frequently making the greatest demands upon his patience and skill, ere a successful picture can be obtained. Therefore, any piece of apparatus that will materially help to lighten his labours and give an increased certainty of obtaining a desired result is indeed a boon; and, without doubt, is a really good reflex camera. I say a really good reflex camera, because there are, unfortunately, many forms of this camera on the market that are, for various reasons, more or less useless for accurate work.

The ideal reflex camera for nature work will have many points in its construction that would not be very important in ordinary hand-camera work or press photography, but which are of vital importance when photographing animals, birds, insects, etc. First and foremost, the camera must be thoroughly well made throughout, because it will have to stand plenty of rough, hard wear. It must be perfectly unobtrusive in appearance, preferably covered with very dark green or black leather, and on no account must there be any brass or other bright metal fittings to reflect light and attract attention.

The camera must have a long extension of bellows, and must be rigid when racked out to its greatest extension. This is a point in which many reflex cameras fail, being only provided with sufficient extension for a short focus lens. Therefore, a reflex camera that is intended for nature work should have an extension of at least fifteen inches.

And here a word or two about lenses suitable for natural history work with a reflex camera may not be out of place. On account of the small size of the image on the plate, and the abrupt and more or less grotesque foreshortening of all objects, produced by a short-focus lens, it is most unsuitable for all natural history work. Really, for natural history photography, one should not use a lens of less than 7 in. focus on a quarter-plate. On account of its close definition and large working aperture, the best modern stigmat type is the ideal lens for the naturalist-photographer, the majority of his exposures have to be as short as possible, and not infrequently have to be made under anything but ideal conditions of lighting. Therefore, a lens working at  $f/5.6$  is an additional step towards success, enabling him to take a fuller exposure to his plate. Hitherto, the great drawback to the use of a telephoto lens for nature photography has been the small working aperture of the lens itself and the considerable extension of camera bellows required. Recently, Messrs. Emil Busch have introduced a new type of telephoto

lens, which I believe has a great future before it for natural history photography. It is called the "Bis-Telar" lens, has a working aperture of  $f/9$ , and does not require a long extension of camera. I am very pleased with the results I have obtained with one attached to my reflex camera; the definition is crisp



Larva of the Privet Hawk Moth. By F. Martin Duncan, F.R.P.S.

and excellent at full aperture, and as the lens works at  $f/9$ , one can use it for moderate hand-camera exposures in comparatively dull weather. When using any form of telephoto lens on a reflex camera, it is most important to hold the camera as rigid as possible at the instant of making an exposure.

To return to the construction of the camera. The mechanism

of the release of the focal-plane shutter and the mirror should be as simple in character as possible; and if it can be easily got at for repairs or any necessary adjustment, so much the better. It is most important that the setting of the focal-plane shutter, adjustment of its speed, and size of slit, should be of rapid, easy, and silent accomplishment, for one generally has no time for fiddling about with more or less troublesome mechanism, whilst clicking sounds are apt to draw attention to the camera, and cause the hasty retreat of the model. The focal-plane shutter should be capable of giving exposures ranging from 1-10th to 1-100th of a second; and that it will work smoothly and accurately at its slowest speeds is of far greater importance than its capability to give an extremely short exposure. The simultaneous release of the mirror and



Peacock Butterfly expanding its wings preparatory to first flight after emerging from pupa. By F. Martin Duncan, F.R.P.S.

focal-plane shutter should be as silent and free from vibration as possible.

The focussing hood, when in position, should be deep, perfectly rigid, and shaped to fit closely against the face, so that all light will be shut off from the front surface of the focussing screen when the face is pressed against the hood. The focussing hood is really a very important factor, as it has to take the place of the ordinary voluminous focussing cloth, and unless properly constructed is apt to prove a very poor substitute. The reflex camera should be fitted with a good rising front and a reversing back. The front should also have a flap lens hood, to act as a sky shade, which is a very necessary and important adjunct, making a very great difference in the clearness of the image obtained on the negative, and enabling one to work against the light.

Where the reflex camera is of such very great value and

assistance in nature photography is in the power it gives one of following all the movements of the subject to be photographed on the focussing screen, with the plate-holder in position and the shutter set, enabling one to focus critically up to the instant of making the exposure. Anyone who has attempted with an ordinary stand or hand camera to photograph some restless bird, animal, or insect, that is constantly changing its position, will at once realise what a boon the reflex camera is. The photographs which illustrate this article were all taken with a reflex camera, and are characteristic examples of subjects which are very difficult to photograph satisfactorily except with a camera permitting one to follow



Willow-Wren and Young. By F. Martin Duncan, F.R.P.S.

up to the instant of making the exposure. The young willow wren, for instance, was constantly changing its position hopping about after its mother in a way that would have made it almost impossible to obtain a picture with an ordinary camera.

To succeed in photographing natural history subjects, one must have a real love for the work, patience, determination and "learn to labour and to wait." Make yourself thoroughly familiar with the life and habits of your models, and study the environment in which they live, for with such knowledge your pictures will not only be far more natural and characteristic, but you will be able to approach much nearer to your subject. Never be in a hurry, but always be ready. Nothing alarms wild creatures more than quick, sudden movements.

F. MARTIN DUNCAN, F.R.P.S.

**DEATH OF MR. R. F. REYNOLDS.**—We regret to have to announce the death, on the 1st inst., of Mr. Richard Freshfield Reynolds, of the well-known firm of Reynolds and Branson, Ltd., Leeds. A short time ago Mr. Reynolds, who was forty-six years of age, fell in the street and sustained compound fracture of one leg, which, though not at first considered serious, led to complications, the immediate cause of death being heart failure.

**THE ROTARY PHOTOGRAPHIC COMPANY, LTD.**, have compiled a list of the causes of, and remedies for, the failures most frequently met with in working their "Rotary" carbon and colour photography processes. The tabulated form of the list makes it easy of reference, and the information should prove useful, not only to the amateur in his early experiments, but also to the advanced worker. A copy

of this list will be sent post free to any of our readers on application to The Rotary Photographic Company, Ltd., 12, New Union Street, Moorfields, London, E.C.

**NORTHUMBERLAND AND DURHAM FEDERATION OF PHOTOGRAPHIC SOCIETIES.**—The annual field day of the federation is fixed for June 27th when, at the invitation of the Morpeth Y.M.C.A. Camera Club, visit will be paid to that town. An interesting programme has been drawn up, and, provided the weather be favourable, an enjoyable and profitable time is anticipated. Parties will be formed to visit places of photographic interest in the town and surrounding district, and the Morpeth Camera Club will award a silver medal for the best picture taken at the outing. Full particulars may be obtained from Mr. James Whittle, 30, Bridge Street, Morpeth.



## SOME NOTES ON THE REFLEX-CAMERA PHOTOGRAPHS AT THE "B.J." HOUSE.

is perhaps claiming a little too much to say of reflex cameras, at by their works ye shall know them. In an exhibition devoted entirely to achievements by this latest development in photographic apparatus, there does not appear a sudden, dumbfounding advance in selection of subject and focussing. A technical expert (alas! I am the reverse) might be able to point out how certain facilities have resulted in certain felicities; but, in an ordinary way, a man would have to resort to guesswork if he went, say, round the autumn show at the New Gallery pointing his finger upon the prints due obviously to reflex cameras.

What might be said with some certainty is, that if so and so had possessed a reflex, he would have saved himself that lamentable focussing and that unfortunate selection. The ordinary camera working without a focussing screen is a hit-or-miss affair. It is often as not one does not get what one aims at. Vexation of spirit, to say nothing of ejaculations and expletives, await the amateur camera worker who trusts to his own calculations or to a view-finder alone; but he may make his developing a more salutary operation by the adoption of the mirror attachment. In my own humble and unguided efforts I have been a victim to the false clear finder bought separately and attached precariously to the top of the camera. This contrivance was purchased under the assurances of the counter-man that when fixed in its place it was rigid and dead-true. As a matter of fact, it was easily bent off by the caressing touch of a coat-sleeve; and its images were positively misleading. Its pictures, though small, were strangely spacious. A figure, in three paces, would shrivel up to a quarter its size: insignificant foreground objects occupied all the field. Verticals were never perpendicular in its pictures; but when they were made as upright as possible, they were worthlessly aslant in the negative. This little toy was soon abandoned. Guesswork was a deal safer.

With all these safeguards, prophecies, and checks, we should expect to find an exhibition of reflex camera work all that photographs should be. But there is one thing these cameras do not do; they do not give the user taste. Consequently, though all the exhibits at 24, Wellington Street are immaculate in the matter of focussing, they are not all faultless in the selection of subject. True, there are few that show men as pigs tramped down in half, or trepanned and amputated; but there are one or two that display awkwardnesses of composition clearly the fault of the camera, but the artistic peccadillo of the photographer.

On the other hand, it is fair to say that, with these few exceptions, the selection of the subject is obviously the best that could be made under the circumstances. Now and then there is one of those unusually happy arrangements wherein chance seems to have done more than all that forethought and design and taste and art together could have done in a week.

### Mr. J. H. Stewart's Yacht Photographs.

For example, the two yachts, "Sonya" and "Adela," which Mr. A. Stewart has captured, are exquisite. Their beauty of line, their swift, sweeping movement, the precision and crispness of their presentation, and their silvery scheme of tone, so true and so such fascinating gradation—all these beauties are photographic. Impressionistic they may not be, and I, for one, am fond of it. They are not even human visions of the things; but they are beautiful, nevertheless. It is not claimed, of course, that nothing but a reflex could have given them. The subjects

are common enough. But the point is that Mr. Stewart could see them swooping along without looking at them: his exposure was made just when they nicely filled the space of his plate, and when they looked right. A view-finder's word to "go" would have been, by comparison, an approximate business: the reflected image was a certainty.

### One Drawback (!) to Reflex Cameras.

Most of the pictures by H. Bairstow are similarly satisfactory; but his larger selection admits, naturally, more than two things, both first-rate. In his picture "Striking a Bargain" he has some men and women bartering sheep in the road of a provincial town abroad. It is all capitably arranged except for an empty upright panel-shaped piece on the right-hand side, which is awkward and pictorially unpleasant. His "Vegetable Market, Evreux," is likewise good in all but one respect, namely, a heap of cabbages which makes a painfully obvious triangular mass right in the middle of the composition. The one drawback to reflex cameras is that they allow no excuse for such pictorial sins, the blame for which they shovel unmistakably and unmercifully upon the operator. Mr. Bairstow's best selection is perhaps that entitled "Ahoy There!"

"Bother the Children," by W. Thomas, is a most neatly caught episode of a mother and two youngsters in a street of St. Ives, Cornwall. Quite happy in its arrangement and setting, it is an ideal genre subject ready to hand, and would paint well.

The Italian scenes of Percy Lewis are well known. They are always well chosen. His "Woodland Scene" is likewise a capital subject.

Even at the risk of being mutilated into piffle, I would suggest that, with a reflex in his hand, W. F. L. Wastell should have avoided bad balance by allowing less at the right-hand side of his "Adversity," a piece of first-class character photography, showing Cockney flower-girls upon the steps of the Piccadilly Circus fountain. But it was unkind of him to call a poor ugly old woman, in another example, "Herself the fairest flower of them all."

A choir, or some other such ecclesiastical procession, scuttling through a street into the portal of a religious building, is the subject S. S. F. Fletcher calls "A Procession, Cancale, Brittany." It was a thing worth securing, for it has humour, giving the undignified side of sacerdotal decorum. The flying vestments doubtless recommended it to Mr. Fletcher as a fitting subject for his "Birdland" camera.

This remark brings us to Mr. Pike, his "Kites and Eagles," and to all the other natural history pictures which photography has revolutionised. Riley Fortune, F.Z.S., has a "Flying Gannet," and Charles Kirk, "Gannet on Wing"—a nice distinction, which only ornithologists will appreciate.

Comedy is represented by a poor little birdling ruthlessly held in a horny hand and looking up to its captor with hatred and scorn whilst its beak opens with the denunciation "You Brute!" For tragedy we have a horrible octopus sucking the life out of a crab. It is a shocking and nauseating performance beautifully presented. Our only consoling thought before us is that, after all, that sort of thing is only what the crab himself has often done.

There are plenty of other pictures of natural history and portraiture displaying the facilities of the various types of reflex cameras. The examples here touched upon are neither the worst nor all of the best.

F. C. TILNEY.

## A REVIEW OF RECENT WORK IN COLOUR SENSITISING.

### IV.

SINCE the previous notes have been in type, an article by T. Thorne Baker (1) has appeared, in which he states that "certain dyes sensitise the plate in the region of waves of greater length than the wave length of the band of absorption of the dye, and other dyes sensitise the plate for a region of waves of shorter length. *In other words, the maximum of sensitising is sometimes to the left, sometimes to the right of the band of absorption.*" The italics are mine, and I think that this statement requires confirmation. So far as I am aware there has been absolutely no case recorded, nor can I find on reference to notes of my own sensitising experiments, any such shift of the sensitising towards the violet end.

It is obvious that if confirmation of Mr. Baker's statement is forthcoming it will seriously affect the now accepted theory of colour sensitisers, that is, that Kundt's law is the explanation of the shift towards the red, unless, of course, Mr. Baker's statement refers to but few dyes, and one accepts the old and erroneous adage that exceptions prove the rule. I may possibly be allowed to add that Mr. Baker gives no data as to the dyes that prove his statement, nor does he publish any spectrograms, and that the statement must be accepted with all reserve.

There is one other point in connection with the use of dyes and sensitising, and that is the influence of the chemical nature of the dye. This question was examined by Eder (2), who, from an examination of over 140 dyes, comes to the conclusion that there is no regular connection between chemical constitution and sensitising action.

#### Cyanine Sensitisers.

One would naturally expect that dyes of one family such as the cyanine and isocyanine derivatives may all be sensitisers, though in different degree possibly, because the substitution of nitrate for iodide, chloride, sulphate, or bromide would presumably have less action on the nature of the dye than a substitution in the grouping of the dye base itself. But as Eder points out, the bromo, chloro, iodo, and benzyl derivatives of fluorescein are all sensitisers, yet the introduction of the nitro radicle at once decreases, if it does not actually destroy, sensitising. Rosaniline is a sensitiser, but rosaniline sulphonic acid is not; here the introduction of the sulpho radicle  $\text{SO}_3\text{H}$  or  $\text{SO}_3\text{Na}$  has destroyed the sensitising action. On the other hand, benzaldehyde green and its sulphonic compound are both sensitisers. As a rule the introduction of the sulphonic group has but little influence on the dye as a dye beyond making it soluble in water, and as a rule making the dye an acid dye that is capable of combining with a metal base.

Dr. E. König (3) says: "The number of practically useful dyes is relatively small. Good sensitisers have been found in all classes of dyes. Dyes differing most widely in constitution and composition, of greater or less stability to light, frequently show very similar behaviour as sensitisers." It is obvious then that like chemical constitution is no criterion of like sensitising power.

MM. Lumière and Seyewetz (4), dealing with the relation between chemical constitution and sensitising, state that it is well known that the dyes which are used to sensitise gelatino-

bromide of silver for red, yellow, and green do not act only by staining the gelatine, thus forming a sort of screen which absorbs the complementary colours, for if this was so all colouring matters having the same absorption spectrum ought to be sensitisers. But experience has proved that this property is only common to quite a limited number of dyes, and that, of a number having the same absorption spectrum, some will sensitise whilst others are absolutely devoid of this property. The number of dyes of acid character is as great as those with basic properties. Testing almost all the known dyes, about 650, and classifying according to their constitution all the dyes which produce any effect, the authors noted that the sensitisers belong to a very limited number of classes of dyes, and that they were found in relatively large numbers in each of these classes. Thus there were found about:—

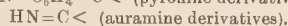
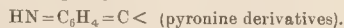
- 4 sensitisers amongst the derivatives of diphenylmethane, a group which comprises really very few dyes;
- 30 sensitisers in the phthaline or rhodamine group;
- 12 sensitisers in the rosaniline group;
- 10 sensitisers in the quinoline, acridine, and phenylacridine derivatives;
- 5 sensitisers in the thiazol or azothiazol colours;
- 10 sensitisers in the azodiamine derivatives of benzidine or its homologues.

The relatively large number of dyes endowed with sensitising powers which are found in the above few groups and isolated dyes in others would seem to prove that it is alone amongst the dyes belonging to the above groups that we must look for sensitisers. And what appears to confirm this hypothesis is that in the groups containing the active dyes, whatever they are, the sensitising action is always produced in the same region of the spectrum by dyes possessing the same absorption spectrum.

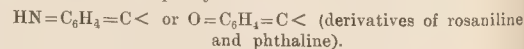
#### Sensitising Groups.

One may admit, then, the principle that in the dyes there is a group which gives to the dye its sensitising power. We may designate these groups "sensitising groups." To establish their composition it is sufficient to find what are the elements common to sensitisers of the same class. But it will be seen that they are the same as the chromophorous groups of the dyes. The following is the constitution of this group:—

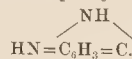
Derivatives of diphenylmethane:



Derivatives of triphenylmethane:



Derivatives of acridine and phenylacridine:



Derivatives of thiazol or azothiazol:



Azo dyes (diamines):



It is difficult to determine with accuracy the sensitising group of the quinolines, but it would appear to be very analogous to those of the triphenylmethane derivatives.

It will be thus seen that there is really a relation between

<sup>1</sup> Rev. Suisse, 1906, No. 11, p. 310. The full title of the paper is "Sur la Théorie de la Sensibilisation aux Couleurs par les Colorants," par M. T. Thorne Baker, F.C.S. (Résumé complet des recherches récemment communiquées par l'auteur à la "Royal Photographic Society of Great Britain.") Although dated 1906, No. 11, this issue appeared in May, 1907.

<sup>2</sup> Beiträge zur Photochemie, Part III., p. 23.

<sup>3</sup> Vogel's "Photochemie," 1906, p. 318.

<sup>4</sup> "Résumé des Travaux Publiés," 1906, p. 75. Although no precise statement is made, I gather that this paper was read before the Congrès des Sociétés Savantes, 1898.



sensitising power of a substance and its constitution, variable to that which is found for its colouring properties.

### The Composition of Dyes.

This brings us to the question of chemical constitution from point of view of the photographic experimentalist who is a dye chemist. He is in most cases dependent on the dye manufacturer for his supply of dyes, and, except in special cases, has absolutely no guarantee of the purity of his dyes. Thus a common thing in dye practice for manufacturers to use dyes which are not adulterated but yet are diluted with substances, such as dextrine, or salts which are necessarily in the dyeing process, such as Glauber's salts. Taking consideration also the extremely complicated nature of the compounds used in the manufacture of a dye, one cannot be surprised if by-products, other than those usually intended, are produced. How then is the photographer to determine whether the sensitising action is due to the dye or the secondary product? For photo-chemical investigations it would be absolutely essential, therefore, for pure dyes to be used. In connection with this point it may be well to point out that the name of a dye is no criterion of its chemical constitution. As an example of this kind I may quote my experience with cochineal A, a dye I once used for the red screen in three-colour work. It is derived from naphthionic acid and *b*-naphtholdisulphonic acid and is actually an azo dye. Running short, some new dye was ordered, not from the same maker, and I received eosine lake as the correct thing. Naturally, the absorptions were totally different. Again, take the case of erythrosine, which is a tetraiodo fluorescein salt, but erythrosine B is the bromotetrachlorofluorescein compound. Again, erythromycin and BMP are again different. Again, there are five or six different eosines, though we understand eosine as the bromofluorescein compound.

References have been repeatedly made to Eder and Valenta's *Träçe zur Photochemie und Spectralanalyse*. This is the most complete and collected work on the subject, and contains the examination of over 600 dyes as sensitisers; it is, therefore, an extremely valuable work of reference. To those who wish to undertake the examination of dyes as regards their sensitising powers the above work is indispensable, as is also some text-book on dyes themselves.

### How First to Test a Dye.

The first thing to do with a dye is obviously to examine its absorption spectrum, as from this some clue, even if a rough one, can be obtained as to the region for which it will sensitise. Generally an absorption spectrum varies as the solvent of the dye, but the difference between an aqueous and alcoholic solution is not always great. The use of solvents such as chinoline or anything which cannot be used in the sensitising of a plate, is obviously absurd. Sometimes a difficulty may be found in dissolving a dye in water. In that case alcohol, or equal parts of alcohol and water, should be tried, and both rectified and methylated spirit, for a dye may dissolve in the latter and not in pure alcohol. The use of alcohol also, if only to form a stock solution, will often precipitate a diluent such as dextrine, etc. It is not advisable always to filter a dye solution; it is preferable to let any sediment settle, and use the clear solution, for, in filtering, the dye may be precipitated or adhere to the filter paper.

The measurement of the absorption of a dye is not an easy matter unless one has a spectro-photometer; but for photographic work probably the easiest method is to make a solution of known strength, measure as accurately as possible the limits of its absorption band or bands, and then dilute the solution to a definite proportion and again measure the limits of the absorption, naturally in the same thickness of solution, when the limit of maximum absorption may thus be roughly estimated and persists the longest, that is with decreasing strength.

The edges or centre of an absorption band are utterly useless, for, as Baly (5) says, "A great deal of quite valueless work has been done upon the absorption bands of solutions; many of the measurements have been based upon purely arbitrary scales, and further, insufficient attention has been paid to the position of the maximum absorption of a band. A measurement of a band simply stating the wave-lengths of the edges is of no use, because very often the middle is not the darkest part."

That the position of maximum absorption is not the centre of a band and *vice versa* is beautifully shown with a strong solution of ivy or parsley leaves; in fact, any solution of chlorophyll, if strong enough or thick enough, for the two terms are convertible, will show it. The absorption extends for the alpha band from about  $\lambda$  6,500 to  $\lambda$  5,280, and the D line is the centre of the band. Dilute the solution or reduce the thickness to one-tenth, and the band now extends from  $\lambda$  6,400 to  $\lambda$  6,000 and the D lines are no longer in the band at all.

Considering the extremely satisfactory sensitisers which we have, it is an open question whether, except for purely scientific experiment, the examination of dyes as sensitisers pays, except for special purposes. The work is extremely laborious, for one must test the dye in various strengths, though here its tintorial power is some rough guide, and one must also try the action of ammonia. The addition of silver nitrate, whilst possibly permissible for special work, is not so for average use, as plates thus treated will not keep.

One has to determine also whether a dye in conjunction with colour-sensitising also depresses or increases the blue-sensitiveness of a plate, or if for spectroscopic work whether it increases the sharpness of the Fraunhofer lines, which it may do without increasing colour-sensitiveness. For testing plates one should use not only a spectroscope but a colour chart, for a dye may act well in the spectroscope and yet prove of little value for practical work. In both cases to test the limit of sensitising it is always advisable to use a colour screen, such as the red filter for three-colour work. The use of such a filter, for instance, in spectroscopic work eliminates the scattered light in the spectroscope, and enables one to obtain records of the red end without undue exposure or solarisation of the blue end.

This device is well known in visual work (6). M. Stefanik has by the same device visually observed the infra-red up to  $\lambda$  10,000, and M. Millochau (7) has by this means photographed to  $\infty$  in the infra-red on Lumière ordinary plates bathed with a concentrated solution of chrysoidine, and using a liquid filter of chrysoidine malachite green and aniline violet.

Precisely the same principle is, of course, used in ordinary photographic work when a yellow filter is employed with a colour-sensitive plate. The filter does not increase colour-sensitiveness, it merely reduces the action of the blue and violet rays, and enables one to prolong the exposure sufficiently so that the much lower sensitiveness of the plate to the yellow and green rays comes into action, and yet not obtain over-exposure or solarisation with the blue.

### The Screening Action of Dyes.

There is one action of a dye which so far has not been touched upon, and that is the "screening action," which was, I believe, first actually drawn attention to by Von Hübl (8). He says: "The silver bromide must be dyed by the dye, and there is no purpose, except an actual prejudicial one, in adding excess of dye to the emulsion—that is, more than the silver bromide can take up. The collodion is coloured by the excess of dye, and the rays of light must penetrate the stained collodion in order to reach the silver bromide grain. The collodion acts then as a

<sup>5</sup> "Spectroscopy," E. C. C. Baly, 1905, p. 400.

<sup>6</sup> "The Estimation of Colour-sensitiveness of Plates," Mees and Sheppard.

<sup>7</sup> "Phot. Jour.," March, 1906, p. 128.

<sup>8</sup> "Comptes Rendus," June, 1906.

<sup>9</sup> "Die Collodium Emulsion," Halle, 1894, p. 74.

coloured filter, which practically absorbs those rays for which the silver bromide was sensitised. The disadvantage of too strong a staining is very plainly seen with cyanine, as faintly stained emulsions such as are scarcely blue are incomparably more sensitive than those which contain larger quantities of dye."

It is generally admitted that the use of a prismatic spectro-scope is not so advantageous as the diffraction grating or a replica, because of the crowding together of the less refrangible rays. Still, this very fact may enable one to detect slight colour-sensitiveness, which might otherwise be overlooked with a grating. Whether, when such action is so faint that it requires this additional help to detection, it is of any practicable value is quite another matter.

If a grating is used care must, however, be exercised that the ultra-violet spectrum of the second order is not superimposed on the red and infra-red, and thus lead to totally erroneous conclusions. The ultra-violet can, of course, be eliminated by the use of aesculine, or if, as suggested above, a red filter be used, then the use with this of filter yellow K will save all trouble in this direction.

#### Colour-Sensitive Photometer Paper.

Although it may be said to be by some rather far-fetched, yet there is no harm in calling attention to Andresen and Eder's work on the use of colour sensitised bromide paper as a normal photometer paper, and for this reason that Eder<sup>(9)</sup> has proved that "bromide and chloride of silver films sensitised with dyes behave analogously both in development and by direct blackening; the sensitive zones suffer a change in both

cases in approximately the same regions of the spectrum, and show analogous maxima and minima of action. In certain stages of exposure and development the curves of the two kinds of density run approximately parallel." Eder has found a rule to apply generally to silver chloride and to bromide of silver, strong cyanine, formyl violet, cyclamine and chinoline red, but not with alizarine blue bisulphite or some indulines and nigrosines. Much obviously depends upon the composition of the emulsion, notably on the presence or absence of iodide.

This method might be of value as a rough test of the sensitive powers of a dye, and Andresen's method<sup>(10)</sup> of preparing paper is as follows:—Raw paper is bathed for five minutes in solution of potassium bromide, 61 gms. in 1,000 c.c.s. of water and dried. Then in the dark-room it is sensitised by floating for two minutes on a 12 per cent. solution of silver nitrate and washed to remove all the soluble salts. The washed paper is then bathed for five minutes in a solution of:—

Sodium nitrite .....	6 gms.
Rhodamine B 0.5 per cent. alc. sol....	8 c.c.s
Water .....	200 c.c.s

and dried in the dark.

Andresen recommends chlorophyll for red, rhodamine B or rose-bengal for yellow, erythrosine or eosine for green, and auramine for bright blue.

It is quite possible that one might, by means of this process, make a paper which could be used with suitable filters to test the amount of coloured rays in white light, or the exposure for three-colour work. Still, this is merely a suggestion.

E. J. WALL, F.R.P.S.

<sup>9</sup> "Beiträge zur Photocchemie," Part III., p. 145 et seq.

<sup>10</sup> "Phot. Korr.," 1898, p. 504.

## GERMAN IMPORTS AND EXPORTS OF PHOTOGRAPHIC REQUISITES.

THE following official figures for the various classes of photographic goods exported from and imported into Germany apply to the first three months of the present year:—

JANUARY TO MARCH, 1907.

Raw Unworked Optical Glass.

Import.....	326 dz.*	Export.....	447 dz.
	W 293,000 M		W 447,900 M

From	To
France.....	136 dz. Switzerland .....
Austria .....	186 dz. U. S. America .....

Optical Glass Worked. Lenses for Optical and Photographic Purposes.

Import.....	12 dz.	Export.....	26 dz.
	W 18,000 M		W 52,000 M

From	W 10,000 M	To	W 52,000 M
France.....	6 dz.	Great Britain.....	5 dz.
Austria .....	6 dz	U. S. America .....	3 dz.

Special Optical Glass, Photographic and Telephoto-objectives, Microscopes.

Import.....	15 dz.	Export .....	188 dz.
	W 51,000 M		W 2,820,000 M

From	To
France ..... 7 dz.	Great Britain..... 37 dz.
Austria ..... 2 dz.	Japan ..... 25 dz.
	U. S. America ..... 17 dz.

Spectacle and Stereoscopic Glasses, Unmounted.

Import.....	1 dz.	Export .....	94 dz.
	W 1,000 M		W 132,000 M

From	To
Italy ..... 1 dz.	France ..... 39 dz.
	Switzerland ..... 38 dz.

\* Double zentners.

† Value.

Photographic Apparatus, Stereoscopes.

Import .....	65 dz.	Export.....	538 dz.
	W 260,000 M		W 4,842,000 M

From	To
France ..... 15 dz.	France..... 78
Great Britain..... 24 dz.	Great Britain..... 116
	Austria ..... 58
	Russia in Europe ..... 63

Photographic Dry Plates.

Import .....	276 dz.	Export .....	1,646 dz.
	W 55,000 M		W 329,000 M

From	W 35,000 M	To	W 325,000
France .....	43 dz.	Switzerland .....	167
Great Britain.....	177 dz.	Austria .....	647
		Sweden .....	126

Dry Plates for Photography and other Materials Made from Gelatine.

Import .....	13 dz.	Export .....	81 dz.
	W 2,000 M		W 44,000 M

From	To
France .....	8 dz. France .....
U. S. America .....	4 dz. U. S. America .....

Photographic Raw Paper.

Import .....	435 dz.	Export.....	4,762 dz.
	W 121,000 M		W 1,191,000 M

From	W 121,000 M	To	W 1,191,000
France .....	215 dz.	Great Britain.....	1,229
Great Britain .....	12 dz.	Belgium .....	942
		U. S. America .....	2,206
		France .....	26



## Sensitive Photographic Papers.

Export .....	235 dz.	Export .....	2,366 dz.
W 282,000 M		W 2,839,000 M	
To		To	
Great Britain .....	73 dz.	Great Britain .....	952 dz.
Austria .....	37 dz.	Austria .....	156 dz.
Russia in Europe .....	33 dz.	Russia in Europe .....	106 dz.
Belgium .....		Belgium .....	47 dz.
Denmark .....		Denmark .....	19 dz.
France .....		France .....	70 dz.
Italy .....		Italy .....	210 dz.
Holland .....		Holland .....	48 dz.
Norway .....		Norway .....	17 dz.
Sweden .....		Sweden .....	50 dz.
Switzerland .....		Switzerland .....	136 dz.
Brazil .....		Brazil .....	13 dz.
U. S. America .....		U. S. America .....	377 dz.
Australia .....		Australia .....	22 dz.

## Photographic Prints.

Export .....	176 dz.	Export .....	383 dz.
W 176,000 M		W 439,000 M	
To		To	
Austria .....	44 dz.	Austria .....	70 dz.
Switzerland .....	21 dz.	Switzerland .....	62 dz.
Belgium .....	41 dz.		
Denmark .....	18 dz.		
France .....	12 dz.		
Italy .....	1 dz.		
U. S. America .....	17 dz.		

## Chemical Productions undescribed for Photographic Purposes.

Export .....	1 dz.	Export .....	168 dz.
W—M		W 127,000 M	
To		To	
Great Britain .....	— dz.	Great Britain .....	91 dz.
U. S. America .....	— dz.	U. S. America .....	93 dz.

## A ONE-MAN PHOTOGRAPHER ON HIMSELF.

ERAL delicious touches of humour enliven the contribution of last week to our contemporary, "The Photographic News," on its page devoted to "My Best Picture, and Why I Think So." There Mr. Lewis, still the gentlest and wittiest of Bohemians, and generally established in the old studio of Mr. Gambier Bolton in St. John's Wood, says a few words on a portrait by himself of Mr. Alexander Haddon, which, as all friends of Mr. Haddon know, is "Haddon to the life." Mr. Lewis is one of the "professional photographers"—we use the phrase *faute de mieux*—of whose work is individual, as, indeed, it ought to be, for the end of the process to the other no other hand but his own. As a professional photographer he is before his time, but the historian of photographic portraiture will write him down as one in an age of utterly commercial work, produced only what might be thought worthy of his sitters and himself, and we know of no artist who could do more. While the midget maker drives his motor, our friend Furley is probably taking a penny 'bus to St. John's Wood, there to spend an evening over the printing of a single portrait, we are glad to think that he, and such as he—not many of them—are rescuing photography as an art of portraiture from submergence in the great gulf of commonplace. Of his portrait Mr. Lewis

in self-defence I must join with those who have expressed dissent in the title of this interesting series. For, surely, were the poor 'professional' publicly to declare any individual work his best, as a means of vengeance from slighted sitters were awakened, and his own would but court calamity. Indeed, I have been told that it has become the fashion for the personal worker to assure each and every sitter that unto him or to her it has been vouchsafed to receive the artist's choicest achievement!

Resisting the temptation to play for safety by sending you a particularly masterly landscape, made per 'Tick-a,' I submit, as one of my favourite works, this portrait of Mr. A. Haddon, as embodying two somewhat heterodox views, which I venture to hold with regard to modern photographic portraiture.

Thus, it attempts nothing more than a simple but literal likeness, the sitter is clothed in the habit of the man as one best knows

him; and the creases, facial and sartorial, are his own. It actually includes—from one aspect, anyhow—the entire head of the sitter. I don't like old scapels littering up my trimming desk.

"It is focussed as well as the lens allows, and therefore would not readily be mistaken for, say, my friends Mr. Snowden Ward, Mr. Coburn, Mr. Bernard Shaw, or other frequent victims to the portraitist's bow and spear. By way of confirming the correct impression, however, Mr. Haddon's name is legibly embodied in the print itself.

"What breadth it possesses is arrived at in the arrangement and lighting of the subject, and not by disarrangement of rack and pinion, diffusion, or other aids to incompetence; and—now speaking personally—it is some record of one to whose research and skill our craft is for ever indebted."

## A NEW HIGH-POWER GAS LAMP.

QUITE recently (writes Mr. Richard Böhm, in the "Times" Engineering Supplement) a new high-power lamp has been invented which, when connected to an ordinary gas installation, produces increased pressure automatically. Lucas, the inventor of this lamp, has previously rendered great services in the sphere of lighting, and he has now succeeded in constructing a lamp of considerably greater illuminating power than those previously introduced. It is a well known fact that the illuminating properties of the incandescent burner largely depend upon the proportion and the uniformity of the mixture of gas and air. The ordinary Bunsen burner does not comply with these conditions, since with normal gas pressure the flame is only furnished with about half the quantity of air necessary for complete combustion. This proportion should be one part of gas to 2.8 parts of air, and therefore the flame, in order to obtain the requisite amount of air to complete the combustion, must draw supplies from the atmosphere in the immediate neighbourhood of the burner. In the Welsbach light this lateral absorption of air takes place all round the mantle, and is associated with a definite lowering of temperature, so that the gas consumed in the burner does not produce the same heating effect which can be obtained with a more perfect mixture of gas and air in the burner itself.

In 1895-6 Denayrouze endeavoured to produce an improvement in these respects by arranging in the mixing tube of the burner a small fan driven by the electric motor, and in this way he was able to produce a much more intense light centre. These high-power burners have been introduced in France to a somewhat large extent, but they are only intended for medium light centres of several hundred candles. Whilst the Denayrouze burner must derive the current necessary for driving the small motor from a special source of electricity, Lucas, in his new high-power lamp, has removed this drawback by arranging in the upper part of the lamp a thermopile, which is actuated by the heat contained in the spent gases. The current necessary for driving the motor in the lower part of the lamp is thus generated by the lamp itself in burning.

In construction the new lamp is exceedingly simple. A thin tube suspended from the main pipe serves to feed the gas into two mixing tubes, and between these lies the armature of a small electric motor. In order as much as possible to avoid friction the vertical shaft of the armature runs on a point in a brass tube filled with oil. A fan fixed on the same shaft draws in air from below, and forces the intimate mixture of gas and air through two lateral conducting tubes into a small chamber, from which the mixture passes to the burner orifice itself. The hot gases rising from the flame meet the sections of a thermopile, arranged in the upper part of the lamp. This source of electricity supplies the current for driving the small motor, and the wires terminate in two minute brushes of silver wire on the commutator of the motor.

Thermopiles have been known for a long time. In the present case a special form of construction was necessary, which should be, above all things, durable. Lucas made use of two metallic alloys, one consisting of copper and aluminium, the other composed of copper and nickel. These alloys, which are extremely heat resisting, are employed in the form of metal strips, which are soldered hard at the heated end, and soft at the cool end. The thermopile is arranged in the form of a disc, and is capable of being easily replaced. Equally

ingenious are the small motor and fan, so that these parts are not likely to get out of order, even after long usage.

On starting the lamp it burns at first under normal gas pressure, with a flame of little illuminating power. Presently the hot gases in the chimney heat up the inner junctions of the thermopile, and generate the current, so that the motor soon begins to drive the fan at a high speed. After half a minute the fan already rotates at a speed of 2,000 revolutions per minute, and the lamp emits a light of from 1,100 to 1,200 Hefner candles, consuming about 900 litres of gas per hour.

Professor Wedding has subjected this new high-power lamp to a searching examination, and has found that it gives far better results than the existing pressure gas lamps. It possesses the great advantage that it is independent of any machine, and can be attached to any ordinary gas installation and set into action at once.

In the tests of the lamp it has been found that after 1,460 hours' use it still continues to work efficiently, and the oiling only requires to be renewed after 500 to 600 hours' burning. The incandescent mantle lasted 70 hours, which is about the same as in the well-known compressed gas lamps. The mantle holder lasts 300 hours. The manipulation of the lamp is simple.

The Lucas lamp must be regarded as an important step in advance in the sphere of high-power gas lighting. It affords a simple solution of a problem which has been under investigation for a number of years. Its utility in practice has been put to the requisite proof by a year of uninterrupted observations, so that it may now be said to be ready for general introduction.

### THE REFLEX CAMERA EXHIBITION.

THE opening of the exhibition of reflex cameras and of photographs illustrating their use, at the house of the "British Journal" last Thursday, has proved an immediate attraction to numbers of photographers, and each day, from 10.30 to 4.30, the hours during which the exhibition is open, the "little gallery" at 24, Wellington Street has been the scene of a constant procession of photographers, anxious to inform themselves of the facilities possible by this latest triumph of the camera maker's art. Among those who have thus signified their approval of the action of the "British Journal" in arranging the exhibition are: Messrs. A. L. Adams, J. and W. B. Appleton (Taylor, Taylor, and Hobson, Ltd.), A. W. W. Bartlett (Kodak, Ltd.), Francis T. Beeson, J. Brown (Kodak, Ltd.), F. P. Cembrano, J. B. Cunningham, A. D. Doncaster (Sanger-Shepherd and Co.), F. Martin Duncan, F.R.P.S., Dr. E. R. F. Evershed, A. Horsley Hinton (Editor "The Amateur Photographer"), E. T. Holding, J. McIntosh (secretary Royal Photographic Society), H. G. Ponting, P. R. Salmon (Editor "Photographic Dealer"), O. Sichel, H. C. Spink, W. L. F. Wastell, and J. B. B. Wellington.

Since the exhibition has opened one apparatus not reviewed last week has been added to it, in the shape of the "Studio" reflex camera, by Messrs. O. Sichel and Co., a description and illustration of which appear this week, under 'New Apparatus.' Professionals and amateurs alike have evidently been interested in the wide range of possibilities which the reflex camera opens out, and it would seem as though the attendant at the "British Journal" exhibition, by whom the apparatus is explained to visitors, will find his time fully occupied until the closing date of the exhibition, July 6.

**THEFT OF PHOTOGRAPHS.**—A respectably attired man, giving the name of William Gregson, photographer, of no fixed abode, was brought up in custody, at the Tiverton Police Court on Saturday, charged with stealing photographs, valued at £2 19s., the property of Sidney James Cowell, photographer, of 35, Chapel Street, Tiverton. Mr. W. H. Martin, who prosecuted, applied for a remand, which was granted.

**ROYAL PHOTOGRAPHIC SOCIETY.**—It has been arranged that the society's annual dinner will be held as soon as possible after the close of the exhibition. Messrs. A. W. W. Bartlett and Leslie E. Clift have been appointed joint hon. secretaries, and members of the council will act as stewards. Tickets will be issued later in the year at 7s. 6d. each, and all members of the society are requested to assist in making the function a success.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made between June 3 and June 8:—

**COPYING, ETC.**—No. 12,778. Improvements relating to the copying, enlarging, or reducing of photographic or other prints or the like, said improvements being also applicable to the taking of direct photographs. John Shaw McCormick, 100, Wellington Street, Glasgow.

**DEVELOPING.**—No. 12,900. Improvements in and relating to means for developing photographic plates, films, and the like. Percy Albert Craven, 11, Maiden Lane, London.

**CAMERAS.**—No. 13,108.—Improvements in photographic cameras. George Russell Nicholls and John William Turner, 48, Crescent Road, South Norwood Park, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**FILMS.**—No. 1,454. 1907. The invention relates to an improvement upon the patent No. 10,372, 1905, and has for its object to provide a film which, upon being immersed in water, photographic developing solution, or the like, remains impervious to the action thereof. One or more coatings of gelatine are so applied to smooth backing or support, composed of glass, paper, or other suitable material, as to be capable of easy removal when desired. When dry, the gelatine surface is coated with a solution which, upon drying, leaves a residual layer impervious to water and the ordinary developing solutions, fixing, or toning solutions, and the like. Such a solution may be of a nitrocellulose, caoutchouc, gutta-percha, resin, balsam, solid fat, paraffin, or the like, or mixture of such solutions, and if necessary liquid oils may be added thereto in order to increase the impermeability and pliability and to reduce the cost of manufacture.

When this impervious coating is dry, the gelatine film is stripped from its backing, and its side, which has been applied to the latter, is in turn rendered impervious in like manner, the gelatine film being thus protected on both its sides. John Henry Smith, Wallishofen, Zürich.

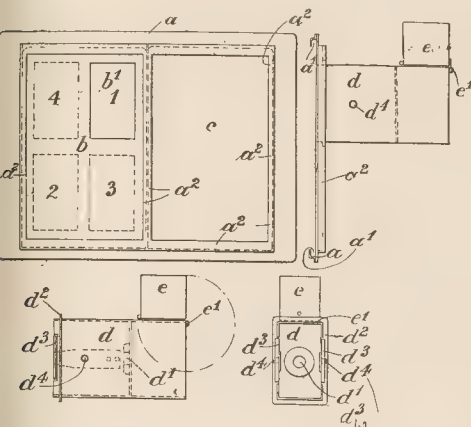
**ORTHOCHROMATIC PLATES.**—No. 13,561. 1906. The invention relates to improvements in the preparation of isochromatic plates whereby a yellow screen may be dispensed with. For this purpose a quantity of naphthol yellow, or any suitable allied yellow colouring substance of the naphthol series, is added to, and mixed with, the emulsion, and the mixture so produced is applied to the plate and allowed to dry thereon to form the film in the usual way, and the plate, when dry, is ready for use.

It is found that by adding about one ounce of a solution of naphthol yellow or other yellow colouring substance of the naphthol series, containing about one gramme of the colouring matter to one ounce of water, to twenty ounces of emulsion, a mixture is obtained which is in every way suitable for the purpose of the invention. Edwin Ebenezer Burnett, 2, Heber Road, Cricklewood, London, N.W.

**MIDGET PHOTOGRAPHS.**—No. 19,383. 1906. The claim is for an apparatus consisting of a combination of a plate holder (having a shutter), and of a screen having an aperture, together with guides by which the screen may be attached to the plate holder in various positions. When it is desired to take an impression on the plate in its holder or dark slide at the back of the frame the camera is fixed to the screen *b*. The shutter of the dark slide is then withdrawn, thus exposing the plate. Then the lens *d* in the camera *d* is uncovered by any suitable shutter, so that part of the plate corresponding to the aperture *b* receives an impression. This part is marked 1. The shutter is then closed and the camera *d* is taken from the screen *b*; this lens is then withdrawn with its guides *a*<sup>2</sup> and is turned in its own plane and replaced in its guides. The camera is again attached



the screen *b*, and the aperture *b*<sup>1</sup> and camera *d* then occupy the space 2, and after the shutter is withdrawn another impression may be received on this part of the plate. The shutter is again closed and the camera *d* is detached from the screen *b*; the screen is withdrawn from its guides *a*<sup>2</sup> and is turned over, after which it is again inserted in its guides *a*<sup>2</sup>. The camera *d* is



again attached to the screen *b*, but this time it is on the opposite side of the screen *b*. The third impression will therefore be the part marked 3. The camera *d* is then removed from the screen *b*, this latter is turned in its own plane, it is inserted in its guides *a*<sup>2</sup>, the camera *d* is again attached, and the fourth impression will take place at 4.

The screens *b* and *c* are then transposed, and four other impressions may be made on the other half of the plate in exactly the same manner as the first four impressions were made. Herbert Pettesworth Page, 123, Park Lane, Clissold Park, Stoke Newington, London, N.

**FAST LOADING FILM PACKS.**—No. 11,884. 1906. The claim is for a film pack, comprising a sealed package of daylight loading films for use in a camera, consisting of a rimmed inner sheath carrier, characterised by flanged rims and ends in one piece to hold the films and guide them in passing from front to rear and forming a chamber at the front to receive a bundle of tabbed films, of a chamber at the back in which the tabs lie before use, either with or without stop plates to engage shoulders on the extension tabs or backings to prevent withdrawal of the films from the sheath; and with or without the elements of a light-valve to trip the extension tabs and a rounded nose at the top over or around which the extension tabs are placed before use, and the films drawn after exposure; constructed substantially as described. The full specification, containing forty-five diagrams, is necessary to describe the details of the arrangement. John Edward Thornton, Altrincham, Cheshire.

**EXPANDING BOXES.**—No. 12,004. 1906. The invention consists of a hanging box or camera, intended to be loaded by the user in a dark room, with tabbed films or films in a pleated strip, constructed with an expanding valve or valves to close upon the tabs a greater or less number of films as may be required. John Edward Thornton, Altrincham, Cheshire.

## New Trade Name.

**ELAH.**—No. 292,715. Chemical substances used in manufactures, photography or philosophical research and anti-corrosives. P. Herman et Cie., 11, Rue du Milieu, Petit-Ivry (Seine), France, manufacturers. May 4, 1907. Address for service in the United Kingdom is c/o H. Sefton-Jones, 322, High Holborn, London, W.C.

**S. ABELL**, who has for many years carried on business as a photographer at Knaresborough, died on the 8th inst., after a long illness, at the age of 68.

## New Apparatus, &c.

The "Studio" Reflex Camera. Sold by O. Schel and Co., 52, Bunhill Row, London, E.C.

Messrs. Sichel write us their excuses in reference to their omission to send us in time for the opening of the reflex exhibition a camera of this type, which they supply specially for the purposes of the professional portrait photographer. The instrument has now reached us, and may be seen among the other apparatus in the exhibition room at our offices. For the benefit of those, however, who may not be able to examine it there we may say that it is solely a stand instrument, taking a half-plate, and built square for either vertical pictures or figures, and horizontal ones for groups. The camera is very solidly constructed on an extended baseboard, and allows of no less an extension than 26 inches from lens to plate. It is entirely free from elaborate mechanism, the mirror being simply raised by a cord and allowed to fall again by its own weight. As it does this, however, very quietly, it is well suited for the requirements of the studio. It may also be actuated with the "Antinous" release. The camera is provided with detachable hood, it has a swinging lens front, and costs, without the hood, 8 guineas. The latter is supplied at an additional price of one guinea, and the "Antinous" release for 10s. 6d.

**THE "SWINCAM" CAMERA STAND.**—In order to meet the increasing demand for a tripod of the "Swincam" type, and possessing the same mobility of head, at a lower price, Mr. Butler has designed a new pattern, "Model B," of this well known patent, the price of which for a stand 4ft. 6in. high is £1 11s. 6d. The special advantage of this stand is that the tripod head is so adjusted that it can be readily fixed in any position at will, thus enabling the operator to bring his lens to any desired angle and fix it there, and the stand should be of value to many photographers, both amateur and professional, who desire to specialise in their work. Full particulars may be obtained on application to Mr. William Butler, 20, Crosby Road, Southport.

## CATALOGUES AND TRADE NOTICES.

**Messrs. HARRINGTON BROS., LTD.**, of London and Cork, have just issued a new wholesale price list of chemicals for use in analytical and scientific research, photography, manufactures, etc. The list, which appears to be of a very exhaustive character, may be obtained upon application to Messrs. Harrington Bros., Ltd., at their London address, 4, Oliver's Yard, City Road, E.C.

**THE WESTMINSTER PHOTOGRAPHIC EXCHANGE, LTD.**, have just published a new edition of their illustrated catalogue, in which all matter has been thoroughly revised and brought up to date. The list contains a well-selected assortment of apparatus and accessories, and is abundantly illustrated. The Westminster Photographic Exchange also call attention to the fact that they supply goods, where required, on the "easy payment" system, particulars of which, as well as copies of the catalogue, may be obtained from them at 119, Victoria Street, London, W.

**A NUMBER OF ENTRY FORMS** for the exhibitions of the Royal Photographic Society and the Photographic Salon have been sent us for distribution, and we shall be pleased to forward copies to any of our readers on receipt of a halfpenny stamp for postage.

**CHARGE OF EMBEZZLEMENT.**—Last week, at Tiverton, William Gregson, of no fixed address, was charged with embezzling money belonging to Sidney Cowell, of the Tiverton common lodging-house. Prosecutor said when he met the prisoner, about two months ago, he said he was down on his luck, and he suggested that there was scope for a photographic business at Tiverton. Witness bought the necessary apparatus and prisoner agreed to take and develop the photos for food, lodging, and clothing. One day, after collecting money from customers, he absconded. When arrested at Exeter £1 15s. of £2 5s. collected was found on him. He denied that there was a partnership. On the other hand, Gregson said there was a partnership, equal shares, but he could never get any money out of Cowell. He contended he was entitled to money he took. The mounts were printed "Cowell and Co." Cowell said his wife and father-in-law represented "Co.," and not the prisoner. The Bench said, as the business appeared to have been conducted in a very loose way the fine would only be £1 or fourteen days.

## New Materials.

"Empire" Plates. Made by B. J. Edwards and Co., Castlebar Works, Ealing, London, W.

In introducing these plates primarily and chiefly for portrait photography the old Edwards' firm comes before its public with very good credentials, for, as users of the Edwards' isochromatic plates well know, fineness of grain, so important in portrait photography, is a characteristic quality of emulsions of their manufacture, and is found, too, in the newly introduced "Empire." In two other important respects the new plate, in our experience of it, is particularly well fitted for the special work for which it is advanced; it is of high speed, and in development behaves itself as a soft working plate—that is, one with which it is not easy to pile up density quickly, and thus produce the hard gradation in the high-lights of the subject which is beyond the powers of the printing process. There are, of course, occasions when the attainment of such a high density is a great advantage, but portrait making under the usual conditions is not one of them, and we think that softness of working is a quality which should be carefully chosen in a plate intended for studio use. The measurement given below by Dr. Sheppard of the gamma infinity of the plate shows it to be nicely adjusted in this particular respect.

As an idea of the speed of the plate we may mention a series of exposures we made with a hand camera in a dull afternoon light (about 4 p.m.), which gave a reading of the Wynne meter of about 40 seconds. At  $f/6$  our exposures were from 1-15 to 1-25 of a second, and the results surprised us for their rendering of detail, whilst the absence of halation in the cases of branches against the sky furnishes us additional proof of the good quality of the plate as regards fineness of grain and consequent immunity from halation. They developed fairly quickly in a desirable clean manner, and altogether the new production is one upon which both the makers and professional photographers who have occasion to use them may be congratulated.

The measurements which, for the information of those who base their work on sensitometric quantities, we are accustomed to give from determinations by Dr. S. E. Sheppard, are as follows:—

Inertia (to screened acetylene with H. and D. pyro-soda) .....	28
$\gamma\infty$ (measuring the density giving power of the plate) .....	1.48
K (velocity constant of development in decinormal ferrous oxalate at 20 C) .....	170
$t\gamma$ (time of development for a gamma of 1 with standard developer) .....	7.4 mins.

We have only to add that the plate is marketed at popular prices by Messrs. Edwards and Co., by whom inquiries as to their new introduction will be readily answered from the Castlebar Works, Ealing, W.

THE NEW ENGLISH ART CLUB.—At this semi-annual show of paintings the visitor must tread warily, pick out his pleasures, and scorn to be bothered with the trash. There are three water colour and two oil colour sketches which will amply repay a visit, and at a fraction over 2d. each are cheaply seen. Those photographers who are still doubtful as to what an impression is should see these marvels of shorthand drawing and colour and tone, by John S. Sargent, R.A. Perhaps the finest achievement is the "Balustrade," part of a marble staircase of an Italian garden, in sunlight and shadow. There are likewise some of Rich's strong and manly water-colours, looking like early British classics. The street scenes of Francis Dodd, which we have previously admired so much, are a little less fine in oil colours, though the "housebreaking" incident of No. 64 is first rate. Professor Brown has a portrait of himself under title "An Amateur of Fencing." He has given himself a bruise on the right eye. In his "Mill" he seems to have solved the painter's puzzle as to what is the colour of the shadows in trees under sunlight. In A. Rothenstein's "Laundry Girl" we see no drawing, no colour, no feeling, no beauty, and no subject. If possible, we see still less of either in the childish pencil scrawls of girls misnamed "studies"; the work of a man who, by being one of the most log-rolling of cliques that pollute the atmosphere of art, has wriggled himself into some notoriety.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, JUNE 21.

Aberdeen Photo Art Club. Indoor Meeting.

SATURDAY, JUNE 22.

Bradford Photographic Society. Y.P.U. Excursion to Hull and Beverley.  
Bowes Park and District Photographic Society. Outing on River Thames.  
Aberdeen Photo Art Club. Outing to Durris.  
Hackney Photographic Society. Outing to Hornchurch.  
South London Photographic Society. Outing to Leigh-on-Sea.  
North London Photographic Society. Outing to Rye House and Broxbourne.  
North Middlesex Photographic Society. Outing to Ruislip and Ickenham.  
Leeds Camera Club. Yorkshire Photographic Union Excursion to Hull and Beverley.

MONDAY, JUNE 24.

Southampton Camera Club. "The Making of the Print." H. Essex.  
Bradford Photographic Society. Ramble to Garden, Wood Hall.

TUESDAY, JUNE 25.

Hackney Photographic Society. "Short Papers." J. Linley and J. Reeve.  
Coventry Photographic Club. Outing to Allesley and District.  
Birmingham Photographic Society. Social Evening.  
Wallington Camera Club. "Short Papers."  
Manchester Amateur Photographic Society. Exhibition of Work by the Portraiture Class.

WEDNESDAY, JUNE 26.

North Middlesex Photographic Society. "Double-transfer Carbon." Ch Beadle.  
Devonport Camera Club. Outing to Lanhydrock (Bodmin).

THURSDAY, JUNE 27.

Handsworth Photographic Society. "Gothic Architecture." E. G. Collins.  
London and Provincial Photographic Association. Annual General Meeting.  
North London Photographic Society. "The Hand Camera." C. H. Madden.

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, the 14th inst. Present: Messrs. F. A. Bridge, Alfred Ellis, S. H. Fry, E. H. Martin Jacquette, A. Mackie, D. Prodder, C. H. Skillman, E. Scam and R. Fellows Willson.

The hon. secretary reported that, in accordance with instructions he had inserted a full-page advertisement in the BRITISH JOURNAL OF PHOTOGRAPHY, on behalf of the Association, and the result had been satisfactory; 27 new members had joined during the month.

The meeting considered an application for membership from Mr. R. Dührkoop, of Hamburg, on the point whether foreigners non-resident in the United Kingdom or its colonies were eligible. It was decided that Mr. Dührkoop be admitted, as there was nothing in the constitution of the Association excluding such members, and there was a precedent, two photographers in business in the United States being members, and that the hon. secretary write to Mr. Dührkoop cordially welcoming him.

An invitation was read from the Editor of the BRITISH JOURNAL OF PHOTOGRAPHY to hold an exhibition of professional work at the offices of the "B.J." It was decided to accept the invitation, and to the date either December or January next. A long discussion took place upon the lines upon which the exhibition should be organised. Eventually it was decided that, as the best means of securing a collection of professional photographs which should be of educational value to professional photographers, a number of the leading photographers should be invited to contribute small collections of their work, and that the invitation should not be confined to members only. In order to make the necessary arrangements and to fix the details of the committee, consisting of the following members, was appointed: Messrs. E. C. Elliott, Alfred Ellis, S. H. Fry, Martin Jacquette, Mr. H. C. Spink (president) and Mr. A. Mackie (hon. secretary) ex officio members.

The case was discussed of a number of complaints which had been received from private individuals in a certain country district that photographs had been obtained from them on the pretence of enlargements from them would be produced and delivered free, with the usual result, that neither the enlargement nor the return of the original photograph could be obtained. The hon. secretary was instructed to deal with the matter, and, if found necessary, instruct a local solicitor to bring a case before the magistrates at the Association's expense.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held on June 13, Mr. Teape in the chair. The members had



sure of welcoming him from his winter abroad the father of the ciation, Mr. A. L. Henderson, who, however, we regret to say, is not at present enjoying his usual good health. The members and all expressed the wish that an improvement would take place at an early date. Mr. Rapson stated that, in making varnish bleached lac, he had found trouble in getting all the lac to dissolve. Mr. Haddon said that this would be the case when the lac was old, as bleached lac would in time become insoluble, owing to the chemicals employed in bleaching it. Mr. Stretton stated that varnish makers found great trouble in dissolving bleached lac, owing to the water it contained, the greatest difficulty being experienced in getting it from water, and that unless this was done the varnish dried with what was known as a bloom. Mr. Teape said he had some mastic varnish which was unusable, owing to its showing a bloom about two days after use. The discussion turned upon the oil process of printing. Mr. Haddon could imagine any one using the process, as worked by M. Demachy, but he could obtain any other printing process. He thought that to properly use it a man must be a born artist, and in such a case it would get his results by easier and more direct methods. Mr. Stretton asked of what use would ortho plates be to any one who used the oil or gum process, as it was put before the photographic community, and Mr. Human said that it was of no use using colour-sensitive plates to get correct rendering, if one was going to destroy the rendering obtained by taking away or adding to by brushing. Mr. Stretton asked of the ortho plate v. ordinary for all classes of work, Mr. Human stated that Mr. Rapson had taken up his challenge in copying, the best subject to be the title-page of the "B.J." and he had proposed to annihilate Mr. Rapson upon this. Members are specially invited to attend the annual general meeting on Thursday, June 27, at the LONDON PHOTOGRAPHIC SOCIETY. On Monday last Mr. H. J. Teape, secretary of the Society of Colour Photographers, who had been specially from Stroud for the occasion, delivered his lecture "Three-Colour Photography" before the members of the above society. The lecturer's first experiment in this branch commenced twenty years ago, on observing the different appearances a camera had when viewed through the different tints of a stained window, and at that time he made a negative on an ordinary plate of a scarlet geranium, taken through a piece of pale red glass, the result showing in the resultant print showing as white; since that time his photographic interest had been mainly directed to colour photography.

Describing the apparatus he now used, Mr. Comley said that for portrait and still life studies any ordinary camera would do, but for landscape, and flower studies one having a repeat-back, carrying the three plates in parallel, was a necessity, and adjustment is so essential. Mr. Comley's own camera has a front of his own design, which he showed his audience. It is a shallow box, with interchangeable loose fronts, forming the lenses; a screen holder, similar to a lantern slide carrier, but with three openings for carrying the screens, slides through the box, and the screens close behind the lens rather than in front of the plate. He loads his slides and develops in complete darkness by "time development," using an ordinary metol and hydroquinone developer of 70 deg. for five minutes. Contrary to general opinion, negatives for three-colour work may be intensified or reduced, Mr. Comley using "Sanzol" for reduction and mercuric iodide for intensification, with excellent results. For his colour positives Mr. Comley uses stripping films, which are sensitised in potassium bichromate 3 per cent. for the blue to 10 per cent. for the red. The films may be dried as quickly as possible, for if the strong sensitiser is not removed it may re-crystallise if dried slowly. The tissue should be removed as soon after printing as possible, but if kept between damp blotting-paper it may keep as long as a week; but if it is not soon removed it will become insoluble within forty-eight hours. Mr. Comley prefers to use a packet of twelve pieces of stripping film to a packet of negatives. By this means he is enabled to select the depth of colour suitable for its fellows, for if, when adjusting the film on the yellow, one print should show too much blue, and the next has much yellow in the green produced, by changing them the correct colour may be obtained. In the superimposition of colours, should any particular colour be of smaller size than the others, he advises soaking the smaller in warm water, 80 deg. for 10 minutes, according to circumstances; this will cause it to swell to the size of the others, the celluloid base having the property

of swelling slightly in hot water. For cementing down the films he advises a solution of plain gelatine, without chrome alum, of the consistency of jelly, and he does not hesitate to thoroughly squeeze the films in contact; the smallest portion of gelatine is sufficient for adhesion, and gives more brilliant results. Mr. Comley expressed a decided preference for brilliant pictures to the more flat and subdued ones.

A number of colour prints by various processes, the work of members of the Society of Colour Photographers, was shown and commented on, also a selection of Mr. Comley's own work in portraiture, landscape, still life, etc., the fine quality of the work being much admired, both for its artistic and technical merit. A hearty vote of thanks was afterwards accorded Mr. Comley for his instructive lecture.

## Commercial & Legal Intelligence.

H. RHEINLANDER AND Co., LTD. (photographers, etc., London).—A £25 debenture, dated May 26, 1907, charged on the company's undertaking and property, present and future, including uncalled capital, has been registered. Holder: E. Law, Lindsley House, Osborn Road, Romford.

"BROMAR," LTD. (Photographic Dealers, London).—A trust deed, dated May 10, 1907, to secure £6,000 debentures, charged on the industrial establishment and premises in Rue St. Pierre Alost, Ghent (subject to a charge for 60,000 francs), and plant, implements, utensils, stock-in-trade thereat, Patent No. 5,948, of 1904, and foreign patents dependent thereon, the benefit of all improvements and further inventions discovered by J. Findlay and F. E. Fuller while in the employment of the company, and five sealed processes for the manufacture of plates and papers, etc., has been registered. Trustees: J. W. Davy, Castletown House, West Kensington; and R. D. Munro, 21, Lawrence Lane, E.C.

A "PROPERTY" EGG.—An amusing action concerning a property egg which, large as the witness box, occupied considerable space in the Brompton Court, was heard by Sir William Selje last week. Mr. William Henry Bunnett, photographic artist, of York Studios, Edith Road, West Kensington, sued Mr. E. Steer, the theatrical costumier, of Waterloo Road, who had supplied the egg, for breach of contract. According to plaintiff, the egg was quite useless for the purpose for which he wanted it, and was not at all the sort of thing defendant had contracted to make. It was to have been made of papier-maché, and pictures with ladies emerging from it were to have appeared in the daily papers at Easter time if it had arrived in time. A lady model had been engaged, and Mr. Bunnett expected to make from £15 to £20 on the deal. Defendant's story was to the effect that he found it was impossible to make the egg of papier-maché in the time given him, and in an interview plaintiff agreed to an alteration in the contract. The Judge finally found for the defendant, and related the story of the bishop and the egg. When the egg was delivered no doubt it was, like the bishop's egg, good in part.

A CITY BANKRUPTCY.—Richard Stanley Strauss, photographer, of Bowes Park, and lately carrying on business in Milk Street, Cheap-side, E.C., in the course of his public examination at the London Bankruptcy Court, before Mr. Registrar Linklater, stated that he had filed a statement of affairs showing gross liabilities amounting to £1,371 13s., and assets nil. The receiving order was made against him on the petition of a creditor, the act of bankruptcy being debtor's failure to comply with the requirements of a bankruptcy notice duly served upon him. He was an American citizen, and came to this country from Chicago in 1899 with a capital of £100 of his own. Upon his arrival here, he obtained employment with a firm of linen merchants, and subsequently he became a manufacturer's agent, trading with another, under the style of Strauss and Co. The business was unsuccessful, and in June, 1905, the partnership was dissolved. Since then he had been a photographer. He attributed his failure to loss on trading and costs of litigation. He had never failed before or made an arrangement with his creditors. The examination was ordered to be closed.

THEFT BY A CANVASSEER.—Arthur Thompson, giving his address as 22, Branstead Place, Leeds, and described as a canvasser, was charged,

on June 13, with stealing from the photographic studio of Messrs. M. E. Mitchell and Co., Harrogate, four gold pendants, of the value of 27s.

Evidence was given by Laura Barf, of 6, St. Mary's Avenue, an assistant at the studio. She stated that about six o'clock in the evening of the 11th inst., accused came into the shop and asked to see the manager. Witness left the shop and asked Mr. Mitchell to come, but he refused to see prisoner, who left the shop. After he had gone she missed the property. The pendants, two of which were gold, and two rolled gold, contained photographs. The property, which was worth 27s. without the pictures, was shown on a cushion in the shop, and she had seen it there before prisoner came in.

Bertie Bowles, an assistant to Henry Hardcastle, pawnbroker, of 34, Chapel Street, Harrogate, said that prisoner came into the shop at 7.40 p.m. and wanted to pledge two gold locketts. He said that he was in the trade, and wanted to raise his fare to get back to Leeds. Witness refused to believe his statement, and declined to take the locketts in pledge. When prisoner left the shop he followed him out, and informed a police officer, who was standing by, of what had occurred.

Prisoner pleaded guilty, and told the Bench that he had had something to drink, and gave way to a sudden temptation. He added that he was hard up, and wanted to get back to Leeds. He had a wife and three children, and if he was sent to prison the home would be broken up. He expressed his sorrow for what had happened, and asked the Bench to deal leniently with him. There were ten previous convictions recorded against prisoner, who was now sent to prison for three months.

#### NEW COMPANIES.

**J. GUNSTON.**—May 31, by Jordan and Sons, Ltd., 120, Chancery Lane, W.C. £500 (£1). To take over the business of a photographer carried on by J. Gunston at Bradford. No initial public issue. First directors (not less than three nor more than five): J. Gunston (permanent managing director), J. W. Booth, J. E. Longdin, and T. O'Keefe. £1. 60, Manningham Lane, Bradford.

**ILLUSTRATIONS.**—Capital £5,000 (£1). To acquire the business of wood, photo, and colour engravers, stereotypers, and illustrators by all processes, carried on by J. R. Burton, H. B. Burton, and W. H. Rake, at 99, Chapel Street, Salford, as the Burton-Rake Illustrating Company. No initial public issue. First directors (not less than two nor more than five): J. R. Burton, H. R. Burton, and W. H. Rake (all permanent). Qualification of permanent directors, £250; of others, £100. 99, Chapel Street, Salford.

## Dews and Notes.

**SOUTH ESSEX CAMERA CLUB.**—The fourth Continental excursion will start on August 10 for a fortnight in Belgium, conducted by the president (Mr. Walter D. Welford). The inclusive cost (no extras) is 26 17s. 6d., and all details may be obtained from 61, Mansfield Road, Ilford. The outing is open to all photographers and their friends. The following places are on the programme: Antwerp, Malines, Louvain, Brussels, Liege, Namur, Dinant, Ghent, Bruges, Ostend, L'Ecluse, Knocke, Heist, Blankenbergh, etc.

**THE PAGET PRIZE PLATE COMPETITION.**—The Paget Prize Plate Company announce a competition, in which all classes of photographers, from the professional to the beginner, are included, one class being devoted to those who have never won a prize before, and cash prizes amounting to £500 are offered. There are nine classes, and the prizes range in value from £50 to 10s. All prints and lantern slides sent in must be printed on Paget papers, or lantern plates from negatives taken on Paget plates, and must be accompanied by an entry form, duly filled up. These forms, together with full particulars of the competition, rules, etc., may be obtained from photographic dealers or direct from the Paget Company. The judges will be Messrs. A. C. Brookes, A. Horsley Hinton, and F. J. Mortimer, whose decision in all cases will be final. The competition

closes January 31, 1908, on or before which date all entries, marked "Competition," must reach the Paget Prize Plate Company, Ltd., Watford, Herts, and the results will be announced in the photographic press as soon as possible after the judging is completed.

A NEW "LORNA DOONE," edited and illustrated by Mr. and Mrs. H. Snowden Ward, is promised for the autumn by Messrs. Sampson Low, Marston, and Co., Ltd., Mr. Blackmore's own publishers. The volume will contain the whole of the West Country classic, with another less-known "Doone" story from Mr. Blackmore's pen, as well as a lengthy introduction, and copious notes. The added matter will include the legends of the Doones and other characters, an inquiry into their actual existence, notes on Mr. Blackmore's personal knowledge of the districts described, and some interesting unpublished evidence as to the real originals of the Doone Valley. The illustrations will represent all the principal places mentioned in the story, the scenes in and around Oare, Tom Faggus' forge, Mr. Huckabach's shop, Lanacre Bridge, with its memories of Jeremy Stickles' escape from the Doones, the place where Lorna's mother was buried, great Dunkery beacon, and many another landmark in the story. The editors ask that anyone who can throw original light upon the history or early traditions of the Doones, Ridds, etc., their historical existence, or other points pertinent to the story will communicate with them, at Hadlow, Kent.

"Lux," edited by Mr. J. R. A. Schouten, devotes no less than six pages of its current issue to an illustrated article dealing with the proceedings of the forthcoming meeting of the Photographic Convention at Hereford.

THE PHOTOGRAPHIC OPERATOR who, after sending a telegram to sister saying he was going to drown himself, disappeared from hotel at Bath, has been found in Bristol. He has been suffering from loss of memory.

THE "MAGPIE" of our contemporary, the "Amateur Photographer," has been wading in deep waters, much too deep for foothold, poor bird, and now, with his plumage bedraggled, he is striving to reach dry land. It would appear that, with a commendable desire to acquire much needed scientific information, he has been attending meetings of the Royal Photographic Society and has attempted to assimilate a mental diet that is beyond digestive powers. In his latest effusion he prattles with childlike innocence of the "Perkins" phenomenon, with which he evidently desires to be thought on terms of intimate familiarity. Perhaps he will now inform his readers who "Perkins" is, where he lives when he is at home, where he discovered his phenomenon, and what it has to do with dark-room safe-lights. Is it possible that omniscient "Magpie" imperfectly caught the sound of the name Purkinje, and promptly seized upon the nearest English phonetic resemblance to it to give verisimilitude to the bald and unconvincing narrative he had to tell? The occurrence of the same substitution at another place prevents us from assuming the comfortable explanation of a compositor's error.

**ESSEX PHOTOGRAPHIC AND PICTORIAL SURVEY.**—The second annual meeting of the Photographic Survey and an ordinary meeting (25th) of the Essex Field Club were held on Saturday at Kelvedon. The programme carried out was a most interesting one; from Kelvedon the party drove to Little Coggleshall, where the ancient abbey chapel were viewed. Thence they proceeded to Coggleshall, several other ancient buildings and interesting objects were inspected, notably the church of St. Peter ad Vincula and the lace and velvet workers. Luncheon was served at the Chapel Hotel, Sir Benjamin Stone, M.P., president of the National Photographic Record Association, presiding. The party then drove back to Kelvedon, St. Mary's Church was inspected after tea at the vicarage, at invitation of the vicar, the Rev. E. F. Hay. Sir Benjamin Stone, during the rambles related his experiences in his travels on photographic expeditions. More than once people whom he had photographed threatened to kill him. When he was in China a crowd of people, of whom he had obtained an excellent photograph, became so excited that he asked his interpreter what was the matter. It was told that he had taken their spirit from them. When he had taken nothing, the interpreter asked, "You have got the likeness, how can you say you have taken nothing?" The people became so riotous that he had to bribe them to ensure his safe



opening to be in Brazil during a revolution he was able to see a Governor was deposed. The person aspiring to be Governor entered a disturbance, and then made terms with the general of military forces to get the Governor out of the palace. To accomplish this the cannon were fired upon that place, but these firing operations were suspended when a photographer appeared upon the scene. The officers posed at the cannon, and those in the palace who had not been killed came to the balconies. After the new Governor gained possession of the palace the military general sent round word that he had made a mistake on the previous day, and forthwith proceeded to drive the gentleman out of the palace too, which was naturally very much damaged.

## Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* We do not undertake responsibility for the opinions expressed by our correspondents.

### REFLEX CAMERAS.

To the Editors.

Gentlemen,—I, with many other pressmen, have read with much interest the comments recently made in your columns with respect to reflex cameras, and think your exhibition is the right thing. In realising the many advantages the reflex cameras offer, especially perhaps to illustrations, your article will doubtless refer to drawbacks there may be.

The type appears to stand pre-eminent, but only when made by thoroughly experienced people, who put the very best work into their productions, and turn out what is practically a perfect, though necessarily expensive, camera.

My experience has been rather unfortunate. I purchased a somewhat low-priced reflex, and have had many failures, some, at least, I think due to defects of the camera. The mirror goes up quietly enough, but the shutter (focal-plane) does not come down with the same pressure, but has almost to be jerked down, with disastrous results. That, I believe, is due to the actuating mechanism being faulty, inasmuch as mirror and shutter do not work together.

The focussing is splendid, but it is very annoying to be unable to get the shutter off till after the "subject" has gone! That sort of thing is disastrous to one's reputation, for when failure has to be reported, whatever the excuse, there is a serious "going down" in the estimation of those who send out the order.

Seeing the great success of this exhibition, though confined to one type of camera, would it not be possible to arrange a really representative exhibition of all belonging to photography, much as is done at the Stanley Show in the case of cycles? What a lovely exhibition it could have!—Yours, etc., G. J. WILKINSON.

"Lancet" and "Echo" Office, Lincoln.

### COLOUR PRINTS AND TRANSPARENCIES.

To the Editors.

Gentlemen,—It may be interesting to some photographers to know how beautiful coloured prints or lantern slides can be made from colour negatives in the following manner:—Take, for instance, a negative of some flower study, in which the only two colours necessary are yellow and green. (The enclosed print and slide are of a rose growing in its natural state, and the other print laburnum.) Making the transparency, a piece of blue carbon tissue is first exposed under the negative, this is squeezed on a gelatinised glass, washed and finished, as is usual, in making carbon lantern slides. A piece of yellow glass is now put behind this transparency and two are held up to the light, it will be seen that the two colours combine and give a result marvellously true to nature. In the first instance it will probably be found that the yellow of the glass is

not correct, or is either too dark or too light. In this case get a piece of clear sheet gelatine and dye it in some suitable dye—e.g., naphthol yellow or tartrazine, or a mixture of both.

When the correct colour is obtained the slide is either mounted with the yellow cover glass or the dyed gelatine is sandwiched between an ordinary cover glass and the transparency.

In making prints, a piece of paper must be dyed in the above dye till the requisite colour is obtained, then be coated with a gelatine solution, and used as the final support.

#### GELATINE SOLUTION.

Gelatine .....	32 grs.
Distilled water .....	2 ozs.

Soak for four hours; dissolve by aid of a water bath.

Chrome alum .....	1.2 grs.
Distilled water .....	.4 ozs.

Dissolve and add to the gelatine. Coat the final support with a fairly stiff hog-hair brush, and allow to dry.

The enclosed prints were made on marine blue tissue, and the dye used for staining made of equal parts of solutions of naphthol yellow and tartrazine.

These colours would obviously be only suitable when the resulting colours required are green and yellow.

For blue flowers and green leaves the tissue would have to be yellow, and the cover glass, gelatine, or paper, blue. In the case of still life studies requiring only purple and blue, or orange and yellow, the tissues would have to be red in each case, and the cover glass, gelatine, or paper, blue and yellow respectively.

I came across this method quite accidentally, simply by holding a blue carbon transparency up to the light of a dark room lamp having a yellow glass in it. I should very much like to know if this method has ever been used before, and for the same purpose.—Yours, etc., THOS. J. FAIRFIELD.

Drury Lane, Solihull.

June 6, 1907.

[The lantern slides and prints sent to us by our correspondent are very effective, and at a first glance might pass for examples of the three-colour process. We believe a similar process has been recommended for transparency work in conjunction with the methods of chemical toning.—Eds., "B. J."]

### THE EFFICIENCY OF IRIS SHUTTERS.

To the Editors.

Gentlemen,—In Mr Anderson's interesting articles on the "Efficiency of Modern Shutters," he seems to have rather jumped at conclusions with regard to the iris shutter, that is, the central opening shutter with circular aperture. If the full aperture of the shutter is equal to that of the lens, and the speed of the shutter is constant, the efficiency is  $\frac{1}{2}$ , not  $\frac{1}{4}$ , as he states. I do not follow the process of reasoning which leads him to assume (p. 405) that the efficiency can be ascertained from the average size of the aperture. The only reliable method is to ascertain the actual duration of exposure at different parts of the aperture and then arrive at the total by a process of integration. If a constant speed is assumed this is easily done by geometry. In this case the ideal effective exposure can be represented by the cubic capacity of a cylinder equal in base area to the aperture, and in height to the duration of the exposure. With the iris shutter the efficient exposure is then equal to the cubic capacity of a cone of the same height and base, which, of course, will have one-third the capacity of the cylinder. In "Photography Annual" for 1896 I gave full particulars of this geometric method of calculating efficiency, and also a number of comparative results.

Mr. Anderson's conclusions are likely to give readers a very poor opinion of the iris shutter as regards efficiency, and he has not carried his investigations far enough to realise its advantages over the blind or direct movement shutter, which may really have a much lower efficiency. Assume that with either shutter the shutter aperture is the same diameter as the full aperture of the lens, and that all apertures are circular, then, if the full aperture is  $f/8$ , and the duration of the exposure one second, the efficient exposure of the direct movement shutter is  $\frac{1}{4}$  second, and with the iris shutter  $\frac{1}{8}$  second. If now we stop down the lens the efficient exposure remains exactly

the same with the direct movement shutter, but increases rapidly with the central shutter. At  $f/16$  it has increased to  $\frac{3}{4}$  sec., and at  $f/32$  to 5-6 sec. with the latter shutter, while it still remains  $\frac{1}{2}$  second with the direct movement shutter. With  $f/64$  the efficiency of the central opening shutter is very high, being 11-12, and the efficient exposure is 11-12 second if 1 second is the total duration. In the same conditions with the direct movement shutter the efficiency is 8-9, but the efficient exposure is still  $\frac{1}{2}$  second. The difference is due to the fact that with the latter shutter the actual duration of the exposure diminishes as the stop is reduced, while with the central opening shutter the duration is unaffected by the size of the aperture. Of course, the question is practically affected by the fact that the blind aperture is always square. This adds about 27 per cent. to the efficient exposure given above, and increases the  $\frac{1}{2}$  sec. efficient exposure to one of .63 sec., which is still below the efficient exposures given with the central shutter at apertures from  $f/16$  down. One more point in which the iris shutter scores is this. The whole plate is affected during the whole of the exposure, whereas with the other shutter, at the moment of opening, and just before final closing, only a part of the plate is affected. This tends to lower the general efficiency.

There is, of course, a fundamental defect in all these methods of estimating efficiency. We have to assume uniform speed, whereas the speed never is uniform. This also affects Mr. Anderson's tests, seeing that he only actually measures the total time, and the time during which the shutter remains open, and simply estimates the efficiency during the opening and closing. It is probable, however, that the assumption of a uniform speed in many cases gives a result that is not very far out, and the error is hardly likely to be so great as that produced by Mr. Anderson's mistaken estimate of  $\frac{1}{4}$  instead of  $\frac{1}{2}$  for the efficiency.

His test would, of course, break down in cases where the shutter opening is smaller than the lens aperture, as in the case of the highest speed of the Celerex shutter, and in that of a few other shutters.

C. WELBORNE PIPER.

#### A WAVE OF ORTHOCHROMATISM.

To the Editors.

Gentlemen,—It is fair to you to say that the No. 1 preferred by you was taken through a screen, though really in this case I cannot quite understand your choice for the whole subject. Although it is not a distant one, there is to my mind a decided loss of atmospheric effect. I should think most workers would be obliged to Mr. Thomas for his clear putting of the principles to be borne in mind in working with colour-sensitive plates in your issue of June 7.

PROFESSIONAL.

[We stated that there was little difference in the two prints; but the subject having a bed of flowers as the principal object in the foreground, we attached importance to the better rendering of the greens in this part of the picture. It is true, as our correspondent says, that there is a loss of atmosphere in the distance, but as that distance was a row of villas, and only about 50 yards away, we could not see that it mattered much.—Eds. "B.J."]

#### FLUORESCENCE IN OPTICAL SENSITISING.

To the Editors.

Gentlemen,—With regard to Mr. E. J. Wall's remarks on Dr. Stark's paper, from the "Physikalische Zeitschrift," may I be permitted to point out that Mr. Wall's experiment does not appear to me to be comparable with that described by Dr. Stark?

Mr. Wall obtained, by the use of water in a test tube, arranged so that the meniscus of the liquid is exactly opposite the middle of the slit, a continuous stripe from sunlight or incandescent gaslight, which he ascribes, no doubt rightly, to the prismatic effect of the meniscus edge. But Stark, in his experiment, was not using a light source giving a continuous spectrum, but a mercury vapour lamp giving a line spectrum, and the prismatic effect of the meniscus could only produce from this a bright section of the line spectrum, and not a continuous stripe, which could only be ascribed to fluorescence.

The same argument applies to Mr. Wall's further remarks with

regard to light reflected laterally by small particles. The reflecting power of small particles depends upon their selective reflection for the shorter wave-lengths, and if they possess the power of transforming monochromatic light into light of any other wave-lengths, they must be said to be fluorescent, though, so far as I know, this power has never been ascribed to small particles as such.—I remain, yours faithfully,

C. E. KENNETH MEES.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- F. G. Fraser, Greig Street Post Office, Inverness. Three Photographs of the Rev. Murdoch Mackenzie.
- J. Mason, 20, Corporation Road, Newport, Mon. Photograph of the Prince of Wales taken at Newport, June 8, in Procession.
- S. Edwards, 22, St. John's Road, Tunbridge Wells, Kent. Photograph from an Old Engraving, "Procession of Lady Godiva at Coventry Fair."
- J. T. Turner, 40, Bath Street, Tunstall, Staffs. Photograph of the Interior of the Jubilee Chapel, Tunstall, with Audiences. Centenary Mass Meeting.
- F. Sadler, 41, Ridley Street, Birkenhead. Photograph of Leasowe Lighthouse and Camp. Photograph entitled, "Cockles."
- G. W. Davies, 49, Victoria Road, Ebbw Vale. Photograph of Steeple of Christ Church, Ebbw Vale.
- W. H. Hewitt, Stables Road, Dronfield, Derbyshire, near Sheffield. Photograph of Group, Fancy Dress Cricket Match, Dronfield, June 8.
- J. W. ELLIS.—All the transparencies you send are far too thin and flat. The more brilliant carbon transparency would have been about right had you used red chalk tissue instead of the brown. Transparencies for enlarging require to be soft, but not such thin lifeless things as you have made. Try using a slow ordinary plate, expose to artificial light, and use pyrocatechine or rodinal for development. It is advisable to back the plates on which the transparencies are made. The white spots are finger marks.
- STUDIO.—Will you kindly let me know if, in your opinion, there would be sufficient and a practical light in a studio, sketch enclosed, for professional purposes? The window is north light, unobstructed.—S. S.
- You can, of course, take portraits in the room, but we should say that it is by no means adapted for general professional purposes. If you utilise it we would suggest that the size of the window be increased two or three feet towards the camera end, so that you can curtain off some of the light at the background end, otherwise the direct side light will be too strong; and if you do that with the window as it now is, there will be little light to work with. The studio is very short for professional work.
- J. E. H.—Any photographic dealer or bookseller, or from the publishers, 52, Long Acre, London, W.C.
- PRESS.—(1) The best answer to this question is to advise you to buy a copy of "Photography for the Press" (Dawbarn and



ard, 1s.). (2) From 30s. a week. Expenses are, of course, paid. Usually not.

QUERY.—I have in my possession a French cabinet portrait lens, in. focus, by Hermagis; number on lens, 9,304; no stops are provided with the instrument, or any slot to insert any. I did on giving it a careful test that it will not cover a cabinet picture, as you will notice by the two enclosed rough prints. Could I have stops adjusted to the lens to improve the sharpness, it does not answer my purpose for everyday photography as remains? Do you know if the lens has any commercial value attached to it? Can you suggest why no stops were adjusted to the instrument when new, as one finds stops are placed in pretty well every kind of maker's lenses?—F. BAILEY.

It is pretty evident the instrument is not a cabinet lens. It is the old form of portrait lens, with a very round field, and was probably made before the cabinet portrait was introduced. These early lenses were not fitted with central stops. Properly made cabinet lenses are specially corrected for flatness of field, and are always fitted with stops. You can, of course, have stops fitted, which will improve it, if you think the instrument is worth the outlay. The lens has little commercial value nowadays.

PRINTING PHOTOGRAPHS.—I am a process artist, and have some photographs to retouch in colour, which upon completion must show no signs of having been worked on, and look as before unretouched, and I should feel obliged if you will inform me, through the medium of your valuable paper, of some way of printing the photographs, after working up, to give a brilliant result.—PROCESS.

We should say the best thing you can do is to get a set of colours specially prepared for tinting pictures that are now used by all the dealers. These colours, or rather dyes, are quite transparent and easily applied, if used according to the instructions issued with them. They do not materially interfere with gloss.

GROUND.—I wish to make a 12 x 8 distemper background on a wall. Could you give me any instructions as to the making of it? What colour distemper would you recommend for it?—H. S.

Space is far too limited in this column to give such details as would be of any practical service to you in making backgrounds. You refer to page 82, of our issue of February 1 last, you will find full working details for making distemper backgrounds. On page 155 of the issue of March 1 is another practical article on making backgrounds by the powder process, which you will do well to read.

RIGHT.—I have a photograph of a Pierrot troupe and audience, taken on an open space of ground, part of which is fenced in, and which they pay rent. My photograph, which I am publishing in postcards, was taken from the top of an electric car, which was on the main road close by. They have written to one of my agents asking him to discontinue selling them, as they say I reserve the right to sell postcards of their stand. If he does not stop the sale of them they threaten to take further proceedings. What I want to know is, if they can proceed against me if he does not stop selling the card, and if they can proceed against me from publishing the same. As it was taken from one of the main thoroughfares, I do not see that they can do anything.—PRO.

THE PARTIES HAVE NO POWER whatever to restrain you, unless the card or photograph is of such a nature that it can be held to be harmful to their business as entertainers or prejudicial to them individually.

PHOTOGRAPHY IN CANADA.—I have been in business, as you will see, for some time, but have made very little progress, and this is very discouraging. Could you, through your valuable paper, give me any idea of the prospects of photography in Canada, and what part do you recommend? I am used to good middle-class work, being used to finishing my own work throughout. I have a good stock of materials, and would I have any difficulty in getting the smaller goods with me, or should you advise selling and should I have much difficulty in buying apparatus out

there, and about the price? I may muster £150 to start me with. Do you think, on these conditions, I should be doing wise in going out?—ANXIOUS.

We can only say that, as a whole, prospects in Canada are very bright, and that those who are prepared to rough it if necessary are likely to settle down to a good position before long. We advise you to write to the "St. Louis and Canadian Photographer," 3,210, Locust Street, St. Louis, from which you will be able to obtain some particulars of conditions in Canada.

BRADFORD.—The particular card we judge to be by lithography. There are really no books in English on multi-colour litho, though several in German.

SUNDAY TRADING.—Will you be so kind as to forward me, as soon as possible, the "B.J." with the account in of the magistrate's decision of photographers opening on Sundays at Blackpool? The police have been to my place at the above address and forbid me opening on Sundays, they said, under a penalty of £5. I have just taken these premises for three years, but unless I open on Sundays the place is useless, as the trade in the week is little or nothing, but very good on Sundays. Your very kind information on this will greatly oblige, as to whether they can shut me up or fine me so heavily.—A. D.

Under an old Act, passed in the reign of Charles II., it is illegal for anyone to carry on his business on the Sunday. This antiquated law is now but seldom put in force, and, where it is, it is chiefly in country places. However, the Act is still on the Statute Book, and can be enforced. The police have told you wrong about the £5 penalty. The heaviest fine that can be inflicted is 5s. A shopkeeper in High Wycombe has been summoned and fined between two and three hundred times, yet he keeps his shop open every Sunday.

DOUBTFUL VALIDITY.—Would you be so good as to give me your opinion of the following in the "Journal"? I am a manager for a photographer here, and two years ago he got me to sign an agreement as follows: "That I would not start in business on my own account, or within twenty miles of —, or enter into partnership, nor take any shares in any photographic business in —, or within the radius mentioned." This evening he gave me a week's notice, and says if I work for another photographer in — he will commence proceedings against me. I would like you to say if you think he can stop me working for another. I am under the impression he cannot. I should be glad if you would give me your answer.—DOUBTFUL.

Unless we saw a copy of the agreement or knew the conditions under which it is made we cannot express any opinion upon it. According to what you say, it seems very one-sided, and it is a question whether it would hold good in equity. Twenty miles seems to be rather a wide radius, and might be looked upon in a court of law as an undue restriction of trade, in which case the thing would become invalid. Your best way will be to consult a solicitor and show him the agreement; he will then be able to advise you in the matter.

MIDGETS.—I would be very pleased if you would let me know how I could number midgets when taking them out of doors, as on the beach, where a numbering arrangement cannot be fixed up.—GLASGOW.

You buy an apparatus in which the numbering is all done in the camera. See page 1,371 of the 1907 "Almanac."

A STUDIO QUERY.—I covered the top light of studio with tissue paper three weeks ago, but now it has turned a deep yellow. I have never found tissue paper to act like this before. Will you kindly let me know the cause of this; or, if the paper is impure, the address where I can buy the best quality? Failing this, would you give me a formula for painting on the glass which would have the same effect as ground glass, but could be quickly rubbed off in the winter?—TISSUE.

Certainly an impure paper is the cause of the yellowing. It is a common feature of a low-quality paper, but you should have no difficulty in getting a good, pure paper which will not behave in this way. To obscure the glass, a very good plan is to apply fairly thick starch paste. This preparation will wash off, of

course, in the wet, and should, therefore, be applied on the inside of the studio.

**SHIPPING PHOTOGRAPHER.**—I am a professional photographer, and am anxious to get a berth if possible on board one of the Atlantic liners as photographer. I notice the "Adriatic" and other ships have a photographic department. Could you assist me by informing me the address of the best offices, and, if possible, name of the chief to write to?—ATLANTIC.

We can only refer you to the managers of the various shipping companies, whose addresses you will see in almost any of the leading daily papers, or in publications such as the "Shipping Gazette," published by Spottiswoode and Co., Ltd., 54, Gracechurch Street, E.C.; or the "Shipping World," published by the "Shipping World," Ltd., Effingham House, Arundel Street, W.C.

**SULPHIDE TONING.**—I have experienced some peculiar results in developing plates with a strong solution, as follows:—

Hydroquinone .....	122 grains.
Metol .....	46 "
Sodium sulphite (crystals) .....	920 "
Sodium carbonate (crystals) .....	1,381 "
Potassium bromide .....	76 "
Distilled water .....	35 oz.

Exposing on a subject which is very difficult to judge for exposure I am unable to make any density, also, on continuing development, to obtain it, the image, which on first appearance is good, almost disappears from the plate. The clearest result is obtained by stopping development quite early, but the fixed plate is then extremely thin.—F. W.

We must say that your experience is most exceptional, and we can see nothing in the formula as you state it to account for the facts, assuming, that is, that the chemicals are of proper purity. The presence of hypo in the developer would, we think, give rise to something of the kind you have experienced, and, if you must use the formula you give, we should advise you to make it up with the chemicals of undoubted purity.

**SULPHIDE TONING.**—(1) I had a bromide print enlargement developed with metol-quinol. After fixed and washed for forty minutes I bleached in ferricyanide of potash, 20 grs.; potash. bromide, 20 grs.; water, 20 ozs.; well rinsed and put in 100 grs., 20 ozs. water, sulphide solution, but it would not tone, nor would the image come back still bleached. Is there any remedy, or can I have it returned to black and white again? (2) I find every toning, as above formula, gives rather brown tone than sepia. Is it possible to have darker colour with sulphide, using some other chemicals?—L. M.

(1) As we understand your query, we should say that the use of an ordinary developer, such as metol hydroquinone, will bring back the picture with very little modification in colour. We have heard of similar cases of refusal to darken in the sulphide solution, but have never been able to discover a remedy. The difficulty appears to be due in some cases to the paper, and a change in the brand has put matters right. (2) There are, as you say, variations in the tones given by the sulphide process, and they are due, we think, almost as much to the papers on which they are used, as to the toning formulae. One formula which we have used to get very good dark tones consists simply in the use of weak bromide water as a bleaching agent. The objection to this solution is the irritating vapour which escapes from it, but in other respects it is a very quick and powerful bleacher, and the prints need be simply rinsed for an instant only under the tap before placing it in the sulphide solution.

**FREE SITTINGS.**—Some time ago I invited a gentleman of note and popularity for a sitting. I presented him with a few copies free; later on he ordered some photographs, for which I charged the usual price. With his permission I then published some postcards, and also sold a number of photographs. Last week I noticed that the photograph has been published in a weekly paper, and a supplement print presented with each copy. I have written to the publishers to say that the copyright is my own, and that they had no right to publish same without my permission. This is just a week ago, and, so far, had no reply whatever. What I wish to know is, can I claim any damages, and what steps should I take?—A. G.

The copyright is certainly yours, but, in the absence of a

written assignment of it to you, it will be difficult for you to prove your proprietorship. It is usual to obtain such an assignment from a sitter at the time. You can, if you like, register the photograph now and take action in respect of sales of publication subsequent to your registration; but, on the whole, we should advise you to give up the idea. Evidently you have not read the very clear notes on this matter which appear in the "Almanac" for 1906, and have only yourself to blame for the position you are in.

**TONING WITHOUT GOLD.**—Will you kindly give me a formula for quickly toning small batches of P.O.P. postcards? Absolute permanency not essential, speed of execution, with a minimum of washings, desirable. I think I saw a toning and fixing solution without gold given in the "Journal," but being away from home cannot lay my hand on it. If you can help me I shall be thankful.—NEMO.

The process appeared in "Photographic Scraps" for November 1904, p. 180. If you write to the Ilford Company, Ilford, E., doubt you can obtain a copy. An abstract appears on page 6 of the "Almanac," 1906.

**J. CLAPHAM.**—Fairly full exposure and restrained developer, preferably pyro, hydroquinone, or glycin. It is difficult to get absolute black and white.

**GRIFFIN'S RENDEZVOUS.**—Messrs. John J. Griffin and Sons, Ltd., invite all interested in photography to visit their exhibition gallery in Kingsway, London, W.C., where from time to time examples of pictorial work will be on view. The present collection includes portraits, landscape, and seascape studies, by Worsley Benison, oil paintings by G. E. H. Rawlins, and portrait studies by Herr R. Dührkoop, Hamburg. In conjunction with each exhibition practical demonstrations will be given, as well as a series of pictures, and the latest forms of apparatus and materials will also be on view.

#### LIGHTNING PHOTOGRAPHY.

(A Burglar's Protest.)

I sees at Deal, the other day,

A rummy thing occur,

Which in our trade—the trooth ter say—

As made no end of stir.

A lightnin' flash, wot charnced ter pass,

A vase snapshotted cleer,

And print it on a looking glass

As stood convenient nere.

Now, since 'twas but a vase, yer see,

The consikwence was slight;

But think, if it had photo'd me,

While burglin' of a nite!

Which, wot with finger-prints, says I,

We've risks enuff and more.

Without them helements on 'igh

A-shuvvin' in their hoar.

From "Truth."

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## SUMMARY.

Reflex Camera Exhibition.—This continues to attract an in- number of visitors. The average attendance per diem ast week has been forty.

Legal use of negatives and photographs, which deals, of ith the all-important point of copyright, is dealt with y, and a policy of not killing the goose that lays the golden dvocated. (P. 479.)

Efficiency of dark-room filters is fully described by Dr. Mees Baker, and the relation of visual intensity, safety, and shown. (P. 481.)

st of a series of useful articles on the collodion process W. Foxlee appears. (P. 485.)

lson K. Cherrill describes a distinctly novel reflex camera, specially intended for the use of artists. (P. 484.)

ct of Photography is an amusing extract from "Truth," eaks very plainly on the subject. (P. 486.)

s only to be expected, the oil process is attracting con- atention. (P. 488.)

dy for platinum printers' catarrh is given, and strongly ded, by an American writer. (P. 477.)

thur Payne has written a new work on wet collodion, reviewed on p. 489.

amount of commercial and legal intelligence appears this duding an interesting copyright case. (P. 491.)

ggestions are made with regard to improving the useful- reflex cameras. (P. 494.)

apman Jones discusses the efficiency of the iris shutter.

## The Decline of Stereoscopic Work.

That the decline in stereoscopic work is general cannot be denied, notwithstanding the fact that amongst a few amateurs it is still enthusiastically pursued. Various reasons have been advanced for this falling off. By some it has been ascribed to the extra trouble involved in making stereo prints. By others to the want of clearly defined rules of working, and by others again, to the wave of pictorialism which has swept over us. With regard to this last reason it must be admitted that the want of interest in stereoscopy was in evidence long before pictorial photography, as we now know it, was thought of. One of the chief reasons we believe to lie in the necessity of using a stereoscope so that only one person at a time can see the results.

## EX CATHEDRA.

That the decline in stereoscopic work is general cannot be denied, notwithstanding the fact that amongst a few amateurs it is still enthusiastically pursued. Various reasons have been advanced for this falling off. By some it has been ascribed to the extra trouble involved in making stereo prints. By others to the want of clearly defined rules of working, and by others again, to the wave of pictorialism which has swept over us. With regard to this last reason it must be admitted that the want of interest in stereoscopy was in evidence long before pictorial photography, as we now know it, was thought of. One of the chief reasons we believe to lie in the necessity of using a stereoscope so that only one person at a time can see the results.

\* \* \*

## New Ideas in Stereoscopy.

Suggestions have been made at different times to obviate the necessity of transposing the prints. We have had, for instance, the method of using mirrors in front of the lenses or mirrors behind them. The objection to these has, of course, been the fact that any such arrangement adds not only to the weight, but the expense of the apparatus, and, further, such mirrors to be efficient must be silvered on the surface. Assuming that the ordinary form of stereoscopic camera be used then various instruments have been devised and patented to obviate the necessity of transposing the prints; but not one has come into general use. In the current "Zeitschrift für Wissenschaftliche Photographie" Herr Fricke suggests that instead of using the ordinary ocular a reversing system as used in the microscope or telescope should be used and the prints mounted upside down. The production of eyepieces of this type of sufficient size should not present any optical difficulty, but they would presumably be somewhat expensive. In order to obtain transposed negatives the author suggests that Porro prisms, as so much used nowadays for binoculars, should be fitted either behind or between the lenses. At first sight the objection to these is the price, and to the second suggestion the field of view would be considerably reduced.

\* \* \*

## Developing Panchromatic Plates.

In the discussion which followed Dr. Mees' and Mr. Baker's paper at the R.P.S., which appears on another page, the point was raised as to loss of colour-sensitiveness of the plates after immersion in the developer, and reference was made to experiments by Lüppo-Cramer and Valenta which certainly bore out this statement. The matter has, however, been satisfactorily settled by Dr. Mees and Mr. Baker, who have communicated to the "Photographic Journal" the results of some special tests which they have

made to determine the point. The conclusion they have come to is that using metol-hydroquinone, ferrous oxalate, and hydroquinone and caustic potash the plate had about one-quarter of the normal sensitiveness, but "that the effect of soaking a plate in a developer is insufficient to protect a panchromatic plate if it be incautiously exposed to red light."

#### Examining the Plate during Development.

That examination of a plate during development can have absolutely no effect upon its good qualities is a fact which probably will not be denied by any one. Even if one adopts the factorial development system as devised by Mr. Watkins it is applicable obviously only to those plates which are not panchromatic. The time development system, that is, development with a solution of constant composition at a constant temperature for a given time, completely solves the difficulty, provided, as some one has said, you have somebody to call out the time or a recording clock. When one is forced to use a watch, however, there should not be the slightest difficulty in temporarily covering the dish up to see the watch face, and one may use for this a light-tight box, or, obviously, if one works some distance from the light, a sheet of stained glass of a colour complementary to that of the dark-room light will at once produce practical if not theoretical darkness over the plate.

#### Sunspots.

The generally accepted opinion as to the cause of these is that an opening in the photosphere enables us to see the relatively dark surface of the solar body itself. This being so it was natural to assume that the sunspots were due to an eruption or irruption of gaseous matter forcing its way through the brilliant vapours, and confirmation of this view could be obtained by proving the motion of the Fraunhofer lines in the line of sight. Professors Hale and Adams have recently dealt with this subject in the "Astrophysical Journal," and state that the importance of the question of the motion in the line of sight of the spot vapours as bearing on any theory of spot structure, is, of course, very great, and has been kept in mind in the investigation of the observational material. In the method which they have adopted of photographing spot spectra it is necessary to make the exposures on spot and disc separately, occulting one while the other is being photographed. For this purpose an occulting bar is moved across the slit by means of a rack and pinion, as in most stellar spectrographs. Accordingly, the danger of errors arising from instrumental sources should not be great.

#### Photographs of Spot Line Displacement.

The study of the plates (continued Professors Hale and Adams) has led to the conclusion that there is, as a rule, very little motion in spot umbrae. Out of eighty plates of eleven spots only two gave any reasonably certain displacements of the spot lines, and even in these two cases the values were close to the limit of accuracy of the measures. In both instances the motion was directed downward, and amounted to about 0.2 km. a second. In one case, moreover, the motion was certainly temporary, since plates of the same spot taken on the following day gave no displacements whatever. The general conclusion, then, seems to be justified that the vapours forming the umbra of a well-developed spot are normally nearly at rest, with perhaps some presumption of a slow downward drift. This result is in agreement with that found by Mitchell from the study of a large number of spots during 1904-5. He says:—"Line-shifts

in the spot spectrum, with the exception of those due to hydrogen, are very rare."

#### Platinum Printers' Catarrh.

Two years ago some discussion was raised in our columns on the above, and therefore the following suggestion from a writer in one of our American contemporaries may be useful. He states that he has just recovered from a severe and prolonged attack, and found his remedy rapid and efficacious, and apparently he is now immune. The remedy is common salt. "To heal the sores on the hands put half a gallon of hot water in a basin, and dissolve in it about two large tablespoonfuls of common salt; immerse the hands and wrists in this, and keep them in it for half an hour. Rinse off the salt water and dry the hands. Do this twice a day—in the morning before commencing work, and in the evening when quitting. The sores rapidly heal. To cure the nasal catarrh, make a weak solution of salt water, a small teaspoonful of salt (or a quantity as feels agreeable to the nose) to a pint of water heated to about the temperature of the human body, sniff a portion of it into the nose twice a day; or use a nasal douche. Bathe the eyes in this also, if they are affected. If a steady worker in platinum papers, these solutions once a day as a preventive."

#### The Lighting of Pictures.

In the hanging of pictures photographers often seem to neglect a consideration that is never ignored by painters—that is, the direction in which the light falls on the picture. It may be taken as a rule that all pictures appear at their best when they are lighted from the same direction as their subjects. As it is impossible to observe this rule with a large number of pictures in a gallery the compromise of top-lighting is resorted to, but in private rooms there is seldom any great difficulty in arranging pictures so that they shall be properly illuminated. There seems, however, to be an idea that top-lighting is the ideal, probably just because it is the only possible form of lighting that can be adopted in picture galleries. This is entirely a mistake. It is suitable to some subjects in which the lighting is naturally from the top, as in open landscapes and seascapes, but in the majority of cases sidelight is a feature of the picture, the picture then appears at its best when lighted from the side. We have actually heard this correct method of lighting described as tricky and theatrical, but such an absurd idea is not countenanced by painters, who are fully aware of the importance of viewing the picture under natural conditions of lighting. The ideal place for a picture is in the studio in the position occupied by the subject. If it does not appear at its best in this position, there is certainly something wrong with it. This is the painter's test, and it is an equally useful and effective one for photographers. It naturally follows that the same conditions of lighting should be as far as possible preserved when the picture is permanently hung, if it is to be shown to the best advantage.

#### Dr. Wells and Darwin.

A short time ago we referred to Dr. Wells's essays on single vision as valuable to the student interested in visual optics. A friend who has been studying Dr. Wells's collected papers published in 1818 now draws our attention to the fact that the last paper in the volume is an exposition of Darwinian theories of natural selection and of the survival of the fittest. This paper was read before the Royal Society in 1813, hence it appears that Dr. Wells anticipated Darwinian theories by a considerable space of time. Wells apologises for discussing a subject that only ad-



jectural reasoning, and fears that his article may be "rather fanciful than just." As happens far too often, this paper was overlooked, and Dr. Wells has not received the credit that was due to him. His medical work is of no small importance, though his name has been often saved by a few, and, as we have before pointed out, his optical writings are of great value, and no serious man can afford to neglect them.

## THE ILLEGAL USE OF NEGATIVES AND PHOTOGRAPHS.

I dealt a few weeks ago with the relations of a photographer to his customers in the matters of the custody and use of negatives made in the usual course of portrait photography. These matters, as we pointed out, are independent of copyright considerations, but are based upon an implied contract between the photographer and his customer, which binds the photographer to act in accordance with the desires of his customer. In now passing to consider the rights of a sitter, it may be stated at once that rights exist by virtue of the clause in the Copyright Act to the effect—we abbreviate the wording of the Act for the sake of clearness—that the copyright in a photograph shall be the photographer's except when "the negative of any photograph shall be made or executed for or on behalf of any other person for a good and valuable consideration, the person so executing the same shall not be deemed to have assigned the copyright thereof, unless it be expressly reserved in writing, signed by the person or on whose behalf the same shall be so made or executed, but the copyright shall belong to the person for whose behalf the same shall have been made or executed."

The precise meaning of this clause were clearly understood on many occasions whereon photographers have behaved in a very foolish manner, and with an arrogance which has had to retract, would not have been so markedly expressed in ordinary language, the clause of the Act amounts to this:—When a photograph is taken for someone, or ought to pay, for it, the copyright in the photograph belongs to that someone; or if the photographer is paid a regular wage for taking the negatives, the copyright in the photographs belongs to his employer. In other cases the customer or the employer is the possessor of the rights which are granted by the Copyright Act. Let us now draw attention to our interpolated phrase immediately above, "or ought to pay." The distinction is not actually made in the Act, but it has been very clearly drawn by cases in the High Courts, and we refer to it because it is very easy for photographers to reason themselves and to arrive at a conclusion quite opposed to that of the law on this point. It seems reasonable, and, to argue in the case of a customer who has not paid for his photographs, and who, in the ordinary course of application by the photographer, cannot be made to pay for them, that, since the photographer has received no good and valuable consideration, the copyright in the photographs is his, and he can do what he likes with the prints regarding their multiplication or reproduction. Yet the law does not uphold this view of the matter, but, with a kind of almost Gilbertian logic, refuses to distinguish between paying for the photographer's work and owing for it, for example, Mr. John Smith commissions a photographer to take a photograph of his (Mr. Smith's) residence, and, if, after the photographs have been delivered, negotiation and persuasion are ineffective in getting the money out of Mr. Smith, the photographer is not at liberty to set upon a policy which he may formulate to himself in these words:—"I see no chance of getting the money from Mr. Smith. I will straightway issue postcards of Mr. John

Smith's house and thereby recover the amount of which I am out of pocket, and perhaps make a bit more as well." Not so; the law says that Mr. John Smith's order is an implied promise on the part of Mr. John Smith to pay for the work, and on that promise he can be sued for the money. Meanwhile the law supports Mr. John Smith's right to do what he likes in the way of having the photographs reproduced, and if he objects to any reproductions of them appearing he can obtain an order to have them withdrawn, or can bring an action for infringement of his copyright.

We say that the above ruling of the Courts is not an ideal one, for obviously it lends itself to the perpetration of fraud by unscrupulous persons; but a mature consideration of the circumstances which attach to copyright will lead to the conviction that it is the most practicable solution of the difficulty. And we would impress it upon many of our readers of whose misunderstanding of it we have frequent instances. It is very common, for example, to hear of a photographer who has taken certain photographic groups of his local football club by whom he has been paid for the work. The club afterwards asks him for a price for a large number of postcards, but because it is not satisfied with his terms, places the order elsewhere with another photographer, who prepares his negative, of course, by copying one of the prints supplied by his rival in the first instance. What does the latter do in many cases such as this? Ignorant of the fact that he has no right to make a single copy from the negatives in his possession, he hastens to issue postcards of the particular subjects, and is highly incensed when his erstwhile customer, the football club, calls his attention to the fact and demands the withdrawal of the cards. Yet the most cursory study of the Copyright Act would save photographers from making a ridiculous display of their ignorance in regard to a document the provisions of which should be at their finger ends.

It not infrequently happens that doubt exists as to whether the photographer did actually receive a good and valuable consideration, or whether he did not actually take the photographs in the first instance without receiving payment. If he did, the copyright attaches to him, and his possession of it is not altered by the fact that he afterwards sold prints from the negatives to the parties in question. Without going further into the intricacies of copyright law, we may cite the imaginary but quite common case of a photographer who, while out executing some commission, meets with an attractive subject—such as a boating or picnic party—negatives of which he takes on the understanding that there is no payment to him, but that any of the parties may purchase copies from him if they choose. In such a case undoubtedly the copyright is the property of the photographer, and the reproduction of a copy by any one of the party who may purchase it will be an illegal act and may be made the subject of action by a photographer.

It will be noticed in the portion of the Copyright Act which we quoted in the first paragraph above, that it is expressly stipulated that the person so executing the photograph—that is, the photographer—shall not retain the photograph unless it be expressly reserved to him by an agreement in writing. This would suggest that in the absence of payment of a good and valuable consideration to the photographer, the copyright becomes his without any written agreement. But it should be remembered that if any action should arise as to the possession of the copyright, it is pretty safe to predict that in the case of sitters who visited the studio of the photographer he will be called upon to prove the fact of his having done the work without receiving a good and valuable consideration. In other words, the safe course to follow in the case of sitters, the copyright in whose photographs it is under-

stood are to be retained by the photographer, is to obtain a written agreement in writing to this effect. A convenient form of such agreement is the following, which is based on that recommended by the executive of the Professional Photographers' Association to its members:—

To Mr. ....

In consideration of your allowing me a reduction from your usual terms for taking photographs of me or on my behalf this day, I hereby agree that the copyright in such photographs shall be reserved to you, and that I will not deal in any way with the photographs to prejudice your interest in the copyright.

Dated the ..... day of ..... 190....

Witness .....

At the same time that we state that any copying of the photographs in regard to which there exists an agreement such as the above, will be an infringement of the photographer's copyright, we would insist with all the emphasis we can command that the photographer has nothing to gain from an obstinate and unreasonable exer-

cise of his rights. We could cite instance after instance in which greater leniency in regard to this matter would have advantaged the photographer. There is no good to be gained from attempts to make something the way of a copyright fee when by so doing one is injuring the amicable relations between oneself and sitters, the copyrights in whose photographs have proved valuable. Leading photographers, a great part of whose business depends upon the establishment of copyrights in this way, know better than kill the goose which lays the golden egg and if, for example, a sitter desires to reproduce a copyright photograph of herself for some private or personal purpose, such as a professional card, or if she wished to give it to some journalist who was preparing a special illustrated interview, they will gladly waive their rights for the sake of showing a courtesy to the sitter, and, indeed, to do anything else would be very bad business.

Exigencies of space prevent us from entering upon other forms of illegal use of negatives, but the one or two cases which we have instanced in the foregoing remarks include the most common of them, and if studied by the reader should prevent him from acting injudiciously.

## A MEASUREMENT OF THE EFFICIENCY OF DARK-ROOM FILTERS.

(A Paper read before the Royal Photographic Society.)

THE following paper is an account of an attempt to compare directly the visual intensity and the safety of differently coloured dark-room filters with a view to being able to use a filter of definite colour, knowing the intensity of light which will be obtained, and at the same time the danger of fogging attending this use.

In the earlier days of photography, when less attention was paid to theoretical requirement, and plates were far less colour-sensitive than they are to-day, the illuminating screens for the dark room were constructed mainly of commercial red glass, and of the cloth impregnated with lead chromate known as canary fabric.

Now, while the older red glass coloured in the mass frequently cut out the whole of the violet and ultra-violet, and was a quite satisfactory illuminant, samples of glass were found which were of a most unsatisfactory nature, and this led to the general impression, which has been voiced by several writers on the question of safelights, that an indefinite degree of safety with great intensity may be obtained by cunningly devised screens, and from this has arisen the issue of numbers of safeguards, liquid, stained film, and glass, designed to give great intensity with great safety, at any rate according to the prospectuses. Such, for instance, are the fluid cells which have been issued at intervals; you are told that with certain solutions you can use great intensity of light in the dark room with perfect safety, and some years ago Mandarin Orange G extra was recommended for this purpose, a dye which has the great advantage for some spectroscopic work of transmitting the whole of the extreme violet and ultra-violet, so that it is a typically unsafe dye to use for dark-room illumination.

Provided that the whole of the blue is cut out in the case of a plate not sensitive to green, and the whole of the blue and green in the case of a plate sensitive to green but not to red, then the safety of the safelight must be a question of intensity, and the decision as to the use of any particular arrangement must be dependent on the relation between the sensitiveness of the plate and the sensitiveness of the eye for any particular colour. Possibly the best example that can be taken to illustrate this point is the discussion of the

spectral absorption of a safelight to be used with a panchromatic plate.

It may be taken that this panchromatic plate is sensitive to the whole of the visible spectrum, and for the purposes of this discussion we will assume that for the light with which it has to be used it is *equally* sensitive to the whole of the visible spectrum; an assumption which may not be true in practice, because the distinctly yellow light sources used in dark-room lamps, oil lamps and so on, will probably produce more effect in the red than in any other portion of the spectrum; but assuming that the plate is evenly sensitive to the spectrum, it is clear that it is only a question of time for a screen of any colour to fog that plate equally, and three screens be made such that their actual absorption measured in the spectral photometer for their transmission regions are equal, these screens being blue, green, and red, then in the same time our plate will be equally fogged by all three of them.

But if they are examined visually, it will be seen that they are by no means equal in visual intensity. The blue is the far the darkest, the red being intermediate between the green and the blue. So here we have one consideration in choosing all safelights, the blue is of but little use for purposes of vision, and even on a panchromatic plate will be very dangerous, equally with all other colours; so that to start with we must abolish the blue.

Subtracting the blue from the light, we are left with yellow light composed of a mixture of red light and green light. If the light be intense, the eye is nearly equally sensitive to the red and green portions of this yellow light, but as the intensity is diminished it follows, from what is known as the Purkin phenomenon, that the maximum of visual intensity shifts towards the bluish green, abandoning the yellow, therefore the visual intensity of a dull red light—that is to say, weak red, not a deep red—is very small indeed.

With a panchromatic plate we cannot use much light of any colour, and if we have very little light, the red light in it is practically useless for the purposes of vision, while it is still actively harmful to the plate, which displays no Purkin



tion; so that clearly we should cut out the red as the blue, leaving us only a green light, and we see the ideal colour for a safelight for panchromatic plates is a pure green, having neither blue nor red in it, and the depth of this must depend on the sensitiveness of the plate and the time for which the plate is to be exposed to it. The same considerations which have been discussed in the case of a panchromatic plate apply equally to all other plates. An additional precaution, that, as far as possible, if a plate has a region of insensitiveness, as all plates other than those that are panchromatic have, then the safelight should transmit light of this region, provided that the transmitting intensity of that light is sufficiently great to make a light of equal intensity of that region as safe as a light which affects the retina more, but is in a region in which the plate is sensitive. For example, pinachrome plates have small sensitiveness in the extreme red above 6,800, and a green screen transmitting light to which the eye is perfectly sensitive can be used of equal visual intensity to the deep red light without any greater lack of

accuracy in our experiments, then, on these general conclusions, we have made a number of observations of the visual intensity of the photographic effect of variously coloured safelights, with a view to designing a series of screens adapted for different purposes to give a known amount of safety, and equally a known amount of visual intensity. One cannot describe the conclusions which we have arrived at particularly satisfactory; we have shown us more forcibly even than we suspected that it is not possible to combine intensity with safety, and we have concluded to which all expert photographers have arrived that it is necessary not to trust the dark-room lamp and to expose plates to it as little as possible, is based on the best practice, and cannot be avoided by any combinations of screens.

It is, in fact, only one screen for a dark-room lamp which is described as indefinitely safe, and that consists of a screen of cardboard, so that one must decide what degree of safety can be permitted, a conclusion which will vary with the carefulness or carelessness of the worker, and with the method with which he can manipulate his plates, fill his slides, his dishes, and so on.

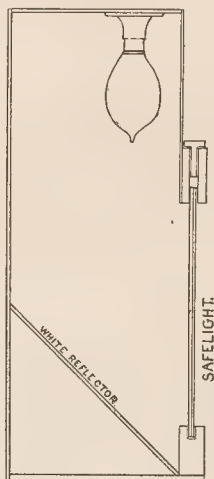
The apparatus used in the measurements of visual intensity is extremely simple, and perhaps not very satisfactory, but it has been unable, at any rate at present, to design a better one. It must be remembered that photometric determinations of visual intensity are of but little use; what is required is a determination of the visible light at the disappearing point, that is to say, a measurement of the amount of cutting out of light which that coloured light will stand before it becomes invisible.

### Lamp, Method of Work.

The method of doing this was to employ a large electric lamp as shown in Fig. 1) to which different bulbs could be fitted. The front of the safelight in this lamp was placed across by sticking lantern-slide binding strips on the lamp. The image of this was then focussed on the ground glass of a camera, and in front of the lens was placed a red iris diaphragm, the aperture of which could be varied from the setting of the handle. Measurements were made by closing this diaphragm until the image of the cross on the ground glass disappeared; the amount of light which was passing then being calculated.

The lamp employed deserves some notice. It was designed by S. H. Wratten for use with electric light for dark room illumination, and has the very great advantage that it gives out perfectly diffused light, no direct light being emitted.

The lamps are comparatively easy to make, requiring only a wood frame and cardboard, and are completed and made light-tight by gluing brown paper over the joints.



It is of importance in dark room illumination, when other things than the actual plate require to be seen, that diffused light should be used; by using diffused light, a great deal more can be seen with the same intensity of light falling on the plate, because the whole of the room is lighted instead of the plates only upon which the direct rays of the lamp fall. Of course, one can imagine cases where it would be convenient to have a restricted cone of light into which all the materials for use could be gathered and from which the plate would be rigorously excluded, but in ordinary dark room work the inverse plan is distinctly the best.

The accuracy of the measurements made with this apparatus, although low, is good enough for practical purposes, though it is quite insufficient to draw any theoretical conclusions as to the physiological value of different light sources, and the results are not in any way put forward as scientific measurements, but as rough approximations suitable for consideration when deciding on the use of particular safelights. The eyes of both observers appear to be quite normal with regard to colour distribution, a point of some importance in work of this kind.

The photographic intensity was easier to measure with accuracy, because it is part of the routine work of the laboratory.

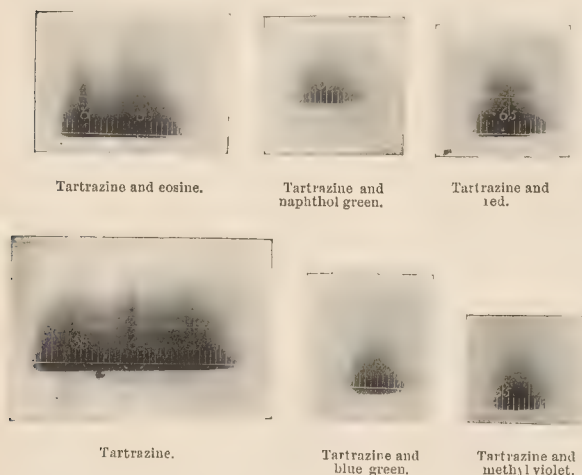
### Method of Work.

A large water-cooled acetylene burner was used in front of the exposure machine, its intensity at the sector wheel being 190 candle metres; the safelights were put between this burner and the exposure machine, and the plates inserted in dark slides behind the sector wheel and exposed for a definite time. The exposures ranged up to forty minutes. After development, the densities were measured and the inertia curves plotted, the effect being reduced from the relative inertias.

### Colour of Screens Employed.

All screens used in this work had, in addition to any other material mentioned, one sheet of glass coated with a film of gelatine strongly dyed with tartrazine, which cut out all wave-lengths below 4,900 A.U. This alone was used for the yellow safelights, the additions being as follows:—For the orange safelights a screen of eosine, cutting out all wave-lengths below 5,500; for the red safelight, a screen of pinatype red was used, cutting out all wave-lengths below 5,900; for the

deep red safelights, a screen of methyl violet was used, cutting at 6,200; the blue-green safelight passed light between 4,900 and 5,600; the naphthol green safelight between 4,900 and 5,750, though all these were modified by the papers which were also added. The spectrum absorptions are shown in the photographs (Fig. 2).



#### Plates for which Screens are Designed.

The screens mentioned above were employed for the following plates:—Yellow and orange for an ordinary extra rapid plate, the one used being the one called by Wratten and Wainwright the "Improved Drop-shutter"; the red was used for the "Speed" plate, an ultra-rapid plate; the methyl violet for an erythrosin plate, the "Allochrome," for which also the blue-green safelight was designed for the benefit of red-blind users, having had several requests for a special safelight from friends of ours who can either scarcely see red at all, or to whom the red light is extremely irritating. The naphthol green safelight was for use with a panchromatic plate.

These different glasses were cut down in intensity by the insertion of blotting paper, tissue paper, paper soaked in aurine and methyl violet, and paper soaked in acid green; the absorption of these papers were separately measured.

With regard, firstly, to visual intensities, it was found that the visual brightness of the various safelights was as follows:—

#### Visual Intensity Table.

1. Ground glass alone .....	200
2. Tartrazine and ground glass .....	133
3. Tartrazine and ground glass and eosine .....	80
4. Tartrazine and ground glass and red .....	28
5. Tartrazine and ground glass and methyl violet..	7
6. Tartrazine and ground glass and blue-green .....	7
7. Tartrazine and ground glass and naphthol green	1.60

Absorptions of two sheets of thin white tissue paper measured on the same scale, 1.72; that is, the tartrazine and methyl violet screen has an intensity of 7; if we insert two sheets of tissue paper, this must be divided by 1.72, reducing it to 4.1.

One sheet of blotting paper divides the intensity by 3, so that if one sheet of blotting paper be inserted in the methyl violet safelight the intensity will be 2.34. One sheet of aurine paper in the red safelights divides the intensity by 4.1, so that the methyl violet safelight with aurine in it will have an intensity of 1.7.

The addition of one sheet of green paper to the green safelights has the effect of reducing the blue-green nine times,

and the naphthol green twelve times; so that the intensity of the standard green safelight, which contains naphthol and tartrazine glasses and one sheet of green paper, is 1.72.

The safety of these safelights is shown by the next table, which gives the amount of exposure necessary to produce the same effect in all cases upon the plate for which the safelight is stated to be designed:—

RELATIVE SAFETY TABLE.

	Safelight.	Exposure to give result.
1 {	a. Tartrazine on I.D.S. ....	1
	b. " with tissue paper .....	2
	c. " with blotting paper .....	3
2 {	a. Eosine on I.D.S. ....	1
	b. " with blotting paper .....	2
	c. " with aurine paper .....	5
	d. " Naphthol green on I.D.S. ....	2
3 {	a. Red on Speed .....	1
	b. " with aurine .....	2
	c. " with aurine and methyl violet paper .....	10
	d. Methyl violet on Speed .....	10
4 {	a. Methyl violet on Allochrome .....	5
	b. " with aurine .....	15
5 {	a. Blue green on Allochrome .....	1
	b. " with green paper .....	1
6 {	a. Naphthol green on Panchromatic .....	1
	b. " with green paper .....	6

Combining these two tables we get the efficiency:—

	Safelight.	Intensity.	Safety.	Efficiency = Int. x Safety.
1 {	a	133.0	1.0	133.0
	b	77.0	1.7	131.0
	c	44.0	3.0	132.0
2 {	a	80.0	14.0	1120.0
	b	27.0	25.0	675.0
	c	20.0	50.0	1000.0
	d	1.60	22.0	35.2
3 {	a	28.0	6.3	176.4
	b	7.0	25.0	175.0
	c	3.5	100.0	350.0
	d	7.0	100.0	700.0
4 {	a	7.0	55.0	385.0
	b	1.75	150.0	262.5
5 {	a	7.0	1.0	7.0
	b	.78	9.0	7.0
6 {	a	1.60	2.0	3.2
	b	.135	64.0	8.7

It will be observed from this table that the naphthol green screen used with the I.D.S., although reasonably satisfactory, is extremely inefficient, but that, on the other hand, the methyl violet for the Speed plate is desirable, as the efficiency is greatly increased by it.

The Allochrome safelights are clearly satisfactory, having high efficiency, but the blue-green are very unsatisfactory, in order to get reasonable safety can scarcely be brighter than the panchromatic safelight. The low efficiency of the green safelights is, of course, due to the fact that they are used with plates which are highly sensitive to green light.

In order to make practical use of these results, it was necessary to know the standard of safety required for practical work in the dark room, and it was found that with an electric candle power lamp, and the plate at a distance of one meter, taking as the standard of safety that a visible fog should not be produced in half a minute, though it might be in a minute—if the dish is covered this should be quite satisfactory—it was found that for this safety a number about 100 on our scale was necessary; so that reading off from the table we see that we can get an intensity with the I.D.S. of 1.72. With the Speed, by using methyl violet and a strong lens of 14, with the Allochrome of 7, and with the panchromatic of about .15; and having attained these intensities, any exposure intensity is obtained with the knowledge that the addition



means additional unsafety in direct proportion to that must be pointed out that the favourite method of sing the size of the dark-room lamps to give more light ed in nothing; that method is based on the assumption he fog is caused by small amounts of blue light passing lters; but the results given above make it abundantly that the fog with these filters is not owing to this, but

simply to excess of light of the colour which it is intended to transmit.

Our best thanks are due to Messrs. Wratten and Wainwright, Ltd., for permission to publish these results, which were obtained in their Research Laboratory, and especially to Mr. S. H. Wratten, who has made the experimental safelights required in the work.

C. E. KENNETH MEES.  
J. K. BAKER.

## THE COLLODION PROCESS.

In the following article, which is the first of a series, is commenced a synopsis of the working of the wet collodion process one of the oldest experts in the handling of the wet collodion plate. Mr. Foxlee's experience of wet collodion commenced after the introduction of the process in the fifties of the last century, and his notes therefore embody the experience ed in fifty years' practical working and intercourse with the past generation of photographers. The articles, we believe, be of service to the numbers who, for technical purposes, still make use of the collodion process.—Eds., "B.J."]

### The Wet Collodion Process in Practice.

Collodion is not yet an obsolete process, for it is still largely for purposes such as process blocks, photo-engraving, photography, photo-zincography, and also for the making of aged negatives for carbon enlargements, and other work. a notable fact that where bichromated-gelatine processes concerned, better results are obtained from collodion nega- than from gelatine ones. It is for this reason that they so generally employed for the processes just mentioned. it is practically an unknown process to the majority of who have only entered the ranks of photography within last twenty years or so. Up to the general adoption of ine plates in the early eighties, it had been, for thirty s, the only one that was employed for general purposes. wet collodion process is looked upon by many as being exceedingly difficult one to work, however, it is not so in ity, but there is no gainsaying the fact that it is one that ires to be learnt, as it is very different from present-day ography, when the plates are purchased ready for exposure ie camera. It is true that the silver bath is at times liable play tricks," but it is easily set right when its little vagaries understood.

ter working the collodion process exclusively for over a ter of a century, I can say of it, "With all its faults I love ill"—for some purposes. Compared with gelatine, collodion undoubtedly a slow process, yet with it, instantaneous pictures e successfully taken, as witness the street scenes of Paris, n by the late Mr. Wm. England, those of the streets of don, by the late Mr. Valentine Blanchard, and others, to nothing of the animals in the "Zoo," by Mr. Frank Haes, the late Mr. Fredk. York. All these pictures will hold r own against those more recently taken on gelatine plates. has just been said that the collodion process is one that ires learning, and I might add that the knowledge gained he practice of the gelatine process will not aid much in the ming of it. Indeed, if I had to teach the collodion process a youth of ordinary intelligence, I would prefer that he old know nothing at all of gelatine. The two processes, so as the manipulations are concerned, are so widely different, a certain degree of, may I say "slovenliness," in working, ch is quite permissible in the one would be fatal in the er.

In this and subsequent chapters I shall endeavour to give a practical instructions as will enable anyone to work the odion process successfully after a very little practice. In ug so, it may possibly seem to some that I shall be dealing necessarily with trivial matters, but it should be borne in d that the success or failure in working the process depends n, apparently, trivial points.

### Chemically Clean Glass.

The first operation in the collodion process is the cleaning of the glass upon which the negatives are taken. To some, it may appear superfluous to take up space to describe how to clean a piece of glass, but it is not so, for there is a wide difference between what is, in appearance, a clean glass, and one being in a state of chemical cleanliness which is so imperative for successfully working the process now under consideration— plates that may to all appearances be perfectly clean, yet when the negatives are developed upon them will show streaks and markings, the cause of which may possibly puzzle a beginner. Moreover, unclean plates tend to injure the sensitising baths in which they are put.

### Cleaning Glass.

The methods of cleaning the plates are numerous, but they need not all be described. The following is one that may be relied upon:—In the first place the edges of the plates should be roughened. The object of this is twofold, it gives a better hold to the collodion, and prevents the leathers being cut in the polishing. If the plates are large the roughening is best done with a piece of ragstone. If small—say up to 12 by 10—it may be more quickly done by scraping the edges of two together. The plates as received from the glass warehouse are put into a rather strong solution of carbonate of potash—common pearl ashes—and allowed to soak for a time. They are then rubbed over with a piece of coarse flannel to remove all dirt, and then well rinsed back and front under the tap, and stood up in a rack to drain and dry. If the plates are of small size, say up to the above-mentioned size, the potash may be rubbed over with a piece of rag fastened on a stick, allowed to rest for a few minutes, and then rinsed under the tap. When dry, the plates are ready for polishing.

### Polishing the Glass.

As in the preliminary cleaning, there are as many ways of the final polishing of the glass. My favourite method is as follows:—In a bottle put some methylated spirit, free from the mineral spirit, and add a few crystals of iodine, sufficient to give it a dark sherry colour. Then fit a cork with a notch in it, so that the spirit can be jerked through it. Into a wide-mouth bottle put some good Tripoli, and tie over the mouth a piece of rather coarse muslin. Lay the plate on some quite flat surface, and jerk some of the spirit on it, and then dredge on some of the Tripoli. Now take a piece of coarse flannel and rub well over the surface, using some little pressure, and allow to dry. The same flannel will last a long time. When dry, the Tripoli is wiped off with a perfectly clean glass cloth—care being taken to clean it off the back and edges of the plates, which

are then ready for the final polishing. That is best done with a chamois leather.

#### How to Prepare the Polishing Leather.

To cleanse the leather when new it should be well beaten and shaken to get out the dust that all new wash-leathers contain; it should then be washed in cold water containing a little soda, and afterwards well rinsed in several changes of water and dried. As the leather dries, it should be stretched now and then to prevent it becoming hard when dry. In use the leather should be doubled up to form a rather tight pad, and the glass polished with a circular motion. As a test as to when the plate is clean, it should be gently breathed upon at different parts, and if the moisture flies off quickly and shows no signs of marks or streaks it is satisfactory. If it does not, the polishing must be repeated until it does. Here is a "wrinkle." The polishing leather should not be too dry, by that is not meant that it should be really damp. If it is "bone dry," it passes over the plate without polishing it, and at the same time excites electricity, causing the glass to attract dust. Whereas, if it contains a slight amount of moisture, the leather clings to the glass and effectually polishes it. Should, by chance it become abnormally dry, it should be hung in a damp place for an hour or so, or it may be rolled up and wound round and round with a slightly damp cloth and allowed to rest for a time.

#### Instead of Polishing—A Substratum.

Instead of cleaning and polishing the plates, as just described, some prefer to coat them with a substratum of albumen. This saves the time and trouble of polishing, and, to an extent, prevents the collodion leaving the glass during the manipulation. It has the disadvantage of, after a time, disordering the sensitive

bath. The albumen subtratum is prepared as follows:—Winchester quart bottle, put some fragments of broken the white of one egg freed from germ, a quart of water, few drops of liquor ammonia, and shake vigorously for minutes. Then filter through a plug of cotton wool placed in the neck of a funnel. It is applied thus:—After the have been cleansed in the way described, and after rinsing, they are flowed over two or three times, carrying water before it, with the albumen, then placed in a dry, when they are ready for use.

#### To Clear the Films from Old Negatives.

Hitherto we have been dealing with new glass, but in the collodion process the glass is often used over and over again and in many cases the negatives have been varnished in the simplest way of dealing with varnished negatives is to immerse them in a tolerably strong solution of American Pearlash and allow them to soak for a day or two. Pearlash is used in place of American potash. This will dissolve the varnish and leave the glass practically clean. After removal of the potash, it is advisable that the plates should be polished or flowed over with very dilute sulphuric acid, then again rinsed with water and allowed to dry. This ensures the removal of the alkali, which would otherwise have a tendency to injure the silver bath. An excellent detergent for use is a saturated solution of bichromate of potash, to which is added eight per cent. of sulphuric acid has been added, but should be taken with it, as it has a very pernicious action on the skin.

E. W. Fox

\* American potash is sold by the druggists, and is, I believe, largely dyed. It is purchased in large lumps or small boulders, and of a brownish colour. It is, I think, a crude kind of hydrate of potash.

## A "SNAP-SHOT" CAMERA FOR THE USE OF ARTISTS.

THE object of this invention is to provide a camera which will enable "snap-shots" to be taken with a minimum chance that the persons included in the field of view should be aware that they are being photographed. To obtain this result the lens is placed as nearly as may be at the back of the camera, instead of at the front, and in consequence of this arrangement the photographer has the object he is taking, so far behind him, as to be quite out of the range of natural vision. Hence no suspicion would be created in the mind of the

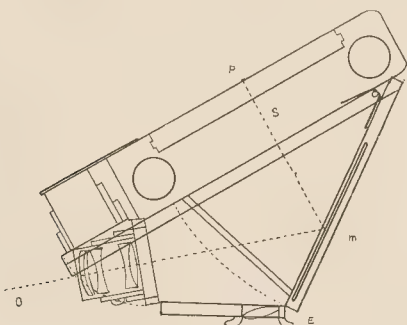


Fig. 1.

person actually being taken of the probable subject included in the picture.

In addition to the high degree of secrecy given to the operator by this camera, the instrument will be found to possess many incidental advantages over hand cameras of the ordinary construction, as for example:—

1. The image being formed by reflection, the camera is much shorter

than in the ordinary construction, hence it is much more easily held steady enough to secure sharpness.

2. The instrument is exceedingly simple in its construction, light and portable, and it is ready for use on the instant.

3. Being specially adapted for use with high-power lenses (f/16), it easily lends itself to securing snap-shots in dull light.

4. The image is seen practically on the plate itself up to the moment of exposure. There is thus every opportunity of securing the best effect, and there is no trouble with eye shades, etc., as is the case with the reflecting cameras at present in the market.

#### A General Description of the Camera.

The camera is made on the reflecting principle, and is almost the reverse of the usual arrangement, the lens being at the back looking out over the operator's shoulder. The system will be understood by reference to Fig. 1.

O is the objective, the image from which is received upon a plain mirror M, whence it is reflected to the plate P. In front of the plate is stretched a focussing screen S which acts both as a focus screen and shutter. S is, in fact, purely and simply a "focal-plane shutter" so made as to pass as near as possible to the sensitive face. This focal-plane shutter is naturally of black material, when it is "set" a white patch, the exact size of the plate, is seen in position opposite the mirror, and on this white patch the image is focussing. This image is seen—and magnified—by the eye lens.

A small shutter should be provided which would automatically open the eye lens at the moment of exposure, and re-open it when the focal-plane shutter is set.

Fig. 1 is a sectional view of a camera for plates cut films  $2\frac{1}{2}$  inches square. The lens intended to be used with this camera is  $4\frac{1}{2}$  in. focus. The image from the lens would fall on a plane mirror of about  $2\frac{1}{2}$  inches square. The side of the camera, i.e., the part carrying the mirror, is hinged to the focal-plane shutter frame at one end, and to the back, i.e., the part carrying the



at its other end; the back is, in its turn, also hinged to the front carrying the lens, which is again also hinged to the frame of the shutter. By these dispositions of hinges (the hinges may be of other), the front board, back and side will fold down quite flat, as indicated in Fig. 2. When closed, the lens turns up

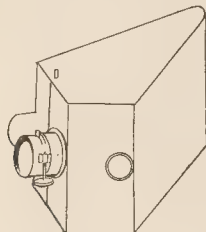


Fig. 2.—Camera closed.

the thickness of the shutter frame, a thin flat metal cap serving cover to it when in the closed position. A simple clip or fasten- will serve to keep the camera closed. When this is released the era would open of its own accord by virtue of a spring inserted between the shutter frame and the side-piece, as shown in the draw-

The extent to which the camera would open would be regulated by an inelastic tape or ribbon. The opening of the camera for use would thus be effected in a moment, a matter of great importance for

shot work. Below are two sketches, one showing the camera open, the other showing the manner of holding it when in use. The young lady is here represented as taking a photo. over her left shoulder. It will be seen the nose passes to the right of the sloping side of the camera, thereby enabling a very short eye tube to be used—it may be, in



Camera Open.



Camera in Use.

vice, one could dispense altogether with the eye tube or shade figured in Fig. 2. In the case shown in the sketch, the second eye is pressing the detent to make the exposure. In case the subject to be photographed lies more conveniently over the right shoulder, it is only necessary to reverse the position of the camera,

seeing then the image with the right eye, and actuating the detent or press button with the thumb, of course, then of the right hand. In either case, the thumb being opposite to the fingers, a very steady pressure can be given, and one not at all likely to shake the instrument.

In Fig. 3 a camera on the same principle is shown, but adapted for work on a roll film. In this instrument a lens of about 8 in. focal length is shown, and the picture would be about  $3\frac{1}{2}$  in. square. In a design such as is shown in this figure, it is evident that there would be no difficulty in bringing the roll film into the closest approximation to the shutter screen. In fact, the two might be advantageously in actual contact. Such a camera would be smaller, of less weight, and more quickly set up for action than an ordinary "Kodak." Having a longer focus than is ordinarily given to instruments of this kind, it would have a corresponding advantage to the artist; who needs, not a general view, but a detailed "bit" of a subject.

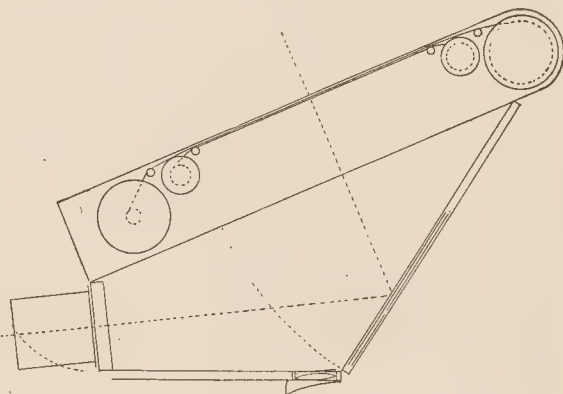


Fig. 3.

### Some General Remarks.

#### REVERSAL.

Of course, in a reflecting camera such as is described above, the image would be reversed, but it is not considered that this would be any serious drawback, for the following reasons:—

1. The most convenient way in which to print from very small negatives is to print them in the lantern by bromide papers, etc. In this way they can be conveniently enlarged to a certain degree, and, of course, when this plan is adopted, the reversal of the plate is of no consequence whatever.

2. With many subjects such as groups of people, etc., reversal is, in itself, of no consequence. But if the operator has a rooted objection to it, and desires to print direct in ordinary printing frames by contact, he has—

3. The choice of taking the picture through the film, or of printing through the back, or of using single transfer carbon. In the opinion of the writer it would be, in all cases, preferable to work through the film, as with the exceedingly thin dark slides necessary it would greatly tend to the safety of the films if the sensitive surface were placed inwards; the shutter might then actually touch the back of the film without any fear of injury, and the same may be said of the roller film shown in Fig. 3. If this were placed so as to present the back of the film to the shutter screen, the latter could inflict no damage upon it, even if in quite firm scraping contact during the exposure.

No doubt this form of camera could be adapted to work with a "film pack."

It is evident that with cameras made as described, the image exactly focussed on the screen would fall slightly out of focus on the sensitive surface.

In the form shown in Fig. 3 with the roll film, it is thought that this error would be too small to be noticed, as it need not exceed the  $1\text{--}1,000\text{th}$  part of the focal distance. But with the smaller camera, or with one to use with dark slides and cut films, the error may be of more importance. It seems to the writer that about  $3/32$  in. would be practically the distance between the focussing screen and the sensitive surface; but even putting it at  $\frac{1}{4}$  in., a correction is very easily made.

The image being reflected it would be only necessary to move the lens half the distance required for the correction, and it would be a very simple thing to make a little lever or wedge which should draw the lens in 3-64ths or 1-16th in. at the moment of making the exposure. There is another manner, however, in which correction could be made in a very neat and scientific fashion; that is, if the form of camera should take any large degree of commercial success, it might be worth while to construct a lens specially for use with it, in which case it would be easy to make one in which the chemical or working focus was thrown back from the visual focus by just the amount needed for use with roll films as in Fig. 3.

#### The Eye Lens.

The eye lens is shown inserted at an angle with the back of the camera. In Fig. 1 the lens is at too great an angle; it should evidently be directed to the centre of the field of view. The writer has found by experiment that a watchmaker's lens of suitable focus gives a very good definition all over the plate, about 2 in. square, with, of course, the best focus in the middle. It is thought that if the eye

lens were specially made, a good general definition might be obtained. The angle at which the picture is seen is not much more than that which a stereoscopic picture is often viewed.

#### Demand for Such an Instrument.

It is felt by many who practice art for art's sake, that an absolutely secure snap-shot in which the object of the worker would not be detected, would in a great many instances yield results far anything obtainable by the camera in its ordinary application. It has only to present a camera towards any group of people, young or old, to see the instant feeling of stiffness and constraint that pervades the scene in a moment. No skill or persuasion on the part of the operator can overcome this trouble. By untiring patience or perhaps by good luck one can sometimes get a passable result, but the veridical and pluck of unconscious realism can only be obtained by the means of being unconscious of what is being done.

Hence it is felt that combined with the other advantages of novelty, etc., etc., this camera should have a considerable commercial value.

NELSON K. CHERILL

## THE ART OF PHOTOGRAPHY.

["Truth" of last week presents its readers with a photographic supplement. The following extract may be interesting and instructive reading on the ever-burning topic, Is Photography Art?]

"PHOTOGRAPHIC," when referring to a work of art, has by now become as much a term of opprobrium as has "a really nice girl," applied to the premier work of Nature. Pianists have been known to praise the pianola—some of the more famous of them, at any rate—perhaps because they have suffered from the originality which minor musicians seek vainly to inveigle into their performances; and Melba is said to have a predilection for the gramophone, which shows her a woman of wide sympathies; but to hear a painter or a writer on art praise a photograph, except with infinite condescension, is as rare as it is to hear a farmer praise the weather.

Even did the painter owe nothing else to the photograph, he should yet be grateful for the moral exaltation it provides for him in his own estimation. By standing, to his mind, upon the lower step, it converts his own into the higher one. By being "photographic," it makes him "artistic." "I may be at the very bottom of my brotherhood," he reflects, "and the bottom is neither very light nor very airy; at all events, I am above the photograph, which only copies and does not create." It is largely due to the invention of photography that the painter has come to spell his Art with such an extremely large A, and that without shame. In the old pre-photographic days the painter considered himself a workman; it is true that the excellence of his work gave him some claim to be so considered. In our own time—and that largely owing to the invention of the camera—the painter has ascended to a higher, super-human sphere; he is a creator, and it follows that mere humanity has no right to judge of the excellence of his workmanship. What is more, he indirectly owes it to the photograph that "art" tends more and more to drive photography itself out of suburbia. It is not many years since the suburban drawing-room depended for the decoration of its mantelpiece and its piano upon a phalanx of "photos" in plush or oxidised silver frames. But now that the fame of large-A'd Art has penetrated from Poplar even to Putney Vale, the painted drain-pipe and the hand-made bronze fender, direct from the Arts and Crafts, serve to set off the embroidered jumpers of their fortunate possessors, the photograph must give place to the coloured reproduction of the Velasquez "Venus" or Mr. Goetze's latest great religious allegory.

Photography has one fault, which is also a misfortune. It tells—it is, at least, capable of telling—the unvarnished truth without any extenuating circumstances. Who would not prefer to have his portrait painted by the very wildest of New English artists rather than submit himself to the tender mercies of his younger sister's new camera? Photography is the painfully veracious witness in a court where art is too often the corrupt judge. The gods have, at last, given us the gift, but the camera too often shows us as being even worse than others—and they our most candid friends—care to admit that they see us. Naturally, therefore, we say that photography is inartistic, and if we can afford it we go to the painter, who is ready to take us at our own value, and whose work, if unflattering, we can

always denounce as a bad likeness, with the notorious fallibility of the human hand and eye to bear us out.

A good deal of the pother which chronically arises around artistic or non-artistic claims of photography is due to our misusage of the word "Art." Accepted in the confused, almost technical, sense to which we are now grown accustomed, photography is not "Art"—which is by no means to say that it is not an art—the term "artistic photography," used as we commonly use it, is misleading and inappropriate as were "artistic tailoring" or "artistic plumbing." In the truer sense, a photograph may be, and generally is, at least as artistic as a painting—or a chest of drawers. Of course, we all know the artistic-commercial photographer who drapes our shoulders diaphanously, or accentuates our George-Albion-iron-grey hair with high light from above, and makes us worthy of the "Crown" or "Country Life." His are tricks of the trade, worked out by rule of thumb—and verging on the obvious. We have also the more earnest "art" photographer, whose highest ambition is to produce photographs which shall look like etchings or copperplate engravings, or Whistler nocturnes, who, if a man, wears a flannel tie, and if a woman, an expression of other-worldliness and stays, these being the outstanding qualities which attend the true artistic of our own time.

But these latter, though essentially well-meaning—and though, it said, they frequently turn out very beautiful work—are none the less traitors to photography, in that they accept for it a subordinate imitative rôle among the arts. It is an insult to a fine photograph to compare it, to its disadvantage, with an etching or a monochrome drawing—just, as it were, to trick out a first-class county cricket team in the gaiters and apron of a Colonial bishop, and then blame him because he cannot preach in the language of the Otaheitan. Painting and its allied "arts" may be excellent in this way; so may photography. But their ways are not the same, nor their objects. It is true that the invention of the camera has vastly widened the possibilities of the painter—though few painters realise it—in that it has supplied him with a practically perfect eye, which tells him the truth, the whole truth, and nothing but the truth, as an adjunct to his too fallible human eyes, which frequently show him what is not there, and which pander to his mental prejudices like the poorest of poor relations. Every artist ought to be a photographer, and it is because so few of them realise it that we are occasionally treated to exquisitely ludicrous descriptions of the lengths to which they are driven to escape from the fallibility of their own eyes. Thus we read only a very little time back, that a well-known French painter had hypnotised a ballet-dancer, that she might remain in a certain flying pose long enough for him to paint her. Could there be a more pathetic confession of weakness? And all the time the cinematograph is there ready and willing to assist him. Think, again, how totally the whole artistic conception of the action shown by a running horse has changed since snap-shot photography has taught us how a horse



ally runs. The more materials for forming a judgment that are provided for us, so much the less faith are we able to place in our eyes. The Greeks, it is said, could not always distinguish between green and blue; most of us, to this day, are more or less colour-blind. Only needs the perfecting of colour-photography to tell us that preconceived ideas of colour—based on the evidence of our eyes—as faulty as our notion of form has been proved to be.

If every artist should be a photographer, equally true is it that every photographer should be an artist. But he is not likely to be until he realises that the mere pressing of a button will not make a picture. The young photographer, no doubt, honestly believes that when he finds a recognisable reproduction of a near relation upon one of his dozen films he has scaled the heights of Olympus. On the other hand, the true artist-photographer may wander for a week and never touch his camera—yet have none the less high artistic achievement to the credit of that week's work. Just as your painter may or may not be an artist, so may your photographer. In either case the odds are heavily against it.

Great as may be and have been the services which the camera has rendered to art, there is one point in which, it must be admitted, its influence has been altogether harmful. Since its invention the ideal of draughtsmanship has perceptibly fallen. It is as though the artist, realising that it were hopeless for him to compete directly with such a rival, had decided to renounce any idea of drawing and contented himself at all—to make a virtue of necessity and proclaim his own deficiencies of hand and eye as the one infallible sign by which he may know the Real Thing. Is there any other possible explanation of the depth of bad draughtsmanship to which many of our leading painters have descended, without perceptible shame? This more especially in portraiture. "Let the camera attend to such worthless details as the sitters' features," they seem to say. "We will concentrate on what we think their complexions ought to be. And if any object, we will maintain that we paint the soul and leave the body to the care of a soulless machine." Meanwhile the camera continues to extend its sway, swallowing everything in Nature, from the butt of a garden seat to an eclipse of the moon. And unless the painter bestir himself he will one day find himself reduced to producing, *urbis et orbi*, that he scorns the mere external appearances of men and eclipses, and that he only paints their spiritual effluence. About which time the last art-critic who takes himself seriously will retire to Bedlam.

It is a curious—and unfortunate—thing that many of those who are most fervently for the recognition of photography as a branch of High Art, choose its lowest and most humiliating aspect as most worthy of the honour—I mean "fake" photography. It is that it is in their common appreciation of the "fake" that Art and photography come most closely into line. The painter is bound to understand the art of "faking" in its broader sense. He must, if he is to live, impress something upon the observer's eye which is not there. He is perfectly justified—it is the object, and a worthy one, which is his effort. What, for instance, is perspective, but a noble art of "faking"? Your would-be "artistic" photographer, seeing and realising the lengths to which it is possible to carry the deception of a poor, well-meaning camera, sets to work to produce "artistic" photographs which shall seem anything in the world but what they really are. He forgets that while the great object of a photograph is to produce illusion, either mental, moral, or physical, the aim of photography should be to serve truth. Do away with its fulness, and where is the art of photography? It falls to such a degree as that by which, on the day following the birth of the French Heir-Apparent, a photograph of the King and Queen appeared in the shop windows, the latter nursing the Royal Baby. This may be called an intelligent anticipation of events, but not art, and it is scarcely a feather in the cap of photography. The photographer and the painter recognise each other as competitors, setting out by different roads to accomplish different ends, each pushing the other a hearty godspeed at their parting; not as noble seigneur and his twenty-second cousin poor Mr. Camera, with cap in hand at the heels of My Lord Mahlistick in the hope of one day when his Lordship feels peculiarly good-tempered he will offer him his hand to kiss and acknowledge him as the least of his relations.

UDDINGSTON AMATEUR CAMERA CLUB has just been formed, with ready numbers more than forty members. The hon. secretary is A. P. Robertson, 8, Clydeford Drive, Uddingston, N.B.

# A WELL-KNOWN PHOTOGRAPHIC EDITOR QUILTS.

MR. F. DUNDAS TODD, who is well known to many on this side of the water, not only through his visit to the Photographic Convention a few years back, but also from his residence in Scotland, whence it seems but a few years back he migrated, is now giving up active photographic editing. At least this we gather from the following amusing note in "The Photographer":—

"The blow has at last fallen: What was will no longer be. The glory of Chicago has departed, or, to be more chronologically correct, will shortly depart. The 'Suburban Photographers' no longer will, at stated intervals, give heed to the words of wisdom, the pedagogic rulings, the all-too-long Scotch jokes of their late mentor, leader, and chief scrapper, F. Dundas Todd. No longer will photographers in convention assembled be told that they are a bunch of ignoramuses; that a man cannot possibly, at least by all the laws of mathematics, make cabinets at \$3.00 a dozen and not go bankrupt because he forgot to figure his overhead and running expenses.

"F. Dundas Todd has at last found the true answer to his own query, 'What Are We Here For?' (Price \$1.00, red cloth binding.) Back to Nature for his; back to the woods and streams and open prairies, where the elements are the masters and every man is a Trust and a law unto himself. Apples and bees his future field of endeavour. No more for him the photographic Trust; the monotonous gazing, month after month, at the work of would-be pictorialists striving for their '\$5.00 worth of books or materials'; the rendering apart of the foreign journals for copy wherewith to 'fill'; the wearisome editorial on 'Lord knows what'; the waiting for subscription checks which will not come; lucky Todd! Only twice seven years in this country of his adoption, and yet to achieve his most ardent desire! Twice lucky Todd!

"Thrice lucky Todd has disposed of his journal to an incipient magazine Trust, and the 'American Amateur Photographer,' that but recently swallowed the 'Camera and Dark Room' without apparent ill effects on its system, will now absorb the 'Photo-Beacon,' and from the three will arise a new, resplendent publication—and we do hear it whispered that a new name, 'The American Photographer,' is to cover the new combination.

"Well, we shall miss you, Todd—you and your magazine. We could not always comprehend you, nor yet back you in all your statements.

"Like Judge Alton Parker, Todd believed in changing opinions when the old ones were worn out. At one time a most fervent advocate of the realistic picture, a scoffer of brilliant hue at the work of men like Steichen and Colburn, *et al*, he latterly became just as strenuous an admirer of the advanced school—even going to the length of offering a prize in his journal for a picture made sharp—as a novelty. Yes, Todd helped both to the gaiety of the photographic world and to its instruction, and for this last, he will long be remembered. Lucky Todd!"

MR. HENRY O'SHEA, one of the oldest photographers in the south of Ireland, died on June 11, at the age of 78.

THE FOURTH AMERICAN SALON.—The success of this international travelling exhibition has been such that the number of new and important photographic societies in America have asked that it shall visit them during the next season. Therefore the closing date for exhibits is much earlier than it has been hitherto, and all pictures that are to be sent in bulk from British exhibitors, should be in the hands of the collector (H. Snowden Ward, 6, Farringdon Avenue, London, E.C.) on Friday, August 23. As in previous cases, the work which is sent in bulk from England must be unframed, and the authorities of the exhibition pay the customs dues, carriage, and all expenses, including framing of the pictures. Prices of pictures which are for sale are advertised in the catalogue. The selection is made first by a large selecting committee of pictorial photographers, who reduce the number of prints to about a thousand, and then by a committee of painters and illustrators, who make the final selection for exhibition. The whole collection is shown (for about a fortnight in each place) in a large number of different cities through the United States and Canada. In most cases the exhibition room is the Municipal Hall, or some other important art gallery. A few of the pictures are bought (at double their catalogue prices) for the permanent collection of the American Federation of Photographic Societies, and the exhibits are returned about midsummer.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made between June 10 and June 15:—

**CINEMATOGRAPHS.**—No. 13,407. Cinematograph apparatus and picture sheet in connection therewith. Hans Voss and Hermann Simon, 21, Glockengiesserwall, Hamburg, Germany.

**CAMERAS.**—No. 13,601. Improvements in photographic cameras. Archibald James Erskine, 24, Southampton Buildings, London.

**DEVELOPING APPARATUS.**—No. 13,650. New or improved apparatus for use in the time or stand development of photographic plates or flat films. Frederick Woodward Branson, 30, Park Row, Leeds.

**PERMANENT PHOTOGRAPHS.**—No. 13,736. Process for producing new preparations sensitive to light and suitable for photographic purposes, and for producing permanent photographs by means of such preparations. Johan De Ruiter, 321, High Holborn, London.

**SENSITIVE SURFACES.**—No. 13,835. Improvements in or relating to photographic sensitive surfaces. William Fraser Claughton Kelly, 7, Southampton Buildings, London.

**COLOUR PHOTOGRAPHY.**—No. 13,874. Improvements in colour photography and photographic printing. Frank Wordsworth Donisthorpe, Hohenfels, Combe Down, Bath.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**THREE-COLOUR CAMERA.**—No. 25,399. 1906. This patent describes the camera given in the Ger. Patent on p. 31 of the "Colour Photography Supplement," April 5, 1907.

## New Trade Name.

**WAUKOSCOPE.**—No. 292,403. Microscopes, telescopes, and photographic apparatus, included in Class 8. W. Watson and Sons, 313, High Holborn, London, W.C., opticians. April 23, 1907.

MR. LOUIS E. LEVY has been awarded the Elliott Cresson medal of the Franklin Institute for his etch-powdering machine.

MR. HECTOR MACLEAN, writing in the "Morning Post," says: "While fully recognising the commanding merits of a reflex camera for the photography of many subjects, more especially those taken at short range, there is, I think, an undue disposition to lose sight of the fact that this type of camera is not indisputably the best possible for general use. The BRITISH JOURNAL OF PHOTOGRAPHY, for instance, in referring to its admirable exhibition now open at 24, Wellington Street, Strand, speaks of the high percentage of success achieved by a reflex as compared with other types of hand camera, and considers that those who use the latter are handicapped. Is this, however, the fact? Might one not almost consider that the man whose want of skill makes him use a reflex camera is worse off than one who can obtain his results with a non-reflex one? The reflex camera is bulky, heavy, conspicuous, and slow to sight with. Moreover, it has to be held too low down to allow of the most effective points of view for many subjects. It has, however, many sterling advantages, which are fully set out by special articles in this and last week's BRITISH JOURNAL OF PHOTOGRAPHY." It is, we think, quite a new idea that "want of skill makes" anyone use a reflex camera. Mr. Maclean must be very ignorant of the usual positions in which the non-reflex cameras are held, such as at the waist or under the arm. We should say he had never used a reflex, or he would know that in most cases this type of camera is really held higher than all others, and in some types, particularly those with double mirrors, they have to be held almost eye-high, which is surely not the usual position of the ordinary type, and one which gives a closer rendering from the view point of the eye. The exhibition being still open Mr. Maclean can easily satisfy himself as to how high the reflex cameras must be held.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Reflex Cameras.

Perhaps the best type of camera for all-round camera work Mr. G. A. Fowkes, writing in "Focus," is that of the reflex type. The chief advantage lies in the fact that the whole of the subject is seen the right way up, and can be focussed to the last moment before exposing. One can therefore use lenses with large apertures and be certain of getting the subject sharply focussed, and as most cameras of this class are fitted with focal-plane shutters, the maximum amount of efficiency is secured in this respect. With a high quality instrument of this class there need be no fear of vibration, owing to mirror flying up out of the way when exposing, the mechanical adjustment being very fine.

### The Oil Process.

Mr. A. J. Anderson, writing of M. Demachy's photographs at R.P.S. in "The Amateur Photographer," says: "Obviously the process is the reverse of gum bichromate, for in gum bichromate the image may be lightened and the high-lights picked out by means of a brush, whereas in this process the shadows and dark tones may be darkened to any extent by repeated application of the ink-charged brush. Hence, in M. Demachy's gum work we may expect to find the effects of accents laid on the high-lights, and in his oil-print work we may expect to find the accents in the dark tones. This exhibition fulfils our expectations, for M. Demachy has entered into the spirit of the medium, and has taken full advantage of the process to pile up dark accents, full of rich gradations. It would be impossible to weigh the merits of the two methods without very careful comparison, but I should imagine that the merits of gum bichromate are similar to the merits of mezzotint, and the merits of the oil process similar to the merits of stipple or etching—that is to say, each its particular artistic quality and value."

### The Oil Process.

Dr. A. R. F. Evershed, writing on "The Oil Pigment Process," "The Photographic News," says: In relation to brush action (1) light quick motion of the brush tends to lift the pigment; (2) conversely to deposit pigment, the stroke should be slow and inclined to rest for a moment on the image.

In relation to pigment consistency (1) a thin fluid pigment gives flat prints, and therefore should be used where the original negative was somewhat hard; (2) a tenacious thick pigment gives contrast cases of over-printed images can be remedied by using such pigment.

In relation to the gelatine condition (1) a moist gelatine takes but little pigment each time the brush strikes it; (2) pigment is readily deposited on a dry image.

During pigmenting various foreign bodies, such as dust, bits of broken hairs from the brushes, etc., will be deposited at the same time as the pigment. These can be removed as they are noticed when the print is quite dry. In the former case a sharply pointed wooden match is the most suitable tool; in the latter, a needle in a handle. But there is one kind of foreign body which should be picked off directly it appears. It is formed apparently by a very fine piece of wool fibre becoming twisted up and matted with pigment and gelatine. It is quite distinct in appearance from anything else, and if allowed to dry becomes difficult to remove, and then only picking off part of the image at the same time. An essential point to note about the process is that there should be no labouring of the pigmenting—the more spontaneous and definite the stroke the better the result. This is particularly the case in figure work. The flesh tones are constantly worked at they will lose all transparency and become dead and flat, hence it is well to bring them out first, and then to modify other parts, so that the whole comes out in the right value. The same principle should be followed in landscape subjects. The principal part should be first worked and then the subordinate portions. Indiscriminate work on the whole image without any definite aim only leads to the worker getting into a hopeless mess, and it is for this reason that I advise the use of a straight or worked-on print as a guide.

### Eikonogen for Warm Tones on Gaslight Paper.

Eikonogen (writes Mr. Laurence Grose in "Photography") is a developer that may be said to have gone out of date somewhat,



it is used comparatively seldom for negatives, and very seldom indeed for bromide or gaslight papers, owing to some fancied unsuitability. It is probably not generally known that it is an excellent developer for warm tones on gaslight papers; and, in fact, it was only after trying almost all other developers for the production of warm tones by direct development that the writer was led to employ eikonogen, which he then found to be more suitable for that purpose than most others, and a very long way indeed in advance of the majority. The developer originally employed was a single solution formula intended for ordinary negative work, and was of the following composition:—Eikonogen, 150 grs.; sodium sulphite (crystals),  $1\frac{1}{2}$  ozs.; potassium carbonate,  $\frac{1}{2}$  oz.; water, to 12 ozs. For rich sepia tones the exposure required for this developer is eight times the normal. The development is well under control, and occupies usually about two minutes. Stock solution, 1 oz.; water, 4 ozs.; potassium bromide solution (10 per cent.), 40 minims. For pure red-brown tones, the exposure in this case is twelve times the normal. The development occupies from two to three minutes. Stock solution, 1 oz.; water, 3 ozs.; potassium bromide solution (10 per cent.), 80 minims. The following developer will be found to give from red-brown to red-chalk tones on most gaslight papers, the exposure being the same as in the last instance. Development takes from three to four minutes to complete. Stock solution, 1 oz.; water, 3 ozs.; potassium bromide solution (10 per cent.), 80 minims; liquid ammonia (.880), 30 minims. Mr. Grose always says that a more serious drawback than loss of density is the loss of quality—that is to say, the degradation of the richness and colour of the print which takes place when it is immersed in the fixing bath. What may once have appeared to be a brilliant red-brown print becomes of a disagreeable orange colour immediately it is placed in the hypo. This can be obviated to a very great extent by the use of an acid fixing bath, such, indeed, as is recommended with almost all gaslight papers. In this the prints are subjected to a somewhat prolonged fixation, during which they will be found partly to regain their lost quality.

#### Press Photography.

The first thing for the press-photographer to do (writes Mr. John Eyraud, in "The Amateur Photographer") is to secure the portrait of the celebrity, and this should also give some intimation as to the nature of the person's work—the *raison d'être* of his notoriety. If, for instance, the person is of literary fame, the picture may be taken in the study in which the famous works are composed. Should the person be the owner of famous race horses, take him amidst paddock surroundings; if an artist, the studio will furnish a suitable environment; but be particular in securing the latter, it will greatly enhance the value of the photograph. Portraiture under such circumstances is by no means easy, for the surroundings are frequently against the production of good likenesses. In indoor portraiture, the photographer should not aim at securing a vast amount of detail, as well as the celebrity; all that is really necessary is a characteristic portrait and one or two accessories, or a suitable environment. A single lens, or the single combination of an anastigmat, will be found most suitable. Aim at getting the utmost sharpness in the features of your sitter, but everything else may be just out of focus, artistically suggested rather than reproduced with striking conspicuousness.

THE LATE PROFESSOR A. S. HERSCHEL, M.A., D.C.L., F.R.S., who died on the 18th inst., was president of the Newcastle and Northern Counties Photographic Association from 1886 to 1888.

THE "AMERICAN ANNUAL OF PHOTOGRAPHY," 1908.—Tennant and Ward, of New York, advise us that they have taken over the publication of the well-known "American Annual of Photography" from its former owners, and are now busy with the preparation of the 1908 volume, which will be edited by John A. Tennant. Good as the "Annual" has been in past years, the new owners desire to make the 1908 issue better than ever—more useful in its information and more attractive in its illustrations. In this they ask the co-operation of all photographers in the shape of articles dealing with photographic experiences or pictorial work of unusual interest. Correspondence contributions for the "Annual" should be addressed to the Editor of the "American Annual," Tennant and Ward, 287, Fourth Avenue, New York. As the book is made up during the summer months, contributors are urged to send their articles or pictures with as little delay as possible.

## New Books.

"Bonnie Scotland" (Part I.). Pp. 22, 13 x 11. Dundee: John Leng and Co., Ltd. 7d.

The "Bonnie Scotland" Portfolio, which is to be completed in twenty parts, will doubtless appeal to the national feeling of all Scotchmen, and is specially designed to provide a souvenir of their native land for the large numbers of its people who have gone, or are going, to seek their fortunes in other countries. Patriotism has always been a predominant feature of the Scottish character, and anything which served to perpetuate the history, traditions, monuments, etc., of their home-land will prove a source of unflinching interest to them. The work is dedicated to Lord Rosebery, and opens with an appreciation by Lord Strathcona. Each part will contain twenty reproductions from the well-known photographs by Valentine and Sons, each illustration being accompanied by brief descriptive notes. Part I. will be on sale on June 28.

"The Wet Collodion Process." By Arthur Payne, F.C.S., F.R.P.S. Pp. 144, 9 x 6. Newcastle-on-Tyne: Mawson and Swan. 3s.

To many, particularly amateurs, the wet process is as dead as the proverbial door nail. Few, probably, have ever seen a wet-plate negative, and fewer still have worked the process. The need, therefore, of a text-book on the process would seem to be minute, but the process is actually in increasing use for its own special branches.

The first chapters are devoted to the essential preliminary considerations such as "elementary theory," "the arrangement of the dark room," "apparatus," and "chemicals and materials." "General manipulations" gives one a very clear, concise description of how to mix the solutions, coat, develop, and fix a plate, and the most difficult operation of all, the collodionising the glass, is illustrated by half-tone blocks of this in operation.

Line, continuous, and half-tone negative making is treated in like simple manner, and throughout practically only one formula for each solution has been given, the author in his preface stating that "other methods and formulæ will probably give equally good results, but those quoted are known to be good." We may also add that they are practically standard formulæ, as recommended for use with Mawson's collodions. This one-formula, one-method system of instruction is undoubtedly the best; multiplicity of formulæ is, like constant change of plates, conducive to failure, whereas with one set formula the beginner knows that it must be his fault, and not that of the materials. It is obvious that the reduction of the number of varying factors must increase the chance of success, and for this reason we think the author is to be commended for his system.

It would seem almost impossible to find anything new to say about wet collodion, but a new process for stripping collodion negatives is described, which we shall practically test this week, and report on.

"Lantern slides and transparencies," "ferrotypes and glass positives," are treated in like clear manner to the negatives.

Another point which strikes us as exceptionally interesting is the method given for making collodion dry plates. These should be of interest not only to the process worker, but also to the transparency worker.

Naturally, bearing in mind the author's well-known little hand-book, "Practical Orthochromatic Photography," we find him giving us instructions how to make collodion plates applicable to the better rendering of colours, and the dyes he suggests are silver eoside and ethyl violet, or ethyl purple 6B for the plates for three-colour work used in conjunction with Von Hübl's liquid filters.

An appendix of recognised formulæ is given, and, above all, there is an excellent index, which really enables one to find things.

To the beginner this book will be of great value, for with a careful attention to the instructions it should be possible for anyone to master the processes described in a very short time. To the expert the chapters on stripping films, collodion dry plates and colour work will specially appeal.

The work is well printed, contains twenty-two illustrations, and is well bound in cloth.

## New Materials.

Eastman Orthochromatic Plates. Made by Kodak, Ltd., Clerkenwell, London, E.C.

It may be remembered that we reviewed the "ordinary" variety of the "Eastman" plate on its appearance on the British market almost exactly two years ago, and we were then able to describe it as a very rapid and most excellent plate. Whatever some say as to the comparative merits of orthochromatic and ordinary plates, the fact that not a single maker can be found who does not manufacture a plate of colour-sensitive properties is sufficient ground for believing that the Kodak Company are wise in adding this variety of emulsion to the hitherto appreciated "Eastman" series of plates. In doing so they have produced a combination of properties which is a distinct step towards the ideal orthochromatic plate of great rapidity and of colour-sensitiveness of a kind which will dispense with a light-filter to cut down the excessive blue sensitiveness to blue of the naturally perverse gelatine emulsion. The plate has, in fact, both great general sensitiveness, and, at the same time, a sensitiveness to yellow compared with that to blue, which is far and away superior to the average erythrosine plate. There has been a general levelling up of quality in this respect during the past year or two, and therefore the new Eastman plate is not a mountain among the molehills, as it would have been, say, three years ago; but its simultaneous great speed and orthochromatic quality still justify us in specially emphasising it as a production of quite special merit. It is, too, somewhat of a departure in orthochromatic plates, on account of its possession of a low "gamma infinity," in conjunction with the above-mentioned qualities, a property which, as will be found in practical work, makes for great softness in gradation and the absence of rapid attainment of great density—rarely a very desirable quality in a plate. Opinions differ, we know, as to the degree to which one may go in thus safeguarding a negative from the tendency to undue hardness, and it must not be forgotten that the hard property of a plate may be counteracted by a long-factor developer, and *vice versa*; a soft working emulsion may be assisted to give greater vigour by the use of a very short-factor developer. The fact, however, remains that in its combination of speed and orthochromatic quality the new "Eastman" plate merits sincere commendation, and the assurance that in both landscape and portrait work it will be found a means of the greatest value towards the production of negatives of high quality.

The following are the results of sensitometric easements made for THE BRITISH JOURNAL OF PHOTOGRAPHY by Dr. S. E. Sheppard:—

Inertia (screened acetylene with H. and D. pyro soda) .....	159
K <sub>γ∞</sub> (measuring the density-giving power of the plate) .....	1.25
γ∞ (velocity-constant of development in standard ferrous oxalate at 20 deg. C.) .....	225
t <sub>γ</sub> (time to reach a gamma of 1 in standard developer) .....	7.1 mins. 7
Blue sensitiveness, yellow sensitiveness = .....	2.8

We have only to add that the plates are marketed by the Kodak Company at the popular prices, based on 1s. per dozen, in the quarter-plate size.

Satin Postcards. Made by John J. Griffin and Sons, Ltd., Kingsway, London, W.C.

The distinctive feature of these new cards is their satin-like surface, which imparts to the prints an extreme richness in the shadows, with good rendering of delicate detail. Another good point is that, the surface being well hardened, they will stand considerable rise in temperature, and there is no sign of blistering and frilling.

They can be obtained coated with Goldona, P.O.P., and bromide emulsions, and these, from our trials, are of the same high quality which we have always associated with other productions of this firm.

YORKSHIRE PHOTOGRAPHIC UNION.—A perusal of the Year-book for 1907-8, just to hand, shows the numerous advantages accruing to those societies who have joined the Union. The list of lecturers contains many well-known names, and the lectures include a wide range of subjects suited to the needs of all classes of photographers. The secretary is Mr. Ezra Clough, 10, Farcliffe Road, Bradford, from whom all particulars may be obtained.

## CATALOGUES AND TRADE NOTICES.

THE CITY SALE AND EXCHANGE have issued a supplementary catalogue containing particulars of the latest additions to their stock of photographic apparatus. Those who already possess the firm's general catalogue would do well to obtain a copy of this supplement, in which space is devoted to various alterations in some of the prices previously published in their large list. Copies may be had on application to the firm at 26 and 28, King's Road, Sloane Square, S.W.; 81, Aldersgate Street; 90 to 94, Fleet Street; or 54, Lime Street, London, E.C.

THE ARMY AND NAVY AUXILIARY CO-OPERATIVE SUPPLY, LTD., have just issued a new edition of their photographic price list, which is comprehensive in character, abundantly illustrated, and contains particulars of practically everything needed by the photographer, be he professional or amateur. In the same building the visitor may buy his apparatus, sit for his portrait, or have his plates and films developed, printed, enlarged, etc., at reasonable charges, and free lessons are given to purchasers of apparatus to the value of £5 and upwards. The photographic showrooms and studios are in Francis Street, Westminster, S.W., from which address a copy of the catalogue may be obtained upon application.

THE "DEFENDER PRIMER" is the name of a little booklet descriptive of the Defender Photo Supply Co.'s specialities. It contains, in addition to a price list, full particulars of the various grades of paper manufactured by the company, together with the most suitable formulae for developing, toning and fixing, and concise instructions for working. Free sample packets of all the firm's productions will be sent on receipt of two penny stamps to cover postage. The London representatives are Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, E.C.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### SATURDAY, JUNE 29.

Rugby Photographic Society. Outing to Offchurch.  
Borough Polytechnic Photographic Society. Outing to Hampstead.  
Manchester Amateur Photographic Society. Outing to Liangollen.  
Chelsea and District Photographic Society. Outing to Epping Forest.  
Edmonton and District Photographic Society. Outing to Epping Forest.  
Aberdeen Photo Art Club. Outing to Cove.  
Birmingham Photographic Society. Half-day Excursion to Aston Cantlow.  
Coventry Photographic Club. Outing to Offchurch.  
Handsworth Photographic Society. Excursion to Evesham.

#### SUNDAY, JUNE 30.

North London Photographic Society. Outing to Newgate.

#### MONDAY, JULY 1.

United Stereoscopic Society. "The U.S.S. Exchange Record." A. J. Snow.  
South London Photographic Society. Annual Jumble Sale.  
Bowes Park and District Photographic Society. "Exposure Meters." W. T. Cunningham.

#### TUESDAY, JULY 2.

Sheffield Photographic Society. Annual Meeting.

#### WEDNESDAY, JULY 3.

Devonport Camera Club. Outing to Antony House and Grounds.  
South Suburban Photographic Society. "Bromide Modifications." P. Melett.  
Leeds Camera Club. Evening Excursion—Wigton.  
Edmonton and District Photographic Society. "Titles." Mr. Solly. Competition, June 15 Prints.

PLYMOUTH PHOTOGRAPHIC SOCIETY.—Members and their friend had a very charming trip on the occasion of the last outdoor meeting, when the Secretary, Mr. Wilfrid Grist, had succeeded in getting permission from the Earl of Mount Edgemore for a visit to Cotehele House. This has been the home of the Edgumbe family for centuries, and though it cannot vie with the principal seat of his lordship—Mount Edgumbe, which was to have been the property of the Admiral of the Spanish Armada, had things not gone as they did—yet in antiquarian interest it certainly excels it. There is no such ancient castle, fully occupied at present as a dwelling, in Devon and Cornwall. The party journeyed by rail to the Devonshire border at Bere Alston, a place of Saxon lineage, where, crossing the river Turner has painted more than once—the Tamar—Calstock was reached, not far from which very ancient town is the castle already referred to. The neighbourhood proved to be full of possibilities to photographers, and many plates were exposed. Cotehele and its lovely gardens were subjects to which full justice



could not be done. Within the house the antiquary-photographer found numerous subjects. But the time was too short to do more than enjoy a sight of many tapestries, ancient needlework, arms and armour, and many interesting things. At the invitation of the Vice-presidents, Mr. A. B. Fellowes-Prynn and Mr. W. Clayden, the company enjoyed a strawberry tea at the Ashburton Hotel, followed by a hearty vote of thanks to the hosts. A most agreeable outing was spent, the weather being exceptionally fine.

## Commercial & Legal Intelligence.

**CANVASSING FRAUDS.**—James Smith Dickie and James Campbell, 5, Brown Street, Perth, were cited to appear at Cupar Sheriff Court last week to answer a charge of fraud. Campbell failed to turn up, and Dickie tendered a plea of not guilty. It was alleged that the accused got orders for photographs from people at Ceres, Carnbee, Ialcorno, Freeland, Cameron, and Largoward, the sums received amounting in all to £6 3s.

The Fiscal said the orders were given in the end of March or early in April, and when the charge was lodged he gave Dickie an opportunity of fulfilling his orders. Thereafter Dickie informed him that he had sent off the photographs, but on sending an officer round he found that not a single print had been received by the people. He then cited nineteen witnesses, and when the officer went round with the citations he found that Dickie had been dribbling out prints in this one and the other. The previous day Dickie turned up in court with a large number of prints, and he was evidently making an effort to fulfil his orders. He proposed to adjourn the case for a fortnight to see if he had sent out all the orders. He was very much annoyed with the trouble Dickie had caused.

Dickie said in the end of March two men he had in St. Andrews at their lodging bill unpaid, and the lady of the house stuck to his gaiters and work, therefore it was impossible for him to get the gaiters out. He only got possession of them a few days previously. The Fiscal said that if he had been anxious to execute the orders could have taken a second negative, which would have cost him 1s.

Mr. Alf. E. Grosset said the man emphatically denied the charge of fraud.

Sheriff Armour said there was a certain element of doubt in the case, and he hoped, after being spoken to seriously, he would see the error of his ways and do something to put himself right. The case was a pretty bad complexion, and he proposed to continue it for a fortnight to see if he completed his bargain. If he did so the case would be dropped.

**PHOTOGRAPHING FADED LETTERS.**—In the case of Roberts v. Macoun, a pending action for breach of promise of marriage, the plaintiff appealed from an order of Mr. Justice Walton that certain letters written by the defendant to the plaintiff should be handed to the officer of the Court for the purpose of having photographic copies made of them.

Mr. Macoun, who represented the plaintiff, stated that the defendant, in a "flabby" affidavit, filed in support of the application for the photographic copies, suggested that these letters were not really written by him. When he asked for copies they had the letters lithographed, but the solicitors for the defendant said that they did not do; they wanted photographs of them. The plaintiff's solicitors replied that they would get them photographed and supply copies at 13s. 6d. per single page. There were thirteen letters in all. This offer the defendant's solicitors declined to accept, and they would rather send their own photographer, who would be able to do something to the faded parts that would make them come out clearly in the photographs. That was the very thing the plaintiff did not want.

Mr. Duke, representing the defendant, said it was usual to make an order for the deposit of documents with an officer of the Court when copies were required for the trial. The defendant had done nothing but what he was quite entitled to do.

Mr. Macoun suggested that the letters might never be used at the

trial. To this Mr. Duke replied that if they are not used it would be for the reason that they had been tampered with. The Court dismissed the appeal.

**OFFICE BOYS' RESPONSIBILITIES.**—Allan Downie (18) and Harold Coome (19), both living at Windsor Road, Leyton, were charged on remand at the Guildhall with stealing two £5 Bank of England notes, belonging to their employers, the Rotary Photographic Company (Ltd.), New Union Street, and entrusted to Downie to post. Mr. Coome, father of one of the accused, pleaded for leniency. Alderman Burnett: I can sympathise with you, being a father myself; but I strongly object to a remark you made last time, suggesting that in the City of London it was not right to trust young men of 18 or 19 with a £5 note to place in an envelope. Why, if we could not trust young fellows in our offices to that extent, business could not go on. Coome: I apologise for overstepping the mark. The Alderman expressed his reluctance to convict the accused as thieves, and so blast their careers, upon which the prosecutors withdrew the charge. The Alderman said this was an extremely kind act, and, urging the prisoners to make the most of the opportunity thus given them of starting afresh, let them go.

**CERIO PHOTO PRINTING COMPANY, LTD. (London).**—Issue on June 12 of £650 6 per cent. debentures, part of series created April 19, 1907, to secure £5,500, charged on the company's undertaking and property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £2,700.

**EMPTY CAMERA AND TRIPOD.**—Alfred Roads, aged thirty-four, described as a photographer, was charged with unlawfully obtaining, by means of false pretences, from Kate McStay, divers goods, of the value together of £1 2s., the goods of John Thayer, with intent to defraud, at Fernhurst, on April 13. He pleaded not guilty. Mr. Graham, barrister-at-law, prosecuted, explaining that on the representation that Roads was employed by Messrs. Valentine to take photographs for picture postcards, Mrs. McStay, housekeeper to Mr. Thayer, grocer, gave him board and lodging. Mrs. McStay said that during tea-time the first day prisoner said he had a pension of 35s. a week. At the end of the week he said he could not pay then, but would do so after a fortnight. A bill for 24s. was given him at the end of the fortnight, but as he again said he could not pay, the police were informed. Mr. E. H. Harrison, manager to Messrs. Valentine, said prisoner had not been employed by them in any way. P.C. Barnes said that when he arrested prisoner he had an empty camera and tripod, and several pawn-tickets. Roads gave evidence on oath, and in the course of a long tale told the court that a doctor in Warwickshire owed him £8 for repairing a clock. He denied saying that he was employed by Valentine; and stated that there should be eleven exposed plates with the camera. He got the camera about a year ago at Timothy White's at Petersfield. P.C. Barnes, recalled, now produced a bag containing plates. The jury returned a verdict of guilty. Prisoner admitted a conviction for felony at Aylesbury in 1905. A constable said that at Aylesbury Quarter Sessions on April 3, 1905, Roads had twelve months' hard labour for stealing three photographs and a prayer-book; on that occasion a second charge of false pretences was not proceeded with. The Chairman said it was very hard upon people of the position of Thayer that they should lose their money, because Thayer had none to spare. —Four calendar months' hard labour.

**CLAIM FOR WRONGFUL DISMISSAL.**—In the Lord Chief Justice's Court, before a special jury, on 25th inst., an action for wrongful dismissal was brought by J. R. Sykes against The Charles Urban Trading Company, of Rupert Street. Verdict was given for the plaintiff with damages £120 and costs, stay being refused.

**PHOTOGRAPHIC RIGHTS.**—One of the most interesting actions tried at the Cumberland Assizes at Carlisle on Saturday was that brought by Frederick Nainby, photographer, Cocker-mouth, against Messrs. Beaty, printers, Carlisle, for the alleged infringement of the copyright in the photograph of Captain Guest, who contested the Cocker-mouth Division against Sir J. S. Randles at the bye-election last year, occasioned by the death of Sir Wilfrid Lawson.

The photograph, according to the statements of the plaintiff's counsel and witnesses, was taken on July 11 of last year, when Captain Guest was asked to have his photograph taken for reproduction in

newspaper, and he went to the plaintiff's studio at Cockermouth for that purpose.

Subsequently the defendants, who were printers in Carlisle, wrote for permission to reproduce the photograph on badges and postcards, but this permission was not granted. However, they took it, and reproduced it on picture postcards, which were sold.

Captain Guest gave evidence for the defence. He said he wanted to have his photograph taken for election purposes, and blocks were mentioned, and he fully expected he would have had to pay for the photograph, as he had gone through the same experience when a candidate in the Kingswinford Division, and paid for his photo there. He made no arrangements with anyone that deprived him of the copyright in the photo taken by Mr. Nainby.

Mr. Justice Channell said that, *prima facie*, the copyright was in the person who took a photograph, but there was a proviso that when a negative was taken for or on behalf of any other person for a good or valuable consideration then the photographer did not secure the copyright without bargaining for it. In this case no bargain was made; the thing was done in a hurry, like most things at election times. He must hold therefore that the copyright was in the plaintiff, and that the case did not come within the proviso to which he had referred.

The plaintiff was the author of the photograph. No penalties were claimed by the plaintiff, who only sought damages, and judgment would be for the plaintiff for £5 damages.

**SINGULAR CLAIM AGAINST A BIOSCOPE OPERATOR.**—At the Clerkenwell County Court, before his Honour Judge Edge, Messrs. Wm. Jelks & Sons, furnishers, of Holloway Road, sued Humbert Guiseppe Cura, bioscope exhibitor, of Cascart Road, Balham Hill, in respect of chairs supplied.

Mr. Solley, for the plaintiff firm, said they supplied sixty chairs to defendant under a hiring system, by which defendant agreed to keep them in good condition, damage by fire included. There had been a fire at defendant's premises, and as a result the chairs were damaged more or less. He had the goods in March, and agreed to pay £1 deposit and 3s. 6d. per week, but beyond the deposit plaintiffs had only received one 2s. 6d. Defendant was insured, but he had excluded the chairs. He (Mr. Solley) now asked for judgment for the total amount, so that he could take proceedings.

Defendant said that all that was due on the day when the summons was issued was 25s. 6d. He contended that plaintiffs could only claim under the hiring agreement. He told Mr. Solley that the goods were insured, and immediately his claim was settled the plaintiffs would be paid.

The Deputy Judge: Then are these goods insured?

The Defendant: Yes.

Mr. Solley said he wrote to the insurance company, pointing out that amongst the goods burnt or damaged at defendant's premises were sixty chairs belonging to the plaintiffs. The letter said: "We must request you to withhold payment of any money to Mr. Cura or his assignee, pending a settlement of our claim for £12 7s. 6d., being the value of the goods mentioned above." The insurance company replied that they had forwarded the claim to their assessor for his attention. He (witness) had seen the assessor, who said that the goods in question were not included in the policy.

Defendant: My insurance claim is under arbitration, and that will prove that the goods are insured. The insurance company are repudiating the claim if they can.

The Deputy Judge: Then I understand that you admit your liability subject to your getting the money from the insurance company?—I admit my liability up to the date of the payments due.

Not the full amount?—No.

The Deputy Judge: It seems that the issue for me to decide is whether he has insured these things or not?

Mr. Solley: I have seen the clause. I say emphatically that he had not insured them.

Defendant: He is telling a lie—one of the biggest he can utter.

The Deputy Judge: Then you must bring your policy. That will speak for itself.

Defendant: I only owed them 25s. 6d. They have sued me for the whole amount. As soon as my claim is settled they will be paid.

Replying to the Deputy Judge, defendant expressed his willingness to give plaintiffs every facility for attending the arbitration. He would send them notice of it by registered letter.

The case was adjourned, costs being reserved.

## News and Notes.

DR. IRA REMSEN, President of John Hopkins University (say "The Scientific American") is authority for the statement that Sir William Ramsay has discovered a method of making artificial copper, and that the great discovery will be made known to science when Sir William will read a paper on the subject before the Royal Chemical Society of Great Britain. Professor Remsen has a private letter from the famous Englishman, stating that Sir William has succeeded in accomplishing what no other chemist has ever been able to do—the segregation of one element from another and the production of copper by the synthetic or combining process from the elements sodium, lithium, and potassium. A combination of these elements when treated with radium vapour gives as a product copper sulphate, which is readily "broken down" into copper. Such is the substance of his experiments. The discovery, if true, is of so startling a nature that we must withhold judgment until the publication of Sir William Ramsay's paper. This brief preliminary note is published merely for what it is worth, and not as a verification.

LIMERICKS are so exceedingly popular just now that it might be useful to point out to our readers that Limericks on the subject of the "Tikka" would be eligible for the "Tikka" Title Competition. "Tikka" postcards may be obtained from any dealers in photographic materials, and with one of the postcards and a little ingenuity there should be no difficulty whatever in earning one of the twelve prizes of two guineas that Houghtons are offering in this competition.

THE WINNER of the three-guinea Holborn Hex hand camera in the "Ensign" Roll Film Monthly Competition is Mr. R. Dixey, of Waterloo House, Ipswich. The successful photograph represents a street scene on a wet day, and, although rain is falling heavily, and umbrellas are up in all directions, the negative is fully exposed and full of delicate detail.

LUXURY AFLOAT.—On Saturday last a large gathering of representatives of the Press had a very enjoyable cruise from Southampton round the Isle of Wight, on the Royal Mail Steam Packet Company's new twin-screw mail steamer, "Avon." This vessel is the fourth of the well-known "A" class of steamers which the company have within the last two years, placed on their South American mail service. The dimensions of the vessel are: Length, 535ft.; breadth 62ft.; with a gross register of more than 11,000 tons. Although the "Avon" is designed to carry a large quantity of cargo, the passenger accommodation is on a most sumptuous scale. A point deserving particular mention is that the state rooms are on deck, there being no rooms below the upper deck, an improvement that should appeal strongly to intending voyagers. Single berth state rooms are also a special feature, thus enabling travellers to enjoy the same privacy and comfort on this "floating hotel" as in hotels ashore. Among other features of the "Avon" are the social hall and lounge, situated on the promenade deck, also smoke rooms, which are all beautifully decorated and mechanically ventilated with electric fans. Those devoted to photography will also find a dark room and all its concomitant appliances furnished for their use. The "Avon" was launched at Belfast on March 2 last, and starts on her maiden voyage to-day.

A WATCHMAN at the Kodak Works, Harrow, whilst talking with some lads employed there, pulled his handkerchief from his pocket at the same time jerking out a revolver. The weapon fired, and seriously injured a lad named Spencer, who was taken to the hospital in a precarious condition.

THE LONDON STEREOSCOPIC COMPANY, LTD., have enlarged and improved their well-known premises at 54, Cheapside. The studio, in addition to being built at a height which makes it surprisingly light even on a dull day, has also a powerful and ingeniously arranged electric installation, so that would-be sitters may entirely disregard weather conditions. The company also undertakes all kinds of photographic work for the trade, as well as coloured enlargements.

THE HEALTH RESORTS DEVELOPMENT ASSOCIATION, of 29, John Street, Bedford Row, London, W.C., sends us copies of booklets published by them for the Town Councils of Dunbar, Inverness, and North Berwick. These little guide books, which are edited by Mr. George W. May, contain a quantity of useful information in a small space, and the numerous illustrations should convey to the intending



for a general idea of the scenery and objects of interest which it him. Copies may be obtained free by sending a postcard to the Town Clerk at either of the above-mentioned places.

**SOCIETY OF ARTS.**—The society's conversazione will be held in the central portion of the gardens of the Royal Botanic Society, Inner Circle, Regent's Park, on July 9, from 9 to 12 p.m. The conservatory club house will be open to visitors.

**PHOTOGRAPHERS AT NARBONNE**, in common with the inhabitants generally, are having a rough time. The representatives of the "Littérature" and "Monde Illustré" a few days ago had their cameras snatched from them and destroyed, the former being in serious danger of losing his life also; whilst the representative of the "Daily Mirror" was threatened with immersion in the canal.

**ESSEX PHOTOGRAPHIC POSTAL CLUB.**—Owing to the death of the late Mr. T. Perkins, Mr. Hermann Lea has been appointed secretary of the above club, and all communications should now be addressed to him at Var Trees, Clyffe, Dorchester.

**THE BRISTOL PHOTOGRAPHIC CLUB** have arranged to hold their annual exhibition during the first week of October next, in the central suite of rooms of the Bristol Academy of Fine Arts. Their year's exhibition was a great success, both from the pictorial and financial point of view, and the financial results to the club and to exhibitors were most satisfactory. This year the committee are making several important alterations in the classes and awards, and will, in their opinion, benefit the cause of pictorial photography. The hon. exhibition secretary is Mr. J. S. Guthrie, 23, Clifton Square, Clifton, the same as last year.

**NORTHERN PHOTOGRAPHIC EXHIBITION.**—At a meeting of the committee of the above, held in Liverpool, June 24, it was resolved in view of the official communication from the Hon. Sec. of the Leeds Camera Club, announcing its inability to carry out the act to hold the "Northern" at Leeds in 1908, this executive committee hereby relieves the Leeds Camera Club of all its obligations relating to the N. P. E. It was also resolved "That the next exhibition" be held in Manchester in 1909."

**CUMBERLAND AND CHESHIRE PHOTOGRAPHIC UNION.**—The second annual excursion of the above union took place on the 15th inst., a party, to the number of about a hundred, visited Barrow-in-Furness Abbey, and were afterwards entertained to tea by Mr. F. J. Ramsden, President of the Barrow Naturalists' Field Club.

**CHANGE OF ADDRESS.**—Mr. J. C. Hughes, formerly of 14, Edith Street, West Kensington, has now removed to 95, Gloucester Road, Kensington, S.W.

**EXHIBITION of the latest novelties in photographic apparatus and materials** will be held from July 1 to 13 at the photographic department of Bishop's Pure Drug Co., 466, Holloway Road, London, N. Demonstrations of new processes will be given daily, as well as admission to the exhibition, will be free to all.

**EMPIRE PICTURES.**—Nearly 50,000 pictures a day will be shown at the great exhibition which is to be held in the Royal Horticultural Gardens, Westminster, on July 18, 19, and 20, on behalf of the Empire Education Fund and Lady Dudley's scheme. The Princess of Wales has taken the deepest interest in these proposals for Empire education, and has sent a donation in response to the Countess of Dudley's appeal for £5,000 to despatch artists and photographers to the various colonies to obtain the best possible pictures in these British dominions for use in English elementary and secondary schools. Subsequently Lord Mayor, at the urgent request of an influential committee, has donated the Empire Education Fund. The exhibition is under the management of the Countess of Dudley, Mrs. Humphry Ward, the Duke of Ormonde, the Earl of Drogheda, Lord Meath, Earl of Devon, Sir Bartle Frere, Sir Richard Solomon, and the Lord Mayor. Agents-General are co-operating with the organisers of the exhibition—who include Mr. Allen Stoneham and the executive of the Empire Education Fund—and have lent a magnificent collection of pictures, together with products and curios of their countries. The British South Africa Company will also send specimens of the natural products of Rhodesia, and another company have lent, quite at cost, their powerful electrical automatic lanterns, which will

work throughout the three days. The pictures are photographic monochromes, and are the finest products of that art. They illustrate every phase of Colonial life, step by step, from the outposts of the Empire to the great commercial centres.

**DEATH OF MR. ROBERT PRINGLE.**—We regret to record the death, on the 23rd inst., of Mr. Robert Pringle, of the well-known firm of Messrs. Pringle and Sons, of Clerkenwell Road, E.C.

**THE OXFORD PAGEANT** will take place from June 27 to 29, and July 1 to 3, and gives promise of being one of the finest historical pageants ever produced. The Gaumont Company are holders by appointment of sole cinematograph rights in its reproduction, and the films will be obtainable only from them at Chrono House, 5 and 6, Sherwood Street, Piccadilly, London, W.

## Correspondence.

“Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.”

“We do not undertake responsibility for the opinions expressed by our correspondents.”

### FLUORESCENCE IN OPTICAL SENSITISING.

To the Editors.

Gentlemen,—I am much obliged to Dr. Mees for calling attention to one point in Dr. Stark's experiments, which I did not take into consideration, and which seems to me to be a still stronger argument against accepting the existence of “latent fluorescence” without further proof.

I have not used Heraeus's mercury lamp, but with the ordinary Cooper-Hewitt lamp the photochemical activity of the blue and violet rays, which may practically be considered as  $\lambda$  3390, 3654, 3663, 3925, 4048, 4062, 4078, 4347, 4358, and 4916, is so great that in shifting the dark slide in a diffraction grating spectrograph so as to obtain successive spectra, the total shift being three-quarters of an inch and the total time of movement about 15 seconds, the whole of these lines are recorded whilst the plate was moving, the slit width being 0.075 millimetres and the plate used being a panchromatic H. and D. speed 170. If then these lines in the mercury spectrum are so photochemically active, I think that with forty minutes' exposure, as given by Dr. Stark, one might obtain practically the continuous stripe which I described as being seen with daylight.

Dr. Mees's argument might, I think, apply were the light, as he says, “monochromatic,” but it is not, and the further you go into the ultra-violet the richer the mercury vapour is in rays. This being granted, I fail to see why my suggestion, and it is only that, as to the polarisation of small particles of these short wave-lengths should not produce the effect which Stark has described.

Unfortunately, though Stark mentions that he uses a quartz spectrograph, he gives one not the slightest indication of the dispersion obtained, and with a low dispersion I think that the above-mentioned wave-lengths would be practically continuous.

Further, Dr. Mees admits the possibility of the correctness of my surmise as to the prismatic effect of the meniscus edge; then I have proved the very powerful action of the blue and violet rays. Why should not this come into play in “forty minutes' exposure?”

I am quite prepared to admit I am wrong when proved to be, but I still consider that confirmation of Stark's experiments are required.

One minor difficulty is that no indication is given of the wave-lengths of the light obtained, and this apparently differs in different lamps; at least, Arons has given some red and orange lines as existent in his lamp, which I have been unable to obtain. The subject is also complicated by the fact that in the Arons and, I believe, the Heraeus lamps, both electrodes are covered with mercury continually, whereas with the Cooper-Hewitt one is bare, and I have certainly obtained both water-vapour and iron lines in addition to the mercury. This being the case then, it is quite possible that other lines may appear between those I have enumerated above, which

are only the principal ones, and undoubtedly due to mercury. Mercury has so many spectra that in deciding a question of this kind it is absolutely essential to have an accurate reading of the lines. —I remain, yours faithfully, E. J. WALL.

#### WANTED; A POCKET REFLEX.

To the Editors.

Gentlemen,—I have read with interest the many articles that have of late appeared in your Journal, *re* the uses of the reflex camera. Two of the many advantages of the reflex are (1) correct focussing on rapidly moving objects, and (2) pictorial composition.

Now, those are the two most important features which we press and postcard operators require. But, unfortunately, we have to wait for ideas in each class of work, which compels us to use an ever-ready camera that will slip into the ordinary pocket, instead of carrying the present bulky reflex in the hand, under the eyes of the ever curious public.—Yours faithfully, W. JOHNSON.

No. 1, Second Street,  
Gateshead-on-Tyne.

#### REFLEX CAMERAS.

To the Editors.

Gentleman,—Like the man in "Punch" who gave a testimonial to a soap maker, I have never used a reflex camera, but should very much like to. Many of my wealthy friends have from time to time allowed me to peep into the inward parts of these desirable and costly instruments, some of my friends have even allowed me to take these cameras out for an hour or two; but in every case the negatives I have made showed that I had not held the camera quite level.

My excuse for troubling you with this, Sirs, is that it might be useful to some who use these cameras, whose eyes are too firmly fixed in their heads to allow one eye to look to one side of the ground glass while the other looks to the other side, if a circular spirit level, with a glass bottom, as well as a glass top, could be fixed on to the ground glass. A friend of mine tried to get such a level but could not.—Yours obediently, J. M. SUTCLIFFE.

Whitby in Yorkshire.

June 22, 1907.

#### TO PROFESSIONAL PHOTOGRAPHERS.

To the Editors.

Gentlemen,—I shall be glad if you will kindly allow me to draw the attention of my professional brethren to the following paragraph from the Hereford Convention programme:—

"PROFESSIONAL PHOTOGRAPHY.—A desire having been expressed that professional photographers attending the Convention should have opportunities afforded them for informal chats on business matters, a special room at the Town Hall will be provided for this purpose on Thursday and Friday evenings, July 18 and 19, at seven o'clock."

Now, gentlemen, the universal cry seems to be: "Times are hard." Come and let us reason together, and see if we cannot improve matters.—Yours truly, F. A. BRIDGE, Hon. Sec. and Treas.

East Lodge, Dalston Lane, London.

#### THE EFFICIENCY OF IRIS SHUTTERS.

To the Editors.

Gentlemen,—I am glad to see that Mr. Welborne Piper has pointed out the error made by Mr. Anderson with regard to this excellent form of shutter, but we can go even further than Mr. Welborne Piper has gone. Assuming the conditions as to uniform speed, etc., as assumed by Mr. Anderson and Mr. Piper, if the area of the opening is plotted against the time and a curve drawn, it will be seen that at the beginning and end of the exposure the area (or exposure effect) is for a considerable distance so small as to be negligible. This applies also to the blind shutter in front or behind the lens, but to a much less extent. This alone would probably raise the practical efficiency of the iris shutter to that of the blind shutter, with its square opening. There is, however, still another point. If, for

purposes of depth of definition or marginal definition, the lens has been stopped down, one may safely use a larger aperture with an iris shutter than with any other form of shutter, because the full aperture is effective for only a part of the time. For this reason a cheap lens with an iris shutter may perform as well, at equal apertures, as an anastigmat with a blind shutter. Taking all the facts into consideration, I think there can be little doubt that, in ordinary practice, an iris shutter gives a greater practical efficiency than the ordinary blind shutter at the lens in almost all cases. If an iris shutter could get to work satisfactorily at, say, the five hundredth of a second, would probably nearly equal, or even surpass, the ordinary blind shutter in efficiency. But, of course, this would depend on the width of slit of the focal plane shutter, its distance from the plate, and the aperture of the lens.—Yours, etc.,

CHAPMAN JONES

## Answers to Correspondents.

\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* Communications relating to Advertisements, and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, &c. Two unmounted copies of each photograph must be sent with fee.

#### PHOTOGRAPHS REGISTERED:—

- E. Hamilton-Toovey, 35, Royal Parade, Jersey. Three Photographs:—Comb Bands (Regimental and Drum and Fife) of the First East Surrey Regiment and Fife Band, Regimental Band.
- F. Newell, Stour View, Colchester Road, Manningtree, Essex. Four Photographs:—View of Mistley Towers, Essex. Bird's-eye View of Manningtree from the Windmill Tower. View of Top of South Street, Manningtree, shown Wesleyan Chapel. West Street, Alresford, Hants.
- R. S. Henderson, 35, Fargate, Sheffield. Three Photographs of the Rev. Geo. Ommamey, M.A.
- F. Coghan, 81, Carlisle Road, Londonderry. Two Photographs of the Right Dr. McHugh, F.F.V.G., Strabane.
- G. F. White, 57, Hilderthorpe Road, Bridlington. Photograph of Mrs. Wallis and Mrs. Bulloch, Bathing Van Attendants, Bridlington.
- D. S. Taylor, 7, Gowan Street, Arbroath, N.B. Photograph of Arbroath Harbour from an Old Engraving.

#### DRAWING REGISTERED:—

- J. Grice, 4, Dax's Row, Welshpool, Montgomery. Drawing entitled, "I Wish Some More, I Can't Eat It."

ANXIOUS.—A great deal depends upon whether the firm gave you an order to take "negatives" for them, or merely ordered prints, and whether you have invoiced them as "negatives" or "prints" only. In the face of what you state, the negatives are yours, and cannot be claimed by the firm. The price may be entirely a matter of arrangement between yourselves, and should advise you to take into consideration the possibility of future work.

E. W. T. F.—There are several devices of the kind on the market at the present time, and you would find them illustrated in the list of any large dealer such as Fallowfield, Houghton, &c. We can, of course, if you like to send us up sketch or photograph of the apparatus itself, tell you whether there is anything like it. You can obtain provisional protection for 20s., and have to up a form, obtainable from the Patent Office. We should



ise you to let us see it first, we will then tell you our opinion and write you privately.

LEWIN.—1. Yes, any flashlight apparatus can be used in open air. Write to the firm from whom you got the camera, and they would advise you. 2. Do you want to enlarge by day or artificial light? Write again, letting us know this, the full extension of your camera. 3. We should strongly advise you to see the exhibition of Reflex cameras now open at the Crystal Palace. This is the most satisfactory type for your special purpose. We are obliged for the information given, but are afraid cannot help, as it is a matter which rests entirely in the hands of the employees.

BACKED PLATES.—1. Will you kindly let me know enough of your paper how to develop backed plates; also do you back the backing off after developing, and how to do the same? Can you buy paper to back the plates yourself?—J. W. WILKINSON.

BACKED PLATES.—1. Backed plates are developed in precisely the same way as ordinary plates, and the backing may be removed before or after development, this being entirely a matter of taste, and to a certain extent dependent on the backing. Personally, we remove the backing after development is complete, by placing the plate under running tap and rubbing the backing off with a tuft of cotton wool. 2. Almost all dealers keep an adhesive red backing paper which is wetted and applied to the back of the plate, or there are several commercial pastes and liquids which can be used with sponge or brush.

WILKINSON.—Your test is not quite fair. Try a sheet of newspaper perfectly flat, about ten times the focus of the lens from the camera. See that your camera is perfectly level and parallel to the paper, and focus on ground glass in the dark. If then you get want of definition, write the makers.

DEVELOPER.—1. Having some trouble recently with oxidation of pyro solution, I determined to give the formula mentioned on p. 763 of the "B.J.P." for 1906 a trial, and, so far, satisfactory results. I notice, however, that potassium hyposulphite is omitted, and should be glad to know if this is indeed, on account of the additional restraining powers of the hyposulphite. Development is certainly slower with your formula, not so slow as to be a serious drawback, and the cleanliness of the pyro, and the ability to use it several times over, are its advantages. 2. Is pyro "of" pyroxal a misprint in the formula given on the page mentioned? I think it should be "of" instead of "of."—H. S.

The bromide was intentionally omitted, not because of the restraining action of the sulphite, but because we do not consider that bromide is necessary with the majority of plates. Potassium hyposulphite can always be added if desired, but it must not be forgotten that it slows the plate. Our experience is that, given anything like correct development, there is no need for bromide. It should read "pyro or pyroxal."

E.—The white spots on the portrait are undoubtedly air which have clung tenaciously to the gelatine. It is always well to pass a piece of clean cotton wool, well wetted with developer, over the film immediately after applying the developer, so as to make sure of breaking any air bells. The marks on the church negative are due to not rocking the dish during development, and are known as "mottling." Neither can anything be done with the "bike."

TRANSPARENCIES.—Can you tell me how to paint transparencies with aniline dyes, so as to avoid sharp outlines?—D. HALES.

There are two principal methods, one in which the plate is developed in a wet state and the dyes merely applied in aqueous solution, and the other in which strong solution of the dye in an arabic solution is applied to the dry film in drops and the film made to coalesce. The easiest method is undoubtedly the first, but there is a danger of the outlines showing, as weak solutions are used and depth of colour obtained by successive washes. The dyes to use may be new Victoria Blue, water soluble; brilliant acid green G; rose bengal; tartrazine and crystal violet 6B. Make these up into strong

stock solutions, then break them down with water and add a little glycerine before applying. Work by artificial light, and remember that the colours appear rather more brilliant in the lantern. The second process is a little more difficult, as strong solutions of the dyes have to be made and mixed with strong gum arabic solution and applied in very minute dots, and then made to run together, and each colour must be absolutely dry before another is applied.

CEMENTING FILMS.—I want to cement the edges of two films together, and fail to do this without the line showing. What is the general method?—FILMS.

The usual method is to shave both films down a little where they are intended to overlap. This can easily be done with a fairly sharp knife, using it very nearly at right angles to the film. Then wet the shaved edges with either a thin solution of celluloid in amylacetate, or damp them with acetone and amylacetate in equal parts, and press into contact with a warm iron.

H. L. V.—It is utterly impossible for us to give a decision in the matter. It seems to us to be, from your letter, a question of absolutely contradictory statements, which can only be adjusted by arbitration. If both sides will agree to submit it to arbitration, this seems to us to be the happiest way out of the difficulty.

GEO. PARDON.—Boil for ten minutes, and do not allow the temperature to sink below 120 deg. Fahr.

SEPIA POSTCARDS.—I have seen a formula for a sepia process, which can be used for sensitising postcards, etc., in one solution. Can you give me the same?—P. C.

Probably the following might answer:—

1. Ferric ammonium citrate (green) .....	110 grs.
Distilled water .....	1 oz.
2. Tartaric acid .....	18 grs.
Distilled water .....	1 oz.
3. Silver nitrate .....	45 grs.
Distilled water .....	1 oz.
4. Gelatine .....	30 grs.
Distilled water .....	1 oz.

Soak the gelatine in water till soft, and melt on a water bath, then add Nos. 1 and 2, and finally No. 3, in very small quantities, stirring all the time. The image is printed out and fixed in a 1:50 hypo. There are many other formulæ, but this is satisfactory.

INTENSIFYING PLATINOTYPES.—Is it possible to intensify weak platinotype prints, which are slightly under-printed?—PRINTER.

There are many formulæ, but the most satisfactory is:—

1. Sodium formate .....	45 grs.
Water .....	1 oz.
2. Platinum perchloride .....	10 grs.
Water .....	1 oz.

Add 15 minims of each to 2 ozs. of water and apply to the print.

N. A. R.—It is impossible for us to give any decision on this point without seeing the apparatus. If you like to make an appointment we shall be pleased to examine it and tell you as much as we can as to what has been done in this particular direction.

VARNISHING PLATINOTYPES.—I have seen somewhere a method of varnishing platinotypes mentioned in your journal, but am unable to find it. Can you tell me where it is or repeat?—TONBRIDGE.

The formula has been repeatedly given in the Journal, or will be found on p. 811 of the "Almanac" for 1907. It is:—

Sandarac .....	2 ozs.
Benzole .....	8 ozs.
Acetone .....	8 ozs.
Absolute alcohol .....	4 ozs.

Allow to stand with occasional agitation till dissolved, then allow to settle or filter, and brush over the print, if necessary giving two or three coats.

DEVELOPER FOR BROMIDES.—Will you kindly tell me, in your next issue of the "B.J.," the best developer to use for bromides, that are to be toned sepia with sodium sulphide, "Almanac" formulæ, 1907? The reason I ask is this. That enlargements I have made myself and developed with amidol or metol hydroquinone are not

warm enough, and have a flat appearance; whereas I received a print to-day from a firm of enlargers and toned it with some others that I had made myself. Their print made a splendid sepia, while my prints were very poor. I ought to say that the prints were quite right before toning.—*EN AVANT.*

The best developer is, we think, ferrous oxalate, the formula for which will be found on p. 953 of the "Almanac" for 1907.

**INK STAINS.**—I have had the misfortune to spill some ink on the mount of a much prized photo. I will feel very grateful indeed if you will inform me, through the columns of "B.J.P.," of a solution that will effectively remove it.—*J. B. O.*

The best thing would be to obtain a small quantity of what is generally called salts of lemon or the acid oxalate of potash from any chemist and sprinkle over the ink spot, and then drop a drop or two of water on it, repeating the application till it removes it. If the stain is stubborn it might be worth while to try the effect of a little chloride of lime, applied in strong solution, and then put a drop of vinegar on it.

**SOLAR ENLARGEMENTS.**—Can you tell me where to find the formula for making cheap solar enlargements?—*ENLARGER.*

A formula is given on p. 821 of the "Almanac" for 1907, and several on p. 270 of the "B.J." for January 11, 1907.

**PHOTOGRAPHS ON WATCH CASES.**—Can you please inform me how to secure a photograph on the inside of a watch case? I have heard of a method whereby the image is transferred from a C.C. print directly on to the metal.—*A. W. S.*

We must refer you to an article on page 451 of our volume for 1901, as the space in this column is far too limited to give such information as would be of real use to one who has no practical knowledge on the subject. The article mentioned gives full working details for producing photographs on watch cases and metals generally.

**DOUBTFUL VALIDITY.**—I am much obliged for your reply in the Journal last week to my question *re* agreement. I now send you a copy of the agreement itself, and should be glad if you would express your opinion upon it. I thought you would like to see the copy of agreement. You will understand my position. I am a married man, with a family of three, and if I am not permitted to work for another person I take it I shall be compelled to leave the town or give up my profession, which I had eighteen years' experience in.—*DOUBTFUL.*

Our opinion is that the agreement is of no value whatever. There seems to be no equity in it. It does not appear that you received any consideration whatever for signing it, and there is no time limit to it, which is usual in such cases. Furthermore, the twenty mile radius would, probably, be considered by the County Court an undue restriction of trade, which is against public policy. If you refer to our issue for August 3 last year, page 603, you will find an article which goes pretty fully into the subject of "Photographers' and Assistants' Agreements." However, as we said last week, you had better consult a solicitor on the matter, so as to be on the safe side.

**ENLARGING LENS.**—I have been using the lens from an optical lantern for enlarging, but am unable to obtain sharp definition, particularly towards the edges. Is it possible to improve the lens in any way, or must I get an anastigmat?—*P. FIELDER.*

It is quite possible that the lantern lens might be improved by slightly separating the back components a little more. Frequently this gets over the trouble. They are now separated by a narrow metal ring. Remove this, and cut some strips of cardboard slightly wider, and place in between the lens, and then practically test after each ring is placed in position.

**B. H.**—The negatives you send are not damaged. It is obvious that they have been varnished, and have been splashed with water, which always causes the peculiar concentric rings. Soak in methylated spirit, with a little ammonia, and rub with a tuft of cotton wool.

**F. J. T.**—(1) As the Act does not come into force till July 1, we hardly see that any claim can hold water. It is a matter for a solicitor. (2) We regret that we must decline. Our rule on this point is strict. (3) The paper was made in Germany, and even there now it has been dropped. (4) Send letter and we will forward it.

**J. T. CLARKE.**—There is no objection to having glass on both. You could easily block out the south with opaque curtains you did not want to use it, and it would be an advantage able to have it at times.

**KALLITYPE PROCESS.**—Will you kindly give me complete instructions for working the Kallitype process?—*IRON.*

This is rather more than we care to undertake, and we suggest that your best plan would be to obtain No. 47 "Photo Miniature," which deals entirely with this subject. Barn and Ward, 6, Farrington Avenue, E.C., are the publishers.

**SUPPLEMENTARY LENSES.**—I want very occasionally to use a very much shorter focal length, and also one of a very longer focal length, than any that I possess. Is it possible to hire a lens or convert my existing lenses into long and focus ones?—*OPTIC.*

Several firms, such as the City Sale and Exchange, Sand Hunter, etc., loan lenses out, or you can obtain supplementary lenses, which will temporarily convert your lens into short long focus lenses. Supplementary lenses are sold by near dealers.

**J. BARNES.**—We cannot undertake to answer letters by post, we receive fees for doing so. A formula is given on p. 821 of the "Almanac" for 1907, for simultaneous developing and but this is not going to save you time, as the process is slow. Considering that you can develop a bromide print in less than two minutes and fix in about five, and if you use the calcium fixing bath you can wash in hot water and complete whole operation in about ten minutes, we fail to see where advantage would lie in simultaneous development and fixing. There would be no objection to showing your customer enlargement in the hypo dish, and after about half a minute immersion, the light would have no practical effect on it.

**G. R. BIRMINGHAM.**—We do not know where Mr. Harrington is likely to stay, and he will not arrive here till about July 12, probably we shall hear.

**M. MACKINSON.**—If you look through the small advertisement will find several lights advertised. Your best plan would be to write for details and choose yourself, for you can tell us more than we can what would suit you. If, after having received details, you like to write again, we will do what we can for you.

**J. HARRIS.**—Some are hairs or threads of cloth, others are uncleanly actual dirt, and some iron or other metallic particles.

**PHOTOGRAPHY AND THE COLLECTOR.**—It is presumable that the majority of collectors, whatever their particular branch of that hobby may be, are also photographers, as the camera provides them with special facilities for obtaining records of objects of interest in their collections. With a view to further stimulating such interest, the proprietors of "Collecting" are offering a weekly prize of half a guinea to the reader who sends in the photograph accompanied by the most interesting note of any article likely to prove of interest to the readers of that paper. All photographs must be accompanied by the competition coupon, published in the pages of the journal, and should reach the offices of "Collecting" in Grafton Street on Tuesday mornings.

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## The British Journal of Photography

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## SUMMARY.

Exhibition of Reflex Cameras closes to-morrow, July 6. This is a phenomenal success, and those of our country readers who have been able to visit it and are going to the Photographic Exhibition will have an opportunity of seeing the majority of the exhibits there.

E. W. Foxlee, in his series of articles on the "Collodion Process," deals this week with the preparation of the collodion and its use. (P. 500.)

Printing negatives is to many a fearsome operation. It is proved, however, that, when properly set about, it is very simple. (P. 498.)

One of the strongest pleas for tank development yet made is advanced by Mr. C. H. Claudy. He proves that it is cheaper, saves labour, and temper, and gives better results than the ordinary method. (P. 502.)

Use of Sunday trading, with a somewhat amusing and ingenious illustration, appears this week. (P. 508.)

## "COLOUR-PHOTOGRAPHY" SUPPLEMENT.

Lumière Autochrome plates are reviewed after practical tests.

Instructions for the use of the above plates are given in the supplement. (P. 51.)

Kenneth Mees deals with the printing of positives from Autochrome and linear filter plates. (P. 49.)

E. J. Wall suggests the use of panchromatic flashlights for work in the evening. (P. 50.)

The problem of colour photography solved at last. (P. 53.)

A. J. Newton chats on the rendering of colour into black and white. (P. 51.)

## EX CATHEDRA.

### Our Photographic Trade with Germany.

The official figures relating to German imports and exports of photographic apparatus and materials, which we published in our issue of June 21, can hardly be said to afford very satisfactory reading. A rough analysis shows that while in the first three months of the present year we imported about £156,000 worth of photographic apparatus and materials, we only exported goods to the paltry value of £6,700. Out of this small amount £4,800 represented apparatus, while our imports of German apparatus amounted to no less than £52,000. This figure apparently does not include lenses. Our largest imports were sensitive paper (£57,000), while it appears that Germany imported none of our manufactures. They, however, took £1,760 worth of dry plates from us while we imported none from them, which is a small mercy to be thankful for. Returns such as these are notably untrustworthy, for no one possesses the information needful to ensure accuracy. Some of the figures appear to us to be very doubtful, but the indication they give that things are by no means as satisfactory for us as they might be is no doubt accurate. The amounts given above are averaged from the tables as published; they are not exact, but not likely to be far out.

### Sky Values.

In these days of "oil printing," when values can be corrected or falsified at the will of the operator, the question of sky values is of some considerable importance. We are all agreed that white skies cannot be tolerated, but there are marked differences in the methods of representing an ordinary blue sky, and it certainly appears to us that some modern photographers are inclined to err in the direction of making their skies too dark. If the feeble blue of an English sky is represented by a grey tint of the proper value the effect is not usually displeasing, but a Mediterranean sky is many shades deeper in tone, and if represented in its true value in grey it is so dark as to be suggestive of a thunderstorm rather than a cloudless blue. With an Alpine sky the value is often even darker, for at great heights the sky tends towards blackness, as described by Sir William Abney. In such cases as these the correctness of true values is only appreciated by those who are familiar with the conditions. Others only see an effect of unnatural and unpleasant heaviness, and we think it very doubtful if these same "others" are not justified in their opinion. It is well recognised that in monochrome painting true colour values are not always desirable, even if possible, and these heavy grey skies in many cases certainly detract from the effect of intense light that is so characteristic of Southern scenes. It is true that the colour value of the sky is very low, but that fact is not at all appreciated by the observer

until he comes to reason it out, and attempts to record the sky in inadequate black and white. His principal sensation is of brilliancy—a deep, glorious blue in the sky and intense light everywhere; and this sensation of brilliancy is by no means realised by a photograph that shows a brightly lighted landscape under a nearly black sky. A correctly represented sky should give the sensation of space and luminosity, but these qualities are quite lost if the sky is too dark.

#### **The Alum Trough.**

Mr. C. E. Benham has recently drawn attention to the fact that the alum tank used for absorbing the heat from the illuminant in the optical lantern is no more effective for the purpose than a tank of simple distilled water. Indeed, we believe that it has been stated that the water is the more efficient of the two. In this case it is difficult to understand why the alum tank is so largely used. Possibly it is a case of mere superstition. Perhaps some "great" authority once recommended the alum tank, and everybody else believed him. Many things have been done, and are still done, for no better reason. But there is also a possibility that alum is preferred because the boiling point of the solution is a little higher than that of plain water. It is absurd to continue the use of alum if it is really no better than water, which is much more convenient; but perhaps some of our readers have personal knowledge of the comparative effects of alum and water tanks, and can speak with the authority of practical experience. The abolition of the alum solution would be a great convenience to many lanternists.

#### **The Workmen's Compensation Act, 1906.**

On Monday last the above Act came into force. We attempted, in our issue for February 22, page 135, to point out the main provisions of the same, but the more one reads this Act and the more imaginary cases are outlined the more drastic appear its provisions. It would be as well, therefore, if every one of our professional readers at once seized the opportunity to insure himself against any claim under this Act.

#### **Stereoscopic Projection.**

The old device suggested by D'Almeida and Du Hauron, amongst many others, of using coloured glasses before the positives has been again revived. The novelty, if there is any, appears to be in using one lantern only, and placing in front of the objective two prisms of 18 degrees angle, with their bases in contact. These naturally cause a commingling of the pictures on the screen. The fatal objection to this method is that every spectator must be provided with a pair of eyeglasses of the same colours as used for projecting the images. It is true that this presents no insuperable difficulty, and the cost would be comparatively small, for such lunettes with coloured gelatines instead of glasses, mounted on cards, can be obtained at about 5s. per hundred. The disadvantage of using gelatine is that it is very fragile and liable to be marked by damp fingers. Were it possible to use thin sheet celluloid suitably coloured, whilst the initial cost might be greater, the cost of replacement would be avoided to a great extent. Personally, we do not think that any method wherein any apparatus has to be supplied to the audience is commercial.

#### **The Deterioration of Paper.**

In 1898 the Society of Arts appointed a committee to deal with this question, and their report was by no means reassuring. At the annual general meeting of the Society held last week the Council, in its report, again calls attention to this matter, and says the Society has been reminded afresh that a large proportion of books are still being pro-

duced on perishable papers. This is due more particularly to the growing popularity of photographic reproduction and the necessity of adapting papers to the requirements of the "process" block, and the dominant demand for cheapness. The chief offender is the imitation art paper heavily loaded with clay, and calendered so as to produce a smooth surface at the expense of the substance of the paper. These, and other questions, are once more pressed on the notice of the Society, and with the object of again drawing public attention to the question, the Council have appointed the Committee. They hope that its report, when published, may contribute to a sounder public opinion on this very important question.

#### **Surfaced Papers.**

There is not the slightest doubt that the "process" block and the dominant demand for cheapness are the causes of the deterioration of quality of papers. But it may be said that many books in which blocks are used are not worth preservation, the more perishable the paper the better. We are aware that no amount of Committee reports will do away with the flood of cheap illustrated papers, which can hardly be called literature, and yet serve their purpose in saving away many an idle hour. Many books are now published on rougher surfaced papers, whilst the illustrations are inserted on art paper. The process block means of illustration has come to stay, and this must be recognised. A crusade against surfaced papers has occasionally raised by opticians, but without much effect. Certainly the rougher surfaces are more pleasant in the hand, but they are in most cases hopeless for half-tone work.

#### **Death of Dr. S. Czapski.**

It is with great regret that we announce the death of Dr. S. Czapski, which took place on Saturday last, June 29, after many months of ill-health. Dr. Czapski's work in practical and theoretical optics will be dealt with at greater length next week.

### **STRIPPING GELATINE NEGATIVES.**

THE removal of the gelatine film from its glass support is a task the difficulty of which is so exaggerated in the minds of many present-day photographers that many never think of attempting it in the not infrequent circumstances under which it becomes necessary. It was a different in the days of wet collodion, for if that fascinating process had one characteristic it was the aptitude of collodion film for leaving the glass, an aptitude which we have found to be actually a proclivity on the part of the film, and have thanked their stars if, during adverse conditions, they have brought the negative into a finished state without being afforded the spectacle of the film floating as a crumpled mass, down the sink. In those days stripping was the most common and certain of operations, yet it was actually no less so in the case of the gelatine plates, with an experience in both processes we would as soon strip a gelatine negative as one by the collodion process. It is well, therefore, that we descend to the practical methods which we advocate for the purpose.

Hydrofluoric acid, the agent which has been in use for the detachment of gelatine films for years past, is an essential constituent of the stripping mixture. A particular method of employing it is one which we believe originated with Mr. E. C. Middleton, of Birmingham, and was at one time disposed of to various firms, principally in the photo-engraving trades, as a secret process, and a monetary consideration. Indeed, unless we are mistaken, the identical preparation which we shall advise



upon the market as a proprietary article, and was treated with assiduity by the individual responsible manufacture; at any rate, the manipulation recommended for the use of the preparation was almost exactly to that of Mr. Middleton. Some modification of process was afterwards introduced by Mr. Haroldt, with the result that the method as it now stands is rapid and certain as can well be expected of any such process as the removal of a gelatine film from one glass plate and its transference to another.

The "black" solution, which we call the "plain" solution, is prepared as follows:—

Methylated spirit	...	...	...	25	ozs.
Water	...	...	...	1	oz.
Glycerine	...	...	...	1	oz.

The negative to be treated is first cut entirely through to within about a quarter of an inch from the edge with a pocket-knife, and is then placed level, which is easily done by supporting it upon three wooden strips.

An ounce of the stripping mixture given above is poured into a celluloid or ebonite cup, and a little hydrochloric acid added to it. About 10 to 30 minims of the special "white" acid is employed, but the above quantities cannot be exactly specified, as the strength of the mixture varies considerably. In a few minutes, not more than five, the portion of the gelatine between the edges of the glass will loosen, and on touching with a penknife can be removed. No better guide is to be had of the progress of the operation than the ease with which the strips, and therefore they should not be pulled off with any force, but the action of the mixture is to go on until each strip, without any pull whatever, comes gently and easily away from the glass. The film will then in all probability be in a condition to be removed. But a test must be made of the perfectness of the film. In the case of plates not larger than the size of a convenient method is to raise one corner of the film between the point of a penknife and a rubber band on the first finger until it coincides with the corner, this operation being repeated for each corner of the film. A neater way, however, and one which we prefer in all cases, is to pass a silk thread under the cane bow under the film, raising one corner of the film by contact with heated fingers. If the film is proved to be completely loose, the plate is drained and a little of the "plain" solution (i.e., without hydrochloric acid) poured over it. The glass plate for the reception of the film should be at hand, though the latter is removed directly to it depends on the operator's wishes as to the reversal or non-reversal of the negative. The film in either case is lifted from its support by a sheet of plain or of paraffined paper, the latter being preferred, and if it is laid down with that side in contact with the glass which was previously in contact the film will print just as before. If it is required, however, to reverse it, all that is necessary is to pick it up on a sheet of paraffined paper, and lay it down, not on a new glass plate, but on a second piece of paper, from which in turn it is transferred to the final glass support. This latter is a piece of glass bearing a thin coating of gum, so thin in fact that it is undiscernable to the eye, and is only disclosed by applying the moistened finger to the gummed surface. A number of these gummed plates may be prepared at a time, and will keep indefinitely, but it is a matter of only a few minutes to make one or two ready for use over an attenuated solution of gum arabic.

It is, however, to the precise manipulation. The

negative, having been drained of acid and had a little plain solution applied to it, this latter is in turn allowed to run off, and a further small quantity poured over the plate. A sheet of the paraffined paper is then lowered on to the negative and lightly squeegeed into contact. A touch of the penknife is used to cause the film to adhere to the paper, and the latter is then lifted off and lowered on to one of the prepared plates, on which also a little of the plain solution has been flowed. The paper is squeegeed down and drawn away again after a touch of the penknife to one corner of the film in order to prevent the film from coming away with the paper.

If, on the other hand, it is desired to reverse the negative as regards right and left in transferring it to its new support, the only additional time item in the process is the transference of the film from the first sheet of paper, not to the final support of glass, but to a second sheet of paper, from which in turn it is laid down on to the glass. Throughout these transferences the film, if properly treated, that is to say, if preserved from contact with warm and moist fingers, will not become distorted in the least, though it may suffer a very small amount of contraction, an amount, however, which is scarcely measurable.

The advantage of the paraffined sheets in comparison with the ordinary paper is that their semi-transparency allows the detached film to be laid down on its new support with the greatest certainty. Those who are trying the process for the first time are advised to employ a piece of glass an inch or two larger than the negative for the reception of the film, but the ease which is afforded by the paraffined sheets in the way of registration will soon enable even the tyro to use a glass of the same size as the negative which he is treating. The paraffined sheets are prepared by soaking thin not too highly sized paper in melted paraffin wax for a time long enough for the wax to be completely absorbed throughout all the pores of the paper. This may occupy half-an-hour, after which the sheets are removed from the molten wax slowly, so that as much as possible drains off. They are then kept flat in a book or between boards for use.

The process above described is much more expeditious than will be imagined by the reader from the necessarily detailed instruction which we have set forth. Under ordinary circumstances a negative may be taken in hand and be ready for printing on its new glass inside of twenty minutes. And several negatives may be treated in very little longer time. The large proportion of spirit in the stripping mixture is responsible for this expedition, and, as we have said, the only drawback to such a mixture is the slight contractile action which it exerts upon the gelatine film. The amount of contraction which actually takes place is not, we think, at all important; yet the property of the solution may be adversely felt in another way. It may happen, in the case of a negative which has hardened by long storage or by treatment with intensifier or other solutions, that the action of the spirituous solution may not be perfectly uniform over the whole surface. The action of the contractile solution being fairly rapid, any point which opposes that action may give rise to a buckling of the film around it, which distortion may be persistent and may be of such a nature that the negative is rendered useless. Such cases are rare in treating negatives, but that they may occur is always within the bounds of possibility in treating unknown negatives. For this reason it may be well if we draw attention to a supplement to the Middleton process which we owe to Mr. Holcroft, who published his results in "The Photogram" for July, 1903, and in our own columns for June 19, 1903, page 486.

Mr. Holcroft's addition consists in a mixture which, as regards expanding or contractile properties, is neutral.

This mixture, under certain normal conditions, was found to be:—

Methylated spirit	...	...	...	2 parts.
Water	...	...	...	1 part.

And the stripping mixture was prepared from it by the addition of 20 minims per ounce of hydrofluoric acid. It is possible that the proportion of spirit to water necessary to secure neutrality may vary with the temperature at which the mixture is used, but the variation is not likely to be great enough to make an appreciable difference in practice. Compared with the process already described the use of the neutral mixture has the advantage of perfect certainty and of complete freedom from contraction of the film, although for the majority of work the previous process is quite satisfactory enough in regard to these two

points. On the other hand, the neutral mixture, of greater content of water, is slower in its action, renders the film more tender and delicate to handle. Holcroft's conclusion as to the use which he would make the two processes is as follows:—"If pressed for time if I knew the previous history of the negative, and the glass was of good quality, I would use Mr. Middle's formula for stripping; if there was any doubt on that point, I should rely on the neutral stripping mixture. Our readers who may have need of such a process, regularly or occasionally, in their practice, may then be guided by the above distinction. In either case I commend the process to them, knowing that if the cautions which have been referred to are observed, no difficulty will be found in the practical execution of the method.

## THE WET COLLODION PROCESS IN PRACTICE

### II.

[The following is the second article of the series by Mr. E. W. Foxlee, which commenced in our issue of last week on the wet collodion process. The last article dealt with the preparation of the glass plate. The next article will deal with the silver bath and the various remedies for its often mysterious disorders.—Eds., "B.J."]

In the previous article the cleaning and polishing of the glass plates was fully described. The next subject for consideration is the collodion itself. It should be of good body, yet sufficiently limpid to flow easily and evenly over the plate without leaving streaks or ridges, and it is imperative that it must be free from structure when the negative is developed and dry. It must also be free from any opalescence when the film is dried. These qualities depend upon the quality of the pyroxyline and its solvents. Most operators on the Continent prefer to make their own collodions, and the photographic chemical manufacturers supply pyroxylines—"collodion wools"—of various characters for the purpose. In this country so many varieties are not obtainable, and the restrictions with regard to the conveyance of explosives renders it practically impossible to get them imported.

#### Making Pyroxyline.

The making of pyroxyline is not altogether pleasant work, as we have to be dealing with strong acids. However, these articles would not be complete unless the making of pyroxyline were included. The following is a formula that will yield a pyroxyline well suited for all round wet collodion work. It is taken from Hardwick's "Photographic Chemistry" (sixth edition), written when the author had ceased to be connected with the commercial manufacture of collodion, and I know of no better. It stands thus:—

Sulphuric acid, sp.gr. 1.845	18 fluid ozs.
Nitric acid, sp.gr. 1.457	6 fluid ozs.
Water	5½ fluid ozs.
Best carded cotton wool	300 grs.

The method is as follows:—Into a good size stoneware jar put the water, then the nitric acid, and afterwards the sulphuric acid, and thoroughly mix them with a glass spatula. The temperature will probably rise to about 170 deg. F., but the mixture should be allowed to cool down to 150 deg. F. It is then ready for the cotton wool. This should be thoroughly dried and pulled out in loose tufts of about 30 grs. each. These are immersed singly, and well pressed against the sides of the vessel, so as to saturate them thoroughly with the acids. The vessel should then be covered over and allowed to rest for seven or eight minutes. The cotton is then removed in a mass, into a shallow vessel, and as much as possible of the acid pressed out with the spatula. It is then quickly transferred to a large pan of cold water and well stirred about.

Then it is put into another pan of water and again well stirred. The quicker the larger proportion of the acids can be got off, the better it is for the pyroxyline. It must then be washed in several changes of water, until a piece of litmus paper pressed in contact with it shows no trace of acid. If any acid remains it will affect the collodion, causing it to become red, and very slow in working, after it is iodised. After washing, the pyroxyline is pulled out and put into a place free from dust to dry. In the forenoon just given the water stands at 5½ oz., but the writer prefers to use only 5 oz., for with the full quantity as given, everything is exactly right as regards the strength of the acids and the temperature, there is a tendency for some of the cotton to dissolve. With the full quantity of water water "sailing very close to the wind."

#### An Alternative Method.

Another formula for a photographic pyroxyline which gives excellent results and does not require quite so much stirring in the working, is as follows:—

Sulphuric acid	12 fluid ozs.
Well dried and powdered nitrate of potash	7 ozs.
Water	2 ozs.
Well dried cotton wool	2 drs.

Mix the water and acid together, then add the nitrate of potash and stir with a glass spatula until the nitre is dissolved and a transparent viscid liquid is obtained. Then let it cool down to 145 deg. F. If it goes below that, the vessel should be stood in another of hot water till it is raised to that temperature. Then the 2 drs. of cotton, in thirty-grain tufts, is introduced, and dealt with in the manner just described. Washing, etc., is the same. The latter is perhaps the better formula of the two when only a small quantity is required, but the former is much the preferable for larger quantities. In character the pyroxylines made with these formulæ are similar.

It has just been intimated that there are not the varieties of pyroxylines on the English market that there are on some of the other countries—Germany, to wit—but it may be mentioned that the high temperature pyroxyline of Messrs. Hopkins and Williams, Cross Street, Hatton Garden, is a very good one for collodion for the wet process. So is the "Celloidine" of Scherings, supplied by Messrs. A. and Zimmernann. This is pyroxyline that has been dissolved



vents evaporated from it. It is put up in packets, each of which, whatever be its weight, is taken to be one ounce of pyroxyline.

### The Solvents for Collodion.

In importance to the pyroxyline is the solvents—i.e. ether and alcohol—in which it is dissolved. If they are weak—i.e., contain too much water—the collodion, however the pyroxyline, will yield an opalescent film, or a “crappy” one. For the ether, that made from rectified alcohol will do quite as well as that from the methylated, but its specific gravity must not be more than .725. For the alcohol, the methylated cannot be used, even if it does not contain the mineral spirit, as it would quickly render the silver bath by reason of the impurities it would carry.

If methylated alcohol, in which the wood naphtha has been highly rectified, could be obtained, there is no reason why it should not be employed, and it would, of course, be much better than that which has to be used; but such a thing is not allowed by the Excise authorities, who insist on the use of the crude naphtha for the methylating. It is necessary, in order to avoid crappiness and opalescence in the collodion film, that the alcohol and the ether should be strong—the stronger the better. The strongest alcohol met with commercially is known as “commercial absolute,” which has a sp. gr. of .825. Equal parts of this and ether at .725, with a suitable quantity of pyroxyline, will yield a very structureless collodion. But the ether salts are but very sparingly soluble in absolute alcohol; therefore it is usual to make the collodion itself of certain proportions of ether and the strong .805 alcohol, and dissolve the iodides in a weaker spirit of .830—the spirit of wine of commerce—and then mix the two.

It has sometimes been recommended to strengthen weak collodion by shaking it up with well-dried carbonate of potash. It is true that this will strengthen the spirit by absorbing some of the water, but it will not bring its strength up to that of .825. At this strength the spirit still contains a considerable amount of water, which will hold some of the potash. Consequently the alkali would cause the collodion to take a short time to yield a rotten and powdery film, and, moreover, tend to render the silver bath alkaline and give bad negatives. If weak alcohol is strengthened by the potash, it must be redistilled, or it is useless for the collodion. But it is not necessary to strengthen weak spirit while it is of suitable strength is a regular article of commerce.

### Iodising Compounds.

In the above it is mentioned that the salts used for the collodion are but sparingly soluble in strong alcohol. Therefore it is usual to make up the collodion in the first instance with the full quantity of ether and half the quantity of alcohol, which should be the strongest—i.e., .805, or commercial “absolute,” and dissolve the iodides in a weaker one of .830. The two are then mixed for use.

In this stage it may be as well to consider the various iodides used for collodion, as they all have different characteristics. In the earliest days of the process the collodion was, very commonly, iodised with iodide of silver dissolved in a solution of potassium. Indeed, one of the leading manufacturers of those days named his collodion “Xyloiodide of silver,” and advertised it under that name. However, the use of iodide of silver was soon discontinued. For a long time iodides only were employed, and they are really the best when the pyrogallol developer is employed alone. It was only when iron, as a developer for negatives, became general that a bromide was used.

The iodides that were used were those of ammonium, potassium, and cadmium. Each of these has different characteristics. The first-named is fairly soluble in spirit, but when iodised with it soon changes in colour, and in a few

days becomes very slow in action. Iodide of potassium is more sparingly soluble in spirit, but the collodion iodised with it will keep longer than that iodised with ammonium; but after a week or two it also becomes dark and, like the other, very slow. In dull weather, or when very rapid exposures were necessary, it was customary to iodise only a small quantity and use it directly afterwards. Iodide of cadmium is far more soluble in spirit, and collodion iodised with it has much better keeping qualities than that iodised with either of the two first-named salts, but cadmium iodide has a tendency to interfere with the limpidity of the collodion, and make it more difficult to obtain a perfectly even film on the plate. Now, however, none of these salts are employed by themselves, but mixtures of them—usually ammonium and cadmium—with a certain proportion of a bromide, which greatly enhances the sensitiveness of the collodion for an iron developer, and, as a matter of fact, all modern collodions contain a bromide of one kind or other.

### The Plain Collodion.

The following is a good formula for general all-round work. It is given for a pint of the finished collodion, but it is better to make a larger quantity than this at a time, as it keeps good for a long while, if kept in well-stoppered bottles, or, preferably, in corked bottles, if the corks are of the best quality. The advantage of making up a good quantity at a time is that any undissolved particles of the pyroxyline have time to subside, and the clear portion can then be decanted as required for iodising:—

Pyroxyline .....	from 100 to 140 grs.
Sulphuric ether, sp.gr. .720 .....	10 ozs.
Alcohol, .805 (commercial absolute) .....	5 ozs.

Into a pint bottle put the alcohol, and then the pyroxyline, and well shake until the cotton is thoroughly saturated. Then add the ether. If the pyroxyline be added to the mixed ether and alcohol a glutinous mass will be formed, which is more difficult to get into solution. It will be noted that the proportion of pyroxyline is not very definitely given, for the reason that different samples vary as to the viscosity of the collodion they will give. Some give, with the same proportion of solvents, a thicker collodion than do others.

### The Bromo-Iodising Solution for Iron Development.

The proportions here given are for a pint of collodion; but, as with the plain collodion, it is best to prepare a larger quantity at a time, as, like the plain collodion, it keeps well.

Iodide of ammonium .....	45 grs.
Iodide of cadmium .....	45 grs.
Bromide of ammonium .....	20 grs.
Alcohol, .830 (S.V.R. of commerce) .....	5 ozs.

The best way of compounding the solutions is to put the salts in a clean and dry mortar, grind them together in the dry state, add the spirit an ounce or two at a time, and then pour off into a bottle as they are dissolved, finally rinsing out the mortar with the remaining spirit. One part of this iodiser is to be added to three parts of the plain collodion. After the addition, the bottle should be vigorously shaken for a minute or two. The collodion is best iodised some days, or a week or two, before it is required. It then works cleaner, and yields more vigorous negatives, than if it were employed directly after iodising. With this iodiser the collodion will remain in good working order for some months, if kept in well-stoppered bottles. Another formula, which is an excellent one for general work, is:—

Iodide of ammonium .....	40 grs.
Iodide of cadmium .....	40 grs.
Bromide of cadmium .....	20 grs.
Alcohol, sp.gr. .830, S.V.R. ....	5 ozs.

Collodion iodised according to this formula should be kept for a month before use, and will retain its sensitiveness for six months or more after iodising. It should be mentioned here

that the older the collodion, after iodising—within certain limits—the cleaner it works and the denser will be the image with the first development. On unduly long keeping the collodion yields films that are rotten, or pliable, and which are liable to break up in washing the negatives. They are also apt to become dissolved when the negatives are varnished, should the varnish be made with strong spirit. There are numerous other formulæ for iodising solutions, but the above may be taken as typical of the best of them.

#### Ready-made Collodion.

Although formulæ are given for making collodion—and these articles would not be complete without them—most workers in this country prefer to purchase it ready made, and the practice is one I strongly recommend to the beginner. There are not so many brands of collodion on the market now as there were when that process was the only one in vogue. But some of the oldest and most renowned manufacturers still make a feature of it—such as Mawson and Swan, R. W. Thomas

and Co., and the Autotype Company. They supply collodion specially made for different purposes—portrait negatives, positives, copying, photo-mechanical process, etc. The two named firms supply the collodion and iodiser in separate bottles; the last-named only send it out ready iodised, but that state it retains its good qualities for several months.

After many plates have been coated from the same bottle the collodion becomes thicker, and requires to be thinned. The ether is more volatile than the alcohol, it flies off in larger proportion than the spirit. Therefore, the thinning mixture should contain a larger proportion of the former than the latter; in the collodion as made there are equal parts of ether and alcohol, but these get altered as the collodion is used. The following are suitable proportions for the thinning mixture:—

Sulphuric ether, .720 .....	3 parts
Alcohol, .805 .....	2 parts
E. W. FOX	

## TANK DEVELOPMENT FOR PROFESSIONAL PORTRAITS.

[A record of experience which should interest the commercial photographer is contained in the following article from our New York contemporary, "Wilson's Photographic Magazine," which we publish with the comment that next week we shall give a contribution from one of our British practical workers, Mr. G. T. Harris, giving his own opinion of a similar process in landscape work.—Eds. "B. J. P."]

TANK development has come to stay. It may be a little long in reaching its full estate among both professionals and amateurs alike, but that it will eventually supersede all other methods of development in 99 per cent. of exposures is as sure and certain as was the march of the dry plate to almost universal use.

There must be a reason—several of them. As far as the professional maker of portraits is concerned the reasons are as follows:—

Tank development gives better negatives.

Tank development gives more of them (practically no failures).

Tank development saves time (which is money).

Tank development saves chemicals (which cost money).

Tank development saves labour (which costs money).

Tank development gets all there is in an exposure, out of it.

Can the tentative developer always be sure of that fact in his way of working?

Tank development puts it "up to" the operator with no possibility of his blaming the developer.

Tank development saves temper and promotes health, as it entirely does away with the necessity for long sittings in stuffy dark-rooms—bad in winter but a veritable Sheol in summer.

There is the case for this system of work. Now for the explanation and the proof.

Tank development is a very simple process. It consists in putting a number of plates together into a tank, in which vessel they are held in an upright position, and surrounding them with a weak solution of normal developer which is allowed to act for a certain interval at a certain temperature. The interval over, the plates are removed and fixed in the usual manner. That so simple a process can by any possibility be better than the old way of juggle, dabble, slop, and change from one tray to another, the skilled dark-room man will be loath to admit, but I am not making assertions only—I am stating facts proved and settled by the leading photographic chemists, the leading manufacturers of photographic goods, and the leading and most famous photographers the world over. The mere fact that the largest manufacturer of photographic goods in the world advises tank development should be convincing to anyone who will think, even if he cannot believe the chemists and the experimenters, for why should a manufacturer advise this process, if it would not give his customers better results? Presumably he is looking for money and success and satisfied patrons, like the rest of the fraternity.

#### The Weak Developer.

Any dark-room man of the old school will agree that a weak developer is the best in which to start an under-exposed negative.

He will agree that a weak developer cannot hurt an over-exposed negative. In tank development you have the weak solution. So the dark-room man will be satisfied. But he cannot, usually, see that an under-exposed and an over-exposed and a properly exposed plate should be left in the developer the same length of time. That is because he confuses the effects of exposure with development.

Exposure unalterably fixes the range of the tonal scale. In tank development exposure has been too short, the shadow detail is absent and the tonal scale is short and steep. If the exposure has been too long the shadow detail gets undue prominence, and the tonal scale is long and low. If the exposure has been right, the tonal scale is right. Development fixes the scale of the tonal scale—the distances, as it might be put. Exposure determines the proportions between high-light and shade, development the distance between the tones, in other words. To make this plainer, let us refer to the old simile, that of comparing development to a flight of steps. There are three steps. The lowest is shadow—the second half-tone—the third high-light. Each step is six inches higher than the one below it. This distance is determined by exposure. Now, if a carpenter comes along and makes the distance between each step twelve inches—there their relative proportions are the same—but the distance between each is greater. The carpenter is the developer. He has built on each step a different amount. He raised the second step six inches, to make it twelve, and he raised the third step twelve inches, to make it twelve above the second, and the first step he did not touch. That is prolonged development, which increases the contrast between tones in proportion to their exposure.

This being so—and the actual proof is watching a plate in the tank and seeing the lights come up first, the half-tones next, and the shadow last—it follows that all development does is to regulate the distance between the tones—the contrast of the negative. Incidentally, and only incidentally, the time of development regulates the density of the negative, which is an entirely different thing from its relative opacity.

#### Tank Development and Wrong Exposures

Now let us see how this works out in the tank. We will use three plates. The normal exposure on some subject—any subject—let us say, is five seconds. We give one plate one second, one plate two seconds, and one twenty-five seconds. We put them all in the tank with a certain developer at a certain temperature, and leave them a certain time, let us say half an hour. If we examine the plates at the end of ten minutes, we will see but little high-light detail might have been expected. The second, or correctly exposed plate is one-third through—all the detail is out, but it is thin. The first or over-exposed negative is already black. Now suppose we



these negatives, would any one be good? The first would be a light in an expanse of glass. The second, a normal negative, and developed, would be too thin to print. The third, over-exposed, would fix out, of course, with no contrast. None of them had enough carpentry!

At the end of the time when the normal negative is properly developed—at the half hour—if we fix all the plates, what do we get? Under-exposed plate has a good deal of contrast but some detail in shadows; the normal negative is normally developed, and over-exposed negative is very thick, but it has contrast. Printed in present condition or reduced it will give a passable print. Of the three negatives, you must admit, will give a better than the same ones would if taken out of the solution under-developed. But let us follow a third set through over-development, see if we can improve any of the negatives. Can you improve normal exposure by over-development? Of course not. Can you have an under-exposure by over-development? More emphatically, no. All over-development does for under-exposure is to the high-lights and give a soot and whitewash picture.

#### Over-Development for Over-Exposure.

When you improve an over-exposed negative by over-development? Why you never thought about it. Try it. We leave the plate an hour instead of half an hour. Compared with the half hour, normal development of the over-exposure, the prolonged development shows greater density and less contrast. It has begun to develop down the scale again—in other words, the high-lights have stopped developing (because they are completely out), the shadows, over exposed, have begun to build up to the high-lights, decreasing the contrast as the density increases. And at the end the negative is too thick to print from.

Can you, if you cannot improve a negative of either under or over exposure by under-development or by over-development, why is the case proved for a normal development for all kinds of cases?

#### Studio Requirements.

There is another side to this question which the amateur seldom sees. In the studio there are two classes of exposure—that of great contrast, when the head is against a dark ground, and less contrast, when a white drapery, for instance, is against a white ground. It is customary to develop these classes differently. Now, it has been suggested by any sensible person that all negatives of all classes can be developed in the formula of one man. Each man must adjust his own formula and time to what he wants in the studio—that once found, he can put all his negatives into his hands with the full assurance that he will get what he wants. If, on the other hand, you find that the tank development for both white and dark grounds gives you more or less contrast than you want, you must either alter the time of the developer or alter the exposure. It is a simple matter to adjust things so that the same developer for the same time will give you what you want in results from varying exposures. By results I mean prints. But as the time is so variable to make a print figures largely in your expense account, it is well that you had best compromise with two tanks, one for each class of negatives and one for another class, in order that relative density of the two sets will be similar, saving time and space in the printing room. This suggested compromise is made offering before the god of commercialism, and in no way contests the facts that the results—the prints—could be obtained from the negatives made in one tank, if you had the time to use thick negatives in the printing room.

#### A Pyro Formula and Rules for Practice.

Give the system a trial and you will discover its many advantages.

First, get a good tank. Do not use an old fixing box. A tank for 7 negatives can be obtained for two dollars.

Second, for a few days, make a sufficient number of duplicate exposures in the studio to allow the tank to be tested without hurting business if you make mistakes.

Third, make up this formula, fresh, and from dry chemicals, just as you want to use it, and not before:—

Sodium sulphite .....	90 grains.
Sodium carbonate .....	60 grains.
Pyro .....	30 grains.
Water .....	48 ounces.

This will probably take about 96 ounces (double the above) for one

5 by 7 tank—you can ascertain the exact measurement of your own particular tank and alter the amount proportionately.

Fourth, see that this solution is not more than 65 deg. F. in temperature, and if the room is at all warm make it 60 deg.

Now, in the dark-room, put the plates in the racks, with films facing in toward the centre. Insert the rack in the tank, which should be full of the solution, move up and down in the solution a few times, to break bubbles, put on the cover, turn up the light and take the time. Let it alone for twenty minutes. Pour off developer and fix. I imagine you will have a surprise.

But as I do not know what plates you use, how you like your negatives, or the conditions under which they were made, I do not pretend to say that this particular tankful will suit you as well as your own formula. I would suggest, after you have done this, that you take your own formula, as usual, and develop a plate, as usual, taking the time. Then dilute it enough to fill the tank, multiplying the time of development by the amount of dilution. But do not expect too small a quantity of solution to do too much work. Strange though it may seem, 60 grains of pyro will develop a dozen 5 by 7 plates, but do not use less. In other words, do not dilute your own solution more than to the proportions of pyro per ounce given—1 grain to 1½ ounces of water.

Adjust your tank development in this way—increasing the time—or decreasing it, as you want more or less contrast. Do not alter formulas until you have done all you can by altering time. Once adjusted so you get what you like—stick to it, until you are thoroughly familiar with the process—then try experiments if you wish.

#### Points in Economy.

Now as to the saving of chemicals—with 1 ounce of pyro, 2 of carbonate of soda, and 3 of sulphite, you can develop ninety-six 5 by 7 plates. Compare that with your usual chemical output. It takes you half an hour to the dozen in the tank—and you can work as many tanks as you want at the same time. Your total time in the dark-room is the time it takes you to load the tank and put on the cover.

That it gives better negatives in the long run you can prove for yourself, as I and hundreds of others have proved. That it gives more of them, since you have no failures not due to exposure, is obvious. That it saves time is self-evident. You could, with eight tanks, develop ninety-six plates in an hour. Try to do that with a tray! That it saves chemicals I have shown above. That it saves labour is also easily seen—if one man can develop a hundred plates in one hour, where it formerly took him half the night, it is obvious his spare time can be spent in doing something else. That it gets all out of a negative the exposure puts in, is certain—see the opening argument about over and under developing any sort of an exposure. It puts the success or failures up to the operators, because, if all plates are developed the same way in the same solution at the same time and at the same temperature, and he gets a good result to-day and a poor to-morrow, obviously the fault is elsewhere than in the dark-room. It removes, in other words, one set of personal equations from a profession that is too full of them.

The American idea is always for the "square deal." Do not, as I said before, use a grooved fixing box and call it a tank—you will get into trouble one way or another sure. Do not use your own formula first—use mine first and then yours. If yours is not as good as mine in the results it gives, you will then know it is the formula. If you use yours first and get poor results, you will not know it—you will blame the tank. This is no diatribe against your formula—it may be the best in the world but unsuited for tank work.

Do not look at the plates while they are developing. One of the beauties of this process is the absolutely clean, clear negatives it gives, and looking at plates in a red light is not conducive to this absolute lack of fog.

Now, just to put you in a good humour as we close, I want to confess that I am a convert to this system within the last two or three years. A professional portrait-taker who stands very high came recently to me with a long face, a tale of a sick dark-room man, and a box of plates. "Would I help him out and develop these? He was sure they would be done to perfection." They were. I did them in a tank. Later he raved over my supposed skill to his partner, and wished he knew how they were done.

C. H. CLAUDY.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between June 17 and June 22:—

**PLATES.**—No. 13,957. Means for the daylight loading and unloading of photographic sensitised plates. Rupert Richard Allen, 18, Southampton Buildings, London.

**CINEMATOGRAPHS.**—No. 14,058. Improvements in cinematograph projectors, cameras, and like machines. Ernest Francis Moy and Percy Henry Bastie, Greenland Place, Camden Town, London.

**PLATES.**—No. 14,110. Improvements in and relating to means for developing photographic plates, films, and the like. Percy Albert Craven, 11, Maiden Lane, London.

**APPARATUS.**—No. 14,122. Improvements in photographic apparatus. David L. Morris, 209, High Street, Swansea.

**CINEMATOGRAPHS.**—No. 14,422. Improvements in or relating to cinematographs and the like. Arnold Thackhall-Browett, 18, Hertford Street, Coventry.

**PETITION FOR EXTENSION OF PATENT.**—In the matter of letters patent granted to William Friese-Green, of 203A, Western Road, Brighton, in the county of Sussex, photographer, and bearing the date of November 29, 1893, and No. 22,954. Notice is hereby given, that it is the intention of the said William Friese-Green, as inventor and patentee of the above patent, to present a petition to His Majesty's Lords of the Privy Council, praying that the term of the said Letters Patent may be extended. Notice is hereby given, that on the 17th day of July, 1907, or on such subsequent date as His Majesty's Judicial Committee may fix for hearing the matter of the said petitioner, any person or persons desirous of being heard in opposing the said petition must enter a caveat to that effect in the Privy Council Office on or before the 17th day of July next. Dated this 7th day of June, 1907. William Friese-Green, 203A, Western Road, Brighton.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**STEREOSCOPIC ATTACHMENT FOR CAMERAS.**—No. 5,267, 1906.—This invention relates to the improvements in the method of and apparatus for taking stereoscopic photographs, and more especially to that type of apparatus in which an arrangement of mirrors is set in front of the objective of a camera in such a manner that two views are projected on the screen at the correct distance apart for stereoscopic effect.

Now this invention provides, in combination with the mirrors in front of the lens, rests, stops, scales, or the like, whereby the mirrors can without trial be held or adjusted in correct position for production of the double stereoscopic picture in a camera of given type.

When a plane mirror is placed in front of the objective of a photographic camera in the direction of its optical axis there will appear on the ground glass of the camera a picture of the reflected view visible in the mirror from the centre of the camera objective, the size of this picture depending on the dimensions of the apparatus and on the size, position, and distance of the mirror. It is in practice generally sufficient to consider only the special case in which the plane of the mirror is vertical, the axis of the camera being horizontal, each incident and reflected ray lying in this case in the same horizontal plane; the simplest case being that in which the mirror is inclined at 45 deg. to the optical axis, so that every horizontal ray incident on the mirror in a direction at right angles to this axis is reflected in a direction parallel to the axis. In this case a horizontal ray incident on the mirror at its point of intersection with the optical axis will be reflected along its axis, passing through the centre of the objective and producing an image point at the centre of the ground glass. If now the inclination of the vertical mirror to the optical axis be varied, this image point will be correspondingly deflected horizontally to the right or left of its former central

position on the ground glass. Now the determination of constant elements already referred to is mainly based on a well-known optical principle also involved in the construction of the quadrant and sextant, that when a ray or a sheaf of rays is incident on a plane mirror, and this mirror is inclined through a certain angle about an axis at right angles to the plane of an incident and its reflected ray, the reflected sheaf of parallel rays is thereby caused to rotate through an angle double that through which the mirror has been revolved.

The principles stated in the above paragraph are mathematically proved, and various figures given showing the necessary arrangements of mirrors and lens. Bug-Gesellschaft, m. n. 4, Am Zirkus, Berlin, Germany, and Gustav Barnack, Brauerstrasse, Gross-Lichterfelde, Germany.

**DAYLIGHT LOADING DEVICE.**—No. 13,038, 1906. The present invention relates to improvements in devices for loading photographic cameras with plates, films, or the like in daylight, and particularly to those devices in which the plates or carriers are not transferred to a storage compartment after exposure, the object being to prevent the entry of light to the plate or film in its receptacle after the exposure has been made, due to the slide being imperfectly light-proof when replaced. According to this invention, it is proposed to provide a light-proof carrier for the sensitised plate or the like, with a back

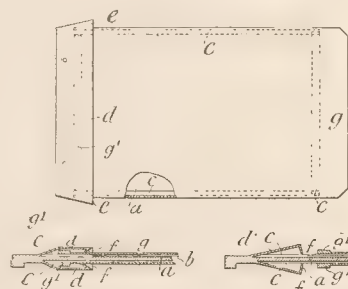


Fig. 2.

Fig. 3.

support for the plate, such backing being provided at the top and on both sides with pieces adapted to be folded round the film in order to hold same, and at its lower part with a double fold or flap having flexible lips or bends so that a light-tight joint is formed by the lower edges of the slide intruded between

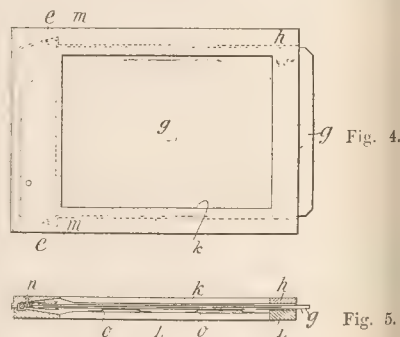


Fig. 4.

Fig. 5.

the bends or lips of the flaps and the backing. The lower edges of the slide are formed with transverse ribs adapted, on withdrawal of the slide for exposure, to engage the flexible lips of the flaps and draw them into a position almost at right angles to the back of the slide thereby holding the flaps open to again admit the ribs or bends of the slide after exposure. The backing is provided, at the end at which the flaps are located, with inclined lateral projections adapted to co-operate with the correspondingly shaped grooves or recesses in the exposure frame for the purpose of guiding the carrier correctly to, and then retaining it in, its



Fig. 1 is an elevation of a carrier embodying the features of the invention. Fig. 2 is a longitudinal section of the lower part thereof, on a larger scale with the film or plate in place. Fig. 3 is a similar section, showing the parts in a different position. Fig. 4 shows the exposure frame with the carrier in place and Fig. 5 is a longitudinal section of same. *a* is the backing on which the film, plate, or the like *b* is placed and is retained in place by folded-down narrow strips or lugs *c* at the upper end and the sides of the backing which form a part of same. At the lower part of the backing are arranged two flaps or leaves, *d*, *d*, one on each side of the backing, which extend laterally beyond the edges of same to form the projections *e*. The open edges of the flaps *d* are provided with turned-in lips or flanges *f*, *f*, adapted to lie in contact with the slide *g* on both sides thereof, and close the same in a light-proof manner while the slide is in place; but on the withdrawal of the slide the lips *f* will assume a position approximately at right angles to the backing *a*, and will thereby hold the flaps open in readiness for the re-introduction of the slide. Fig. 2 shows the flap *d* closed, and Fig. 3 shows them open. *g*<sup>1</sup>, *g*<sup>2</sup>, are transverse ribs on the lower edge of the slide which abut against the lips *f* on entering or leaving the flaps and cause the latter to close or open. The slide *g* is formed as a casing of paper or other light material adapted to entirely surround and enclose the backing *a* when in the position shown in Fig. 1.

Figs. 4 and 5 show how the carrier is secured in place in the exposure frame, which latter consists of two parts or leaves, *h* and *i*, having opening, *k* and *l*, respectively. This exposure frame has the important advantage that it allows the picture to be focussed through two apertures by the insertion of a ground glass plate, it being of course understood that the apertures *k* and *l* correspond in size with the picture. Such a frame, serving the double purpose of exposure and focussing device, may be termed an adapter. Emil Wünsche Aktiengesellschaft für Photographische Industrie, of Reick, near Dresden, Germany.

## New Trade Dames.

BERLIN.—292,747. Pictorial Postcards. The firm trading as the Bradford Pictorial Postcard Co., 72, Thornton Road, Bradford, Yorks; manufacturers. May 6, 1907.

ROGRAPH.—No. 292,947. A bromide of silver photographic pigment paper. The Rotary Photographic Co., Ltd., registered office, 12, New Union Street, Moorfields, London, E.C.; manufacturers. May 13, 1907.

ONA.—No. 292,948. A Self-toning Photographic Printing-out Paper. The Rotary Photographic Co., Ltd., registered office, 12, New Union Street, Moorfields, London, E.C.; manufacturers. May 13, 1907.

NOTHER ADDLED EGG.—The "Magpie" is again in trouble. In week's issue of the "Amateur Photographer" he says: "The meeting of the R.P.S. before the long vacation has been held; 'Blenheim' is also 'estivating,' and a good many of the notable names in the photographic world are absent holiday-making. The cats are away the mice take good care to play, as I am reminded by the fact that the genial editor of the 'B.J.P.' being on Continent, his *locum tenens* has taken the opportunity of airing exquisite courtesy and still more irreproachable spelling. It has well said that the blame of some individuals is more creditable is the praise of the rest of mankind. I certainly think that a keen technician as is the individual referred to cannot find anything more serious to complain of than an absurdly trifling variation in the spelling of a man's name, there must be far more the average of absolute accuracy in my chatter than is met in the rest of the photographic Press, not excluding my amiable friend's own writings, many of which I have before now found to be with errors." What a pity it is that this sore and bedraggled does not make a little more sure of his facts. His statement of the *locum tenens* taking any opportunity to do anything in the way of the crime referred to in particular is, in parliamentary terminology, a terminological inexactitude. The clumsy attempt to put up his painful ignorance of the whole subject of the "Perkins phenomenon" by calling it "an absurdly trifling variation in the spelling of a man's name" is worthy of the high reputation of this poor

## Analecta.

Extracts from our English weekly and monthly contemporaries.

### Portraiture at Home.

The expression in portraiture (writes Mr. E. T. Holding in "The Photographic News") is a very important thing, and it is necessary that it should not be unusual or exceptional; for instance, one does not want a sitter in a portrait studio to be gazing heavenward. The unæsthetic lines of a man's dress do not always lend themselves agreeably to the prominence afforded by a light background, and one is fortunate indeed if one can secure a garment, built on broad and flowing lines, and masking a somewhat unpicturesque jacket. One should always exercise a censorship upon the clothes of one's friends before attempting to perpetuate them by photography, and, where necessary, substitute a garment that will lend itself to pictorial treatment for the one of everyday wear. Where the sitter does not lend himself to the graceful and idealistic sort of arrangement I have aimed at here, something frankly characteristic may be attempted. One portrait negative I recently made revealed what I had for a moment regarded as the unfortunate fact that I had omitted the top of my sister's cranium. This was, however, after a visit to a recent exhibition of portraiture, discovered to be quite as it should be, and was in reality a demonstration of that fact, discovered in America, that a part is greater than the whole. I thus found myself, as it were, on the very crest of the wave of modern photographic portraiture. Encouraged by this inadvertent triumph, I carried the principle further, omitting still more of the top, and all of the back of his head. Whether this reaches finality I hardly know, but much can be done with a trimming knife.

### The Dixio Method of Stereoscopy.

In a description of the new method of Dixio stereoscopy, in "The Photographic Monthly," the chief advantages are stated to be: (1) That any sized picture (even to several feet in diameter) may be easily seen in stereoscopic relief; (2) that it is equally applicable for prints or transparencies (positive or negative), which is an immense advantage for medical and surgical radiographers, and others who wish to "read" large negatives; (3) (arising out of 1), that the necessity for fine smooth surface and strong illumination is removed, as there is no need for a lens to magnify the picture, which makes rough texture offensive in the old stereoscopes; (4) that there is no eye strain. Many people who cannot see relief at all in the old-fashioned stereoscopes see it at once by Professor Pigcon's method. The new system, briefly, consists of using two pictures of the same subject, made from separated view-points, and one of them reversed as regards right and left. To view them a special stereoscope, somewhat like the two backs and one stiff leaf of an album, is used. Near the outer edge of the leaf is a small piece of optically worked mirror glass, and when the views are in place one eye looks directly at one print while the other sees the second print reflected in the mirror. If the prints are properly placed (the Dixio stereoscope provides for this), the image is instantly and brilliantly seen; and the first view of a 7 x 5, or large stereoscopic subject, is usually a revelation and a delight even to those who are familiar with ordinary stereoscopy.

### Ozobrome from P.O.P. Prints.

Ozobrome (writes Mr. Ernest Elder in "Photography") may be obtained, both by the "transfer" and "non-transfer" methods from P.O.P. prints—(1) unfixed, (2) fixed, (3) unfixed (gelatine), self-toning P.O.P. In the first case, that of the unfixed print, the P.O.P. print after removal from the printing frame is thoroughly washed to remove the free silver, and then, after being hardened by immersion for five minutes in 10 per cent. formaline, is washed for fifteen minutes. There is not much advantage to be gained by using unfixed prints for the transfer method, because in such a case it is not possible to re-develop the bleached image to its original state. But it is preferable to use unfixed prints for the non-transfer method, and to clear away the partly bleached image with Farmer's reducer. Prints to be fixed should be printed deeply, fixed in a hardening and fixing bath, composed of: Water, 20 ounces; hypo, 3 ounces; potassium metabisulphite,  $\frac{1}{2}$  ounce; chrome alum,  $\frac{1}{2}$  ounce; and then thoroughly washed to remove all the hypo. These fixed prints are equally suitable for either the transfer or non-transfer method. If used for the latter method, the partly bleached image may be removed by Farmer's reducer, or it may be re-developed and toned. Rodinal and metol-hydroquinone are very suitable developers for the purpose. After fifteen minutes' washing the print may be toned in a bath composed

of 20 per cent. solution of sodium sulphide 3 drops, water 1 ounce. In the case of weak oxobromes, this toning of the underlying image greatly adds to the richness of the finished print.

### Shadows.

The sun, in his capacity of shadow-thrower (writes Mr. Will. A. Cadby in "The Amateur Photographer"), can be of service to the photographer. Often a view that has for some particular reason to be taken will be lifeless and dull without shadows, or a part of it may appear too blank a space, and require breaking up. In such cases, if we look out to choose the right hour of the day, shadows may be made to supply a real want, and will improve considerably, and sometimes even add decorative value to, our print. Obviously, early morning and late evening are the times when shadows are most likely to be useful, for then they are long and usually more graceful and inclined to idealise the subject that throws them. But shadows can take an even more prominent and important position still. They may be made the chief subject in, and the whole reason of our picture, if we are content to devote ourselves to delicate bits of drawing. I remember once in the mountains seeing a sketch-like form depicted in shadow against a big, slanting rock. On looking for the original I found it was the most ordinary bit of underwood, but the rock sloped away from the branch, distorting it somewhat, and giving it almost the look of a Japanese drawing, suggesting quite a conventional and decorative study, that the poor little model, blowing in the wind, and defying my camera, was, when looked at in real life, quite incapable of impersonating. The forms of shadows cast by trees are most varied. They range from the fine tracery of thin branches to the bold outlines of the great trunks. Besides which, there are all sorts of other objects that cast shadows which will well repay attention. The possibilities of shadow work are almost unlimited. One shadow will go on altering its shape right through the day, and if we have the time and patience we can wait until it appears just as we wish.

### Hand Camera Work.

As many of the lenses on the cheaper cameras (writes Mr. G. A. Fowkes, in "Focus") do not work at very large apertures, it will be necessary to use fairly rapid plates, and isochromatic plates will frequently be of service, and never be a disadvantage. It is always safer to have them backed, as one never knows exactly what class of subjects may be met with, and when working against the light, or when there are bright clouds about, the improvement effected by their use is very marked. On open subjects, in bright light, with short exposures, it is sometimes possible to use a pale isochromatic screen to advantage, whilst when photographing on glaciers in Switzerland, or sea and sky subjects in summer, it is almost impossible to under-expose, and a fairly deep screen may be used with safety. When a reflex camera is not used, and it is not possible to focus the subject on a screen, particular attention should be paid to the lighting of the scene, as it is not easy to judge the effect when a small brilliant finder is used. When the light comes directly from behind a very flat picture will be the result. It is better to have a side lighting, whilst a front lighting is very effective with some subjects, and especially when the sun is setting. In the latter case it will be necessary to shade the lens from the direct rays of the sun, and this can be done by holding a piece of cardboard slightly above the camera, care being taken that it does not cut off any of the picture. A proper sky shade is a very useful adjunct to the outfit, and one can easily be constructed out of a cardboard tube, which will just slide on to the lens hood. The tube need not be more than about two inches in length, and it should be blackened with a non-shiny satin.

THE HALIFAX PHOTOGRAPHIC COMPANY ask us to announce that their printing and enlarging department is open to receive orders from amateurs as well as professionals, as it is not restricted to trade work. If any of our readers have not yet applied for a copy of the firm's "Art Cyclopædia," they would do well to do so without delay, as the issue is now nearly exhausted.

THE HACKNEY PHOTOGRAPHIC SOCIETY, which for so many years has held its meetings at the Pembury Hotel, has now changed its headquarters, and will in future meet in the board-room, Hackney Baths, N.E. The official opening is fixed for July 9, at 8 p.m., when the members will be glad to see any gentleman living in the district.

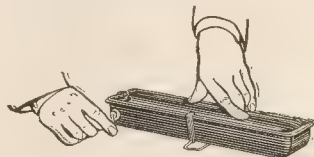
## Dew Apparatus, &c.

A Cutting Shape Holder. Sold by Sichel and Co., 52, Bun Row, E.C.

This little device consists of a desk with metal top and a spring block, under which the paper and cutting shape may be placed firmly gripped, for the cutting down of the prints. It is an ingenious and practical device, which will be found of considerable benefit in the printing-room, as it entirely obviates any slipping of the paper or cutting shape. Price 6s.

The Brownie Daylight Developing Box. Made by Kodak, Limited, 34, Clerkenwell Road, E.C.

The users of Brownie cameras will welcome this simple little device, as it will enable them to develop their films in daylight. It is simply a light-tight metal box provided with a pair of rollers actuated by an external crank, by which, while one end of the film is held at one end of the box the rest is unwound, passed round a roller at the other end of the box, and so back to the starting point. The film thus makes a single loop in the box, the sensitive surface making no contact with any part of the mechanism, so that the developer, which is poured in before the film is unwound, reaches every part of the film without hindrance.

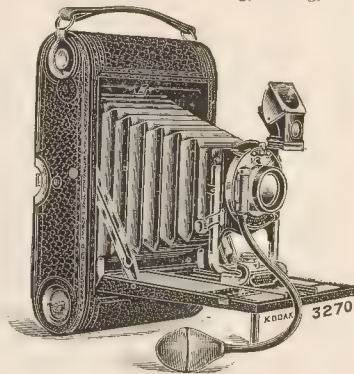


The box is provided with a rocking standard, and the operator has simply to rock it on this for six minutes. The developer is then poured off, and the film is rinsed and removed to the fixing bath, the whole of the operations being carried out in daylight.

The box takes the ordinary Brownie tank developing powder, which, dissolved in the necessary quantity of water, gives a developer which fully develops the film in the stated time of six minutes. The price of this is 5s.

A New Folding Pocket Kodak. Made by Kodak, Limited, 34, Clerkenwell Road, E.C.

This camera is designed for 5 x 4 pictures. It is fitted with rapid rectilinear with iris diaphragm, and the F.P.K. automatic shutter, giving time, bulb, and instantaneous exposures with trigger or pneumatic release. It has also rising, falling, and cross frame



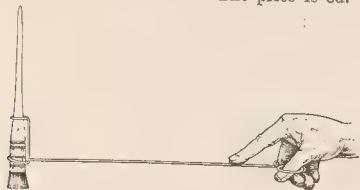
brilliant reversible finder, and the automatic focussing device which upon an indicator being set for a given distance, checks the focus as soon as it reaches the proper extension. The new Kodak takes the daylight loading spool used with the No. 4 Screen Focus Kodak. The workmanship and finish is naturally of the same high class as all the other cameras of this make. The price is £4 10s.

A Spring Handle. T. T. Griffin and Sons, Limited, Kingsway, London, W.C.

Messrs. Griffin and Sons send us a sample of a very simple spring



ndle for holding the brush for the Rawlins oil printing processes, which considerably facilitates the "hopping" process, which seems to be so necessary for some effects in this work. The method of using this is shown in the illustration. The price is 6d.

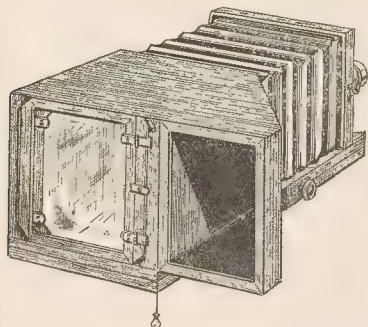


They also inform us that they have now ready burnt umber and ochrean red pigments, in addition to the black, so that a much wider range of tints is now available. Other colours are also shortly to be introduced.

Messrs. Griffin are also putting out trial outfits for this process at the following prices:  $\frac{1}{4}$ -pl., 3s. 6d.;  $5 \times 4$ , 4s.; and  $\frac{1}{2}$ -pl., 4s. 6d. These outfits will comprise one packet oil pigment paper, one tube of pigment, one No. 2 size brush, one palette, knife, six pieces of specially prepared blotters, and one copy of the instructions.

The Tress "Studio" Reflex Camera. Made by the Tress Company, 42, Oxford Street, London, W.

This camera, which is specially intended for studio work, comprises a most distinctly novel idea. The reflector is at the side of the camera, so that the camera may be used on a stand of any height. The reflector



is of square form, so that it can be used both for vertical and horizontal pictures. The camera is fitted with a reversing back, swing rising front, and the use of a focussing cloth or shutter is entirely omitted, as the reflected image can be seen even in a bright light, the exposure can be made by swinging the mirror out of the way and letting it fly back.

The idea embodied in this is excellent, and it should be of considerable use in the photographing of children, etc., in which it is desirable to watch the image which will be thrown on the plate, so as to get a good pose. Fitted with one dark slide and an extension of 4 inches, the price for half-plate size is £3 17s. 6d.

## New Materials.

Imperial N.F. (non-filter) Orthochromatic plates. Made by the Imperial Dry Plate Co., Ltd., Cricklewood, London, N.W. In reviewing this introduction of the Imperial Co., which we now know after some considerable use of the new plates, it may be well to refer to the company's presentation of an orthochromatic plate dispensing with a light-filter, to say that such an introduction is, of course, by no means impossible. It seems almost needless to make some statement, because so much has been said in the past about the foolishness of using orthochromatic plates without a correcting and adjusted yellow filter, that the idea may be fixed itself in the mind of some that such advice was pernicious, whereas, of course, it only applies to things as they exist or

have recently existed. The production of a plate which, without any filter, shall give precisely as good colour-rendering as the most perfectly adjusted plate and filter at present is merely a technical problem of producing a suitable emulsion or of combining the screen in some way with the plate itself. A most difficult problem, we admit, but yet one which no one believes to be incapable of solution. We can, therefore, approach the announcement of the Imperial Co. free from any bias, born of the undigested pronouncements on current practice.

We are bound to admit that in the new N.F. plate the degree of yellow-sensitiveness imparted to the plate is raised to a point which we have never found before in a commercial plate. We have no occasion to inquire how this effect is obtained, though it would seem that it is produced by a screening action of a dye in the film itself, a self-contained light-filter which during development and fixation washes out of the plate and leaves it clean and free from stain of any kind whatever. We wish to emphasise this point because we have come across dyed plates which required somewhat more than the ordinary treatment to rid them of colour.

In speed the N.F. plate does not profess to rival its brother, the "Imperial" Special-Sensitive "Orthochrome," but it is nevertheless of such sensitiveness that snap-shot exposures running to 1-25th of a second at a lens aperture of  $f/6$  have given us well-exposed negatives of portrait subjects using the "Imperial" pyro metol developer in the ordinary way.

One point we should not omit to mention, and that is the notable freedom from halation of the negatives, a result apparently of the screening action of the dye in the plate. This may or may not be the case, but the general conclusion from a use of the plates must be that in them the Imperial Company have given photographers a plate in which an excellent rendering may be obtained without any screen, a statement which leads to the obvious corollary that in using a screen for subjects of great range of colours in which the highest degree of correction is required the increase in exposure will be very much less than with a less orthochromatic plate.

The following are the results of measurements of the plate made by Dr. S. E. Sheppard:—

Inertia (to screened acetylene and with H. and D. pyro-soda) .35  
 $\infty$  (measuring the density-giving power of the plate) 2.62 K (velocity constant of development with standard ferrous oxalate at 20 deg. C.) .070.

$\gamma_1$  (time to reach a gamma of 1 in standard developer) 5.4 mins.

X (blue-sensitiveness—yellow-sensitiveness equals 1.1.

Like the "Imperial" Special-Sensitive "Orthochrome" plates, the "Non-filters" are sold at the popular prices of 1s. per dozen quarter-plates.

"Lotos" Stripping Film for Collodion Negatives. Made by Mawson and Swan, Newcastle-on-Tyne.

Referring to our paragraph in the review of Mr. Arthur Payne's book last week on his new process of stripping collodion negatives, we have now practically tried this and find it works exactly as described. It is recommended to use a talced glass for coating the plate when making the negative in the first place, but we have found the collodion strip, even without taking this precaution, the glass being merely well cleaned and rubber edged. For many purposes these stripping films will be most useful, as it will enable the negative to be printed either as a reversed negative or not, so that one can make a silver print or a carbon print at will from the same negative without any further trouble, and they will also be found extremely useful in photomechanical processes, such as photogravure and collotype, and processes where reversed negatives are essential. The film appears to consist of flexible gelatine, and answers in every respect the same as a negative coated with liquid gelatine on a levelling slab, which is a process requiring some amount of skill to do satisfactorily. It is recommended after the film is dried on the negative to coat with plain collodion, and this is certainly a sensible precaution, as it will prevent moisture from attacking the film, and it will therefore not be so liable to get finger-marked, as if left without any protection; although, with careful use, there is no reason why the negative should not be thoroughly serviceable without this. The films will be sold in two sizes,  $15 \times 10$  at 3s. 6d. per dozen and 2s. per half-dozen sheets; and  $15 \times 20$  at 6s. 6d. and 3s. 6d. per dozen and half-dozen sheets.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JULY 6.

Borough Polytechnic Photographic Society. Outing to Strand-on-the-Green.  
North London Photographic Society. Outing to South Mimms.  
Bowes Park and District Photographic Society. Outing to Ware.  
Bristol Photographic Club. Outing to Shirehampton.  
Southampton Camera Club. Launch Trip up the Beaulieu River.  
Worthing Camera Club. Outing to Amberley and the Arun.  
Hull Photographic Society. Outing to Hawden.  
North Middlesex Photographic Society. "Record" Outing.

MONDAY, JULY 8.

Everton Camera Club. Evening at Docks.  
Southampton Camera Club. "Trimming, Mounting, and Finishing the Print."  
W. K. Kay.  
Bradford Photographic Society. "Discussion on Negatives." F. Nicholson.

TUESDAY, JULY 9.

Hackney Photographic Society. Formal Opening of the New Headquarters.  
Address by the President, followed by a Display of Members' Work.

WEDNESDAY, JULY 10.

Rugby Photographic Society. Outing to Charwelton and Badby.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Annual general meeting, June 27, 1907, Mr. T. E. Freshwater in the chair. The hon. secretary's report, which showed a slight fall in membership, was confirmed, as was the hon. treasurer's balance-sheet. The following lectures, among others, were named in the report:—"Madeira Up-to-date," A. L. Henderson; "A Scientific Chat," A. Haddon; "Photographic Notes," T. E. Freshwater; "Here and There in Great Britain," J. T. French; "Rendering of Colour and Colour Contrasts," Dr. C. E. K. Mees; "Through Holland," F. Slater; "Bathed Plates and Ortho Work to Date," A. J. Bull; "Improved Process of Development," D. W. Hart; "Colour Printing," O. S. Dawson; "Dry Plate Lantern Slides," J. S. Teape; "Wet Plate Lantern Slides," H. C. Rapson; "Modern Printing Processes," Archer Clarke; "Selection of Apparatus," Ernest Human; "Stand Camera Work," H. C. Rapson; "Carbon Printing," Ernest Human; "Gum Bi," H. Stuart; "If," Ernest Human; and "A Chat on 'Colour Photography,'" W. T. Wilkinson. The following were elected officers for the year:—Trustees, Messrs. Freshwater and Haddon; committee, Messrs. R. Beckett, J. T. French, A. E. Smith, J. S. Teape, H. C. Rapson, W. R. Stretton, W. G. Holman, W. Thomas; hon. lanternist, Mr. G. T. Wright; hon. librarian, Mr. W. J. Ferry; hon. secretary, treasurer, and recorder, Mr. Ernest Human. We may note that the last-named gentleman's address, to which all communications should be addressed, is 43, Whitta Road, Manor Park, Essex.

## Commercial & Legal Intelligence.

SUNDAY TRADING.—At the Cleethorpes County Police Court last week, before the Rev. Canon Quirk (chairman) and other magistrates, an interesting case under the Sunday Observance Act was heard. The defendant was John Hawkey, photographer, who was summoned for following his ordinary occupation on Sunday, the 16th ult.

Mr. Barker appeared for the defendant, and pleaded not guilty.

Deputy Chief Constable Stennett said that the defendant was a photographer, and occupied a shop in Cleethorpes. He had not for some years opened his shop on Sunday, but he had resumed opening and came there to test the case. When the inspector waited upon him he raised two points. One was that on week days he took photographs himself, but on Sundays his wife did that, so that he did not follow his ordinary calling. Therefore he thought he was not liable. His second point was that he was an artist and did not come under the jurisdiction of the Act.

Inspector Sindall said that on the 16th ult. he saw defendant against his studio and calling out the prices. He saw people going in and out, and he went up to him and said that he saw he was carrying on his business as usual. Defendant said, "Oh, no, not as usual; my wife is manipulating the camera and taking the money, and I am simply calling the prices. I am not carrying on my ordinary

calling. You cannot proceed against my wife, because she is a housewife." He was doing the same as he did on ordinary days in touting for custom.

Mr. Barker submitted that there was no case against his client, he simply stood at the door and invited people in; he took no photographs and did not follow his ordinary calling, which was that of an artist. He read the opinion given in the legal columns of a newspaper, which was to the effect that if a man took a photograph on a Sunday he sold it on the same day he made himself liable, but if he merely took the photograph and sold it during the following week he was an artist, and was outside the statute, and could not be summoned. He submitted that as his client had not taken a photo, or manipulated the camera in any way he could not be said to be following his ordinary calling. He was not summoned for touting, which could not be called his ordinary calling. His client was quite frank about the matter, he wanted to evade the Act. His points were, first, that he was not following his ordinary calling; and secondly, that he was not a tradesman within the meaning of the Act.

Defendant was then called, and said that he ought not to be classed as a tradesman; he was an artist. All he did on a Sunday was open his studio, and stand on the doorstep and invite people to have their photos taken. He took no part in manipulating the camera, posing, developing, and in no way followed his ordinary calling.

The Chairman said that Mr. Barker had fought his case very ably and had raised every possible point, but the unanimous opinion of the Bench was against him, and there would have to be a conviction. Defendant would have to pay 5s. and 5s. 6d. costs.

A PHOTOGRAPHIC METER ACTION.—At the Wrexham County Court last week, his Honour, Judge Moss, heard a claim for £52 10s. brought by the Infalible Exposure Meter Company (of which Mr. G. F. Wynne is managing director, as well as the inventor and patentee of the "infalible" exposure meter, against Messrs. Woodall and Parkinson, Lever Street, Manchester, with Messrs. Stahlecker, of Finsbury, London, as a third party.

Mr. Graham, barrister, appeared for the plaintiff; Mr. F. Brocklehurst was for the defendants; and Mr. Louis Green represented the third party.

The claim was for damages for breach of contract for the sale and delivery of 20,000 meter cases, and the number of cases in respect of which the claim was made totalled 2,103. The sale was by sample and the damages were claimed because the goods when delivered were not equal to sample, and were utterly useless for the purpose for which they were supplied. The plaintiffs are proprietors of a patent which they called the Infalible Exposure Meter, an article, like a watch, which enables a photographer, by turning a dial and watching the effect upon a fine, sensitive paper, to tell what exposure he should give in photographing an object under varying conditions of actinic light. The plaintiff's case further was that the meters claimed for were defective, either as regards loose pendants, which came off with ordinary pressure, loose snaps, or dints in the metal. The dial, sensitive paper, and other fittings were inserted in the case at the plaintiffs' works at Wrexham. A considerable number of these alleged defective cases, though not quite so bad as the others which were withheld from the market, were sold to customers, but in most cases were returned as useless. The models were of German silver, and plaintiffs expected the goods supplied by the defendants to be of the same metal. As a matter of fact, however, the plaintiffs alleged that they were all made of brass nickelled over, so that the difference could not be detected.

The defendants' case was that they gave the order for the manufacture of the cases to Stahlecker's Agency, who were the third party to the action, and, without examining the goods in any way, relied upon Stahlecker to supply a useful and durable article. Cross-examination on behalf of Stahlecker's was directed to show that Messrs. Woodall and Parkinson, without plaintiffs' knowledge, agreed to the substitution of brass for German silver. The further hearing was adjourned.

SUNDAY TRADING.—Charles Brooks, photographer, of 506, Mile End Road, London, was summoned for opening a booth on Midsummer Common, Cambridge, for business on Sunday, June 23.—Police Sergeant Free said he saw some lads in the act of being photographed by the defendant in his booth on Sunday. The door of the booth was secured. Defendant told witness that he took the young men's photographs on the previous day, but, as they did not come out right, he



king them again without charging for them.—Detective-at Marsh said the defendant asked him to have his photograph on the Sunday in question.—A young man, named Arthur Kent, Gold Street, said he was going to have his photograph taken the constable went in. Witness did not have his photograph the day before.—Defendant, who said he was in the habit of his booth on Sunday, was fined 2s. 6d. and costs, 11s. 6d.

INGEMENT OF COPYRIGHT.—At Carlisle Assizes last week a of infringement of photographic copyright was brought by ick Nainly, photographer, against Messrs. Beaty, printers, s. No penalties were claimed by the plaintiff, who only sought es, and judgment was given in his favour to the amount of £5.

#### NEW COMPANIES.

ROME.—June 22. £25,000 (£1). To adopt an agreement with nly and to carry on the business of manufacturers of, and in, photographic apparatus and materials, etc. No initial issue. First directors (not less than two nor more than seven) ppointed by signatories. 100 shares. Five per cent. of profits, e.

RS. CHARLES ZIMMERMANN and Co., of 9 and 10, St. Mary-at-ondon, E.C., inform us that they have formed their photo-department into a limited liability company, under the title res Zimmermann and Co. (Photographic), Ltd. The new y takes over all the agencies, contracts, and business of the ment, but the liabilities and assets up to June 29 remain with ere is no issue of shares to the public. There are no debent-All the staff have been retained. The directors of the new y will be Charles Zimmermann and Russell J. Kindon.

## News and Notes.

FEDERATION OF THE PHOTOGRAPHIC SOCIETIES OF NORTH-AND DURHAM.—A fairly large band of photographers d Morpeth on the 27th ult. and spent a delightful afternoon in aulful and historic neighbourhood. It was the annual field the Federation of the Photographic Societies of Northumber-and Durham, and the Morpeth Y.M.C.A. Camera Club had the ge of entertaining the members of the federation. The club tee, of whom Mr. James Whittle, the hard-working and astic honorary secretary, is the moving spirit, had arranged ractive programme for the day's proceedings, which was out in the main, and the outing proved to be one of the successful and enjoyable in the history of the federation. The apnic societies represented were South Shields, Blyth, New-and Northern Counties, Dudley (Northumberland), Blyadon, outh, Whitley, and Jarro, while a considerable number of ched photographers participated in the proceedings. At one the visitors were received by Mr. G. D. Dakyns, M.A., on of the Morpeth Y.M.C.A. Camera Club, in the Y.M.C.A. o Hall. Mr. Dakyns very heartily welcomed the visitors, and ed regret at the absence of Alderman G. B. Bainbridge, the nt of the association, than whom, he said, there was no more devotee of photography. Alluding to the excursions to Mit-bothal, etc., which were to take place in the afternoon, Mr. remarked that in this way the photographer learned incly a great deal of the history of his own country, and through asantment of mediums, that otherwise would, perhaps, never be Touching on the subject of the federation, Mr. Dakyns said o counties took a lot of beating in most things, and he t this applied not less to photography than anything else. He t they could claim for Morpeth that it was one of the jewels humberland, and perhaps he would not be wrong in saying e setting of the jewel was even more beautiful than the jewel Mr. Dakyns concluded by again cordially welcoming the y, who subsequently proceeded to the Castle Banks, where a photo was taken by Mr. A. B. Gardiner, of Newcastle. The afterwards divided into two parties, one going to Mitford e other to Bothal. The members were supplied with pro-cess containing information as to all the points of interest d in the respective tours, the matter for which had been

written by Mr. James Fergusson. The Mitford party was con-ducted by Messrs. C. F. Murphy, E. A. Smallwood, and W. L. Wilkinson. They were driven in brakes to Mitford, and the first halt was at the village smithy, where the obliging smith arranged an admirable little horse-shoeing scene. This provided good "material," and about twenty-five or thirty cameras were soon focussed and the scene duly taken. The church was the next object, and numerous photographs of the edifice (exterior and interior) were secured. The castle, tower, and manor house came in for similar treatment, the cameras being very freely used. Through the kind-ness of the Rev. R. C. MacLeod, vicar of Mitford, the members of the party were allowed to change their plates in his dark-room, a courtesy which was very much appreciated. The party afterwards explored the lovely grounds of the Hall, and proceeded on to the higher banks of the Wansbeck, whence such a delightful view of the castle and church is obtained. The Bothal contingent had an equally enjoyable time. This party was conducted by Messrs. L. A. Loades, E. Swinney, and J. T. Harrison. Various points of interest in the town were noted, and the party proceeded via East Mill to the Lady Chapel Wood, the walk through which was extremely pleasant Bothallaugh, by the kindness of the rector, the Hon. and Rev. W. C. Ellis, was visited, and the fine grounds inspected. The church and castle and grounds (by permission of Mr. Sample) also proved a source of delight to the party who, well "armed" with slides, made good use of their cameras, the day being a good one for the purpose. The two parties met in the town again, and proceeded to Messrs. Dance and Carr's establishment in the Market Place, where high tea was served. The members after-wards reassembled in the Y.M.C.A. Lecture Hall, where a concert took place. Dr. East, of Morpeth, was the chairman, and made some appropriate remarks. He expressed pleasure that the members had had such a favourable day for the outing, which he did not doubt they had enjoyed. The Morpeth Club, he mentioned, was going to award a silver medal for the best photograph taken during the day, and Mr. F. J. Mortimer, F.R.P.S., the editor of "Photo-graphic News," had kindly consented to judge the prints. The members of the Morpeth Club, said the doctor, intended to carry off the prize if possible, "but," he added, "if it goes to another club we shall be the first to congratulate them on beating us on our own ground." The doctor subsequently made reference to the com-plement which had been paid to the Morpeth Club by the election of Mr. Whittle as secretary of the federation. Morpeth, he went on to say, was rather neglected as a centre for photographers, and he thought the Newcastle and other clubs would be more than repaid by coming out a little oftener to pursue their art in such an ideal neighbourhood. He concluded by expressing the hope that the members had thoroughly enjoyed their visit to Morpeth, and that it would not be the last occasion of the kind under the auspices of the Y.M.C.A. Camera Club. An address was to have been given by Mr. Walter S. Corder, chairman of the federation, but, being absent through illness, his place was filled by Mr. Arthur Payne, F.C.S., of Gateshead, through whose efforts the federation was founded in 1901, and who was secretary for several years after its inception. Mr. Payne made complimentary references to the Morpeth Camera Club and to Mr. Whittle, and went on to give his views on what he considered to be an ideal federation. The essen-tial factor, he urged, was co-operation between the various societies, and a proper and enthusiastic support of the officials, which unfor-tunately was not unfrequently lacking. He also spoke of the advan-tages offered by the federation to photographers in all branches of the art. During the evening musical items were rendered by Miss Grace Angus, Mr. Chas. Wilkinson, and Mr. C. F. Murphy, Mr. A. Platts, A.C.M., being the accompanist. Votes of thanks to Mr. Payne, the artistes, the Y.M.C.A. Camera Club, Mr. Whittle, and the chairman concluded a most enjoyable day's proceedings.

NOTICE OF REMOVAL.—The Brighton Photographic Company announce that, owing to the need of larger premises, they have removed their works from 57 and 58, Clarence Square, to 90, Preston Road, Brighton, where all communications should now be addressed.

THIS week a photographic weekly offers hints on "taking oneself." Of course, says the "Evening News," the great thing is to look pleasant. So many amateur photographers make the mistake of taking themselves much too seriously.

**THE ANNUAL OUTING OF THE CITY SALE AND EXCHANGE.**—The employees of the City Sale and Exchange visited Maidenhead, on the occasion of their seventh annual outing, on June 29. Leaving train at Taplow the party, to the number of fifty-eight, had a pleasant walk to their headquarters for the day, where dinner was served, Richard Green, Esq., C.C., the proprietor of the firm, presiding. This having been done full justice to, the usual toasts followed, the president proposing that of "The King," followed by that of "The Queen," "Prince and Princess of Wales," and "The Royal Family," referring to the interest taken by the Queen in the Lord Mayor's Cripples' Fund, as instanced by her presence at the recent bazaar to accept purses of money collected by some thirty children in aid of the fund. Mr. Birk, of the Lime Street branch, proposed the health of Mr. Green, with which he coupled the name of Mrs. Green. Mr. Green was, he said, a good master, and one whom every assistant should endeavour to make a friend of, because, if he was a good master, he was, if possible, a better friend, and he felt sure that, from his experience of him, he had the welfare of each employee, from the youngest to the oldest, at heart. Mr. Green, in replying to the toast, caused much amusement and laughter by remarking that Mr. Birk had, he thought, missed the grip of his toast—namely, his (Mr. Green's) health; he had spoken of everything but that, but he thanked those present for the kind expressions which they had conveyed through Mr. Birk, and hoped that he was as much their friend as master. He, personally, did not like the word "master," because, had it not been for the loyalty, help, and assistance of his various employees, he was sure that the business would never have reached its present dimensions, and he wanted, for that day, at any rate, the party to become somewhat of a socialistic character, and for all to forget that there were such words as "masters, managers, and heads." To the general manager of the Fleet Street branch fell the toast of "The Firm." He said that, as was well known, since the last occasion of such a gathering, the firm had extended by the opening of a new West-End branch at Chelsea, which he hoped would be as successful as the older branches had been. He was perhaps the oldest employee present, having been with Mr. Green some seventeen years, when the only branch of the City Sale and Exchange was the downstairs shop at Lime Street. Mr. Gilbert spoke on behalf of the Aldersgate Street branch, whose manager was an absentee; and Mr. Wood, on behalf of Lime Street, whose manager, Mr. John Green, was unable to be present owing to illness. It was somewhat unfortunate that during dinner a heavy thunderstorm came on, but by the aid of a piano and some of the more musical of the party, a most enjoyable evening was spent, and after tea, which was served at eight o'clock, an hour on the river, or a pleasant walk, brought the day all too soon to a close, the whole party leaving Taplow at 9.53, very tired, but very happy.

#### CATALOGUES AND TRADE NOTICES.

**SPYERS AND POND, LTD.**—Those in search of bargains should visit Messrs. Spiers and Pond's photographic department, Queen Victoria Street, E.C., during the great summer sale, which is now in progress, where cameras, lenses, tripods, and photographic accessories and materials in general are being offered at greatly reduced prices. The list contains a number of high-class instruments, which are listed as being "shop soiled," a fact which, whilst it in no way detracts from their utility, considerably reduces their price, and renders it possible for many to obtain a really good piece of apparatus who could not afford the original price. The list is well worth a careful perusal by those desirous of purchasing anything photographic.

**CARL ZEISS, Jena**, whose London address is 29, Margaret Street, W., send us a pamphlet describing their special tele-objective, and setting forth the exposures and subjects for which it is specially adapted, with directions for its use.

ANOTHER prosecution has just taken place in Dublin under the Merchandise Marks Act for the sale of washing soda. One sample was adulterated to the extent of 27 per cent. and another to 40 per cent. of Glauber's salt, or sulphate of soda.

**CHANGE OF ADDRESS.**—Messrs. R. Wilkinson and Co., the well-known firm of postcard publishers, have removed from Church Street, where their business has been carried on for a number of years, to larger and more convenient premises in the Market Place, Trowbridge, where all future communications should be addressed.

## Correspondence.

\**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed by our correspondents.*

#### DARK ROOM FILTERS.

To the Editors.

Gentlemen,—In the most interesting paper of Dr. Mees on "Dark Room Filters," in your last issue, the following sentence occurs:—"Having had several requests for a special light from friends of ours, who can either scarcely see red at all or to whom the red light is extremely irritating."

But is it not the case that even those whose eyes have normal refraction and whose colour sense is perfect, find it impossible to see distinctly in red light by reason of the non-achromatism of the normal eye? Here is a factor which, so far as I know, has not been neglected in discussions relating to dark-room illumination.

It is a well established fact that the normal eye cannot sharply on the retina red light diverging from objects at short distances from it, say at distances comparable with the distance of distinct vision. For fairly divergent pencils of red light the normal eye has not enough refractive power, or, to put the matter in another way, the normal eyeball is too short. In a word the normal eye is long-sighted for all red objects not far removed from it. Hence, to work in comfort in red light it is necessary to appear advisable to wear convex spectacles of greater or less power according as the eyes are long-sighted or normal. The adoption of such spectacles might allay some of the "irritation" referred to in the passage quoted from the paper.

A normal-eyed person may easily convince himself of the fact that he is long-sighted for red light by attempting to read through one or three thicknesses of ruby glass print held at the normal reading distance from the eye. The print under such conditions is so blurred as to be almost, if not perfectly, illegible. The interposition of a weak convex lens between the eye and the print at once remedies the matter.—Yours faithfully

DOUGLAS CARNEGIE

Blackheath.

#### THE EFFICIENCY OF IRIS SHUTTERS.

To the Editors.

Gentlemen,—I have always associated myself with the practical side of photography, and not with the scientific side, and I am grateful to Mr. Welborne Piper for his cone theory of diaphragm shutter speed measurements, which is obviously correct. I must, my readers, therefore, to multiply the exposure given by a diaphragm shutter, during the period it is opening and shutting, by  $\frac{1}{2}$  in order to arrive at the efficiency. Fortunately, my error of little or no practical importance, for the example I give on page 424 works out as follows:—Supposing the total duration of exposure were 1.30 sec., and 1.60 sec. was spent in opening and closing, and 1.60 at full aperture, then the efficiency works out to 1.60 sec.  $\times$   $(1.60 \times \frac{1}{2}) = 1.45$  sec., and not 1.48 sec., as I originally gave it.

However, I part issue both with Mr. Welborne Piper and Mr. Chapman Jones when they take the action of diaphragm shutters stopped-down lens into consideration, for it is the argument of the scientific, and not the practical photographer. I cannot conceive a practical hand camera worker, with a decent lens of the conventional focal length, stopping down beyond  $f/8$ , and Mr. Piper's supposition that a hand camera lens stopped down to  $f/64$  does not come within the realms of practical photography. Assuming that a practical photographer were photographing a figure near the camera, would he not rather that the distance was just sufficiently out of focus to throw the figure into bold relief? Assuming that the illumination of the subject would permit the lens to be stopped down to  $f/25$ , would not the up-to-date photographer open out to  $f/8$ , and employ a tent or black screen?

I always feel that scientific men do comparatively little for practical workers, and I feel that it is hard that a practical photographer, myself, should have to come forward to advocate a method of efficient exposure measurements. Obviously these remarks do not apply to either Mr. Piper or Mr. Chapman Jones, who have done so much



practical side of photography. The fact remains that one diaphragm shutter with erroneous speed markings; one sends scientific firm to be tested, and one receives, not the actual of the various exposures, but the total duration of the from start to finish.—Yours, etc., A. J. ANDERSON.

#### TRIAL DEVELOPMENT FOR PANCHROMATIC PLATES.

To the Editors.

men,—May I point out that panchromatic plates are free and successfully developed by the factorial plan? Instead of the plate itself to inspection and so causing fog, a slip of the same brand, impressed with a standard high-contrast, is dipped in the developer and the time of appearance This can be done in quite a copious orange light, as any fog will not make its appearance until after the high-light, when having served its purpose, is thrown away. The time of exposure is multiplied by the usual factor, and the true plate is developed for this time in total darkness. One plate exposed to for the time right for a landscape will cut up into a number of strips. The trial plate is partly masked with a grating in the developer. This plan is fully explained in my manual.—Yours ALFRED WATKINS.

#### "TIMES ARE HARD."

To the Editors.

men,—Yes, undoubtedly so. Why, and with whom does the blame rest? Mr. Bridge's suggestion is good, but unfortunately too late. Some fifteen years ago attention was called to the decay of the profession becoming, as it is now, almost ruined by the invasion of a certain class of most undesirable men. No warning was taken of the warning, and now to-day, what is the state of the profession? At that time "Tanqueray" was the only man who was known for carrying on his "illegal swindle." At the present time he has hosts of the same crew in the country. Their name is legion. Every city, town, and village, from north to south, from west to east, has been visited and attacked by swarms of men, men too, in the employ of these most unwelcome visitors. This means the very name of photography in any shape or form is a disgrace to the nostrils of the people; and as to who these individuals are, a visit to Scotland Yard would probably enlighten you as to the professional. Not only have we now to thank the utter lack of a system of trade protection, but the intense and fatal mismanagement has been made in pandering to the so-called amateur. Look at the ungraceful cutting of prices that is constantly occurring; every branch and department of the trade has been attacked by this monster. What for, and for whose benefit? There is not a demand for it, has been, the slightest demand from the public in that but only has it originated among a certain class of men, the "pool," totally and utterly regardless of what injury it inflicts on others. And who is to blame in a great degree for all this? At all possible for anyone to attempt such doings? Why, the man who in many instances have sprung into existence by the aid of the professional, and now, to show their gratitude, assist a lot of insignificant nobodies, who, frequently obtaining a regular weekly income from other sources, get supplied with cheap outfits, etc., placing them at the very first start to completely undersell the professional.

I had been given to the warning already referred to and a system of trades unionism and protection then founded; the evils mentioned could never have come into existence; regard to the "free portrait dodge," no firm in the recognition has been benefited in the slightest degree, because the various departments in that have been in the hands of a clique, and any local photographer can soon satisfy himself of the component parts of that clique. It is most difficult now to find a way out, a remedy, as the profession, by reason of its lack of unity, has to a very large extent brought matters to a standstill. Where is it going to end? Is the professional to be driven out of existence entirely to make room for the so-called amateur? It must be borne in mind that the ruinous rates of the dozen midgets at 6d., or ditto postcards at 1s. 10d., were inducements for men of brains and talent to become, or to be, professional photographers.—Yours truly,

UBIQUE.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

#### PHOTOGRAPH REGISTERED:—

MacLucas & Co., The Excelsior Studio, Vaughan Street, Llanelly. *Photograph of the Interior of the Parish Church of Llanelly.*

E. HERRIDGE.—No, it would not be legal, as you would be obviously running a lottery.

H. J. MORAN.—We do not answer queries by post. Bleach your bromide in the ordinary mercuric chloride solution and wash and dry. Immerse the tape in hypo solution and dry.

REFINER.—1. This depends entirely upon the plate, probably about 1½ oz. 2. It will not settle unless you precipitate it with liver of sulphur. 3. Either liver of sulphur or else zinc filings.

T. ROBERTS.—You might be able to obtain the glass from Newton and Co., Fleet Street, London, E.C.

G. R. E.—So far as we are aware, nothing has appeared in English. Both Marey (French) and Eder (German) have dealt with the subject cursorily. It was also dealt with at one of the International Congresses at Paris about ten years ago.

A POINT IN COPYRIGHT.—A client wants photograph of self taken and proof submitted before giving an order or paying anything. I have done this, but heard nothing further. What I want to know is to whom does the copyright belong?—A. G. C.

This is rather a difficult point, but it may be assumed that there is an implied promise to pay if the proofs are satisfactory. If they were so, then we should say that the copyright belonged to the sitter. If they were not, then as the photographer has received "no valuable consideration" the copyright belongs to him and not to the sitter.

AMERICAN JOURNALS.—Will you please tell me the best journal to reach professional photographers and dealers in America, also cost of small advert., like your "Situations Vacant" column. I know the question has been answered, but cannot find it on looking my old JOURNALS through; so if you would be so kind again you would oblige.—B. D.

The two best papers for this purpose would be "The Professional and Amateur Photographer," 220, Washington Street, Buffalo, N.Y., and "The Photographer," 154, East Twenty-Third Street, New York. The former is a monthly, the latter a weekly.

COPYRIGHT.—In February last an amateur theatrical society gave a performance of the "Yeomen of the Guard," assisted by a professional as leading lady. We asked this lady to give us a sitting as Phoebe at the spinning wheel. She did so, and we presented her with copies. The first print from the negative was registered, and every copy was stamped copyright. Since then an enlargement has been presented to the said lady by a member of the society. Will you kindly let us know if we have a case against that member, as we cannot ascertain who copied our photograph?—ARTIST.

On the old legal axiom, "Qui fecit per alium fecit per se," or he who does a thing by means of another doeth it himself, the member of the society, if he or she caused the enlargement to be made, is obviously the person who has infringed your copyright. The actual enlarger was merely a tool, but he might, if found, be joined to the action.

F. DAVIDSON.—There is not the slightest doubt in our mind as to the cause of the marks. They are due to the cards being touched with fingers contaminated with hypo or some other chemical,

and this has happened before toning. We are returning you the cards, and have marked some with a pencil. If you hold these up to the light, just level with the eye, so that the light glances along them, you will see distinctly the fingermarks on the surface. Under the circumstances, we should advise you to apologise and pay.

**COPYING PLANS, ETC.**—Will you kindly inform me whether there is any method of obtaining a reproduction of a plan, say, from a book with letterpress on the reverse side, other than by the ordinary photographic use of camera and plate? Of course, ferro prussiate paper would answer were it not that the printing from the other side would show through.—J. C. G.

The only suggestion we can make is that possibly Playertype would answer. Place the engraving face up and lay on it a sheet of bromide paper. Press into contact and cover with a green, yellow, or red glass. Mr. Player states that three thicknesses of yellow tissue paper between glass is the best screen, and this should be held about nine inches above the paper and about three inches under a bright gas. The exposure will vary from three to six minutes, and develop with

Hydroquinone .....	3 grains.
Sodium sulphite .....	12 grains.
Sodium carbonate .....	24 grains.
Water to .....	1 ounce.

Development is carried on until the image at first visible is buried. The result is a negative. This is rather a difficult process to carry out successfully.

**COPYRIGHT.**—I have been served a very dirty trick by a family here—they are known as being the meanest people in the place. They brought two children to have their portraits taken, cabinet size, at 3s. 6d. each, which they paid. At the same time they said that if the pictures were good they would require a good number of copies, and I took extra pains with them. Now I find that they have taken my pictures to a cheap photographer at — and ordered a dozen copies of each, as well as 20 x 16 enlargements. I naturally feel sore in the matter. Will you please tell me if I register my copyright in the pictures I can stop the other photographer from executing the order?—ILLUSTR.

No you certainly cannot, as you have no copyright in the pictures. You were paid for taking them, and the copyright belongs to those who paid you for the work. It is, as you say, very annoying; but it is a thing that has to be put up with in business.

**POSTCARD DEVELOPER.**—I wrote to you on the 19th ult *re* a difficulty which came under my notice when using a strong solution of metal-hydroquinone developer. Will you be able to give your advice in this week's "B.J.P." Correspondence; also, if you can, recommend me a developer giving good blacks, for use with large quantities of postcards (bromide), with a view to economical working? I am using a standard formula with every satisfaction, except that I think for postcard work there may be a formula more economical.—ENQUIRER.

If the query was received it would have been answered, but we cannot trace it. With regard to the postcard work there is not much to choose as regards cost in the developers. Possibly the following might suit:—

Amidol .....	50 grs.
Sodium sulphite .....	650 grs.
Potassium bromide ..	10 grs.
Water .....	20 ozs.

This must not be kept longer than three days.

**FAULTY LENS.**—I enclose prints from three negatives taken with a half-plate lens I have just bought. You will see that it only covers about 5 x 4, although I used a *f*/11 stop, and lens is said to cover the plate thoroughly with the full aperture *f*/8. Can you tell me what I can do to make it cover better?—C. A. J.

It is evident that the lens has a very round field, and you will only get detail at the margins of the plate by using a very small stop—probably *f*/32, or smaller. What we advise you to do is to return it to the seller and get him to exchange it for a better one—one that will cover the half-plate. This you have the right to expect if the lens was sold as a half-plate one.

**Poisons, Etc.**—(1) Can a photographer sell a combined toning and fixing solution which contains sulphocyanide of ammonia and

acetate of lead, or, being poisons, can they only be sold to qualified chemists? (2) I have had an additional showcase fixed to my premises, and I have been told by a surveyor to remove same, or they will. Can they remove it, as I could easily make same so that it was a fixture? Next door a man has had a similar case fixed, and one has made any complaint. Thanking you in anticipation of an answer in your valued columns.—URGENT.

(1) Anyone not a chemist can use and sell sulphocyanide lead salts, as they are not included in the Poisons Act so

(2) In this case we are unable to advise, as we cannot say whether the showcase is a structure within the meaning of the law, whether it projects beyond the line of the building. Presumably it does. Then the point is, to whom does the forecourt belong? If it is yours, and you have to keep it in repair, then it is your private property, and you can do what you like. If it is not your private property, then the best thing to do is to remove it, as the L.C.C. inspector tells you—that is, assuming of course, you do not want a long and costly fight in the law courts.

**SKIN TROUBLES.**—I have a little difficulty with my fingers, in connection with the use of hypo in solution. After having fixed for a short time a small white blister appears. In a day or two after the skin cracks and causes my hands to be very sore. I have tried several things, but do not seem to do much. Is there anything that could be put in the fixer to prevent the blistering without taking away the usual fixing properties? Could you recommend a lotion or ointment that will cure same? I have been in the profession several years and now in a good position that I would not care to give it up. I use finger-stalls as I can.—FINGERS.

We have very grave doubts whether it is the hypo. In this case, we believe, the first case recorded of it affecting the fingers. You do not state whether you are using metol as a developer. The complaint looks very much like it. Possibly the use of chrome alum and bisulphite bath, or an addition of boric acid to the sulphite might be very beneficial. The following ointment should be of service:—

Ichthol .....	10 grs.
Lanoline .....	40 grs.
Boric acid .....	40 grs.
Vaseline .....	30 grs.

Apply two or three times a day, and rub in well before resting for the night.

**ANXIOUS ONE.**—We are afraid you must accept what was said, as sufficient notice, which would expire at the end of the week, is not absolutely necessary for a date to be mentioned.

**PHOTOGRAPHER DROWNED.**—A sad drowning fatality is reported from Blackpool, three visitors, supposed to have come from the north, being drowned on June 25. One of the party, a young man, walked down the steps leading to the sands to take a photograph when she was washed into the sea by a big wave. Her brother, her sweetheart jumped in after her, but failed to bring her up, and, after being dashed against some woodwork, disappeared the eyes of hundreds of spectators. The three bodies were eventually recovered, but have not yet been identified.

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## SUMMARY.

Photographic Convention opens at Hereford on Monday next, A portrait of the President, Alfred Watkins, J.P., p. 516.

to obtain firelight and lamplight effects by daylight is by Mr. Essenhigh Corke. (P. 518.) A supplement of the effects obtainable are given with this issue.

T. Harris describes his method of stand development with which should be read in connection with the article by Mr. last week's issue. (P. 520.)

practical hints on sulphide toning are given (p. 523).

udden death of Mr. A. L. Henderson is recorded this week. ent portrait of him is given. (P. 514.)

sketch of the late Dr. Czapski's life appears with portrait.

ling of postcard and other negatives is practically treated.

patent for reproducing plans, etc., is fully described, the ing a gum-ferric film. (P. 524.)

elborne Piper continues the discussion on the efficiency s shutter. (P. 530.)

respondent suggests a new remedy for poisoned fingers.

## EX CATHEDRA.

### The Martian Canals.

Popular opinion, led by the statements of astronomers that Mars is much in the same condition as our earth, is that this planet is inhabited. How far Mr. H. G. Wells is responsible for the universality of this opinion we are not prepared to state. Just now, however, Mars, being in opposition, is particularly favourably placed for both visual and photographic observation, and Professor Lowell, of Flagstaff Observatory, has dispatched an exhibition to the Andes and has himself, at Arizona, obtained some excellent photographs showing that the famous canals, which have been so much in dispute, have an objective existence and are not due to errors in focussing or defective eyesight. They were first photographed two years ago by Mr. Lampland, one of Professor Lowell's assistants, but the results now obtained are stated to be much superior. Naturally, these photographs do not prove that Mars is inhabited, but the regularity of formation of the canals precludes natural causes.

### X-Ray Plates.

For some considerable time there has been much doubt as to what exactly was the connection between the speed of a plate to light and its speed to the X-rays. At a recent meeting of the Röntgen Society this subject was dealt with by Dr. Kenneth Mees, and he comes to the conclusion that the speed of a plate to X-rays is proportional to its daylight speed; the velocity constant and the development law are the same and the shape of the curve is different, the X-ray curve resembling that of a plate which has no opacity to the light action, or, in other words, is transparent. In the discussion which followed his paper Dr. Mees stated that the X-ray plate had no inertia, but that this was obtained approximately by comparison with a plate exposed to light.

### Intensification with Mercury.

A writer in a contemporary recommends bleaching the negative with a solution of mercury bichloride and potassium bromide and blackening the result with sodium sulphide. This process is not exactly new, but an intermediate operation is recommended the purpose of which appears to be novel. After bleaching the plate it is "washed well" in running water and then laid for five minutes in a ten per cent. solution of common salt. The use of this is said to be "to precipitate the remains of the silver of the plate, replaced by the mercury bromide from the intensifier," which explanation we confess we do not in the least understand. There is certainly something wrong in the theory of the salt bath, which appears to be quite unnecessary. An acid bath to remove the last traces of mercury would be comprehensible and also generally advisable, but the

effect of the salt bath is not readily discernible, especially as it is applied after washing and immediately before the sulphide bath.

\* \* \*

### Colour Values and Colour Contrasts.

A great deal of discussion has recently taken place with regard to this subject, but few of the disputants seem to have been bold enough to admit the only logical conclusion, which is, that colour cannot be truly represented in monochrome. This fact would almost appear to be a truism, yet photographers do not seem inclined to admit it, probably because it seems to imply that their art-craft is incurably defective. It does not, however, imply anything of the sort. It simply directs attention to a limitation of the craft that should be of assistance as a guide to the best manner in which the craft should be employed. In this respect photography is much on the same footing as engraving. The engraver is limited in a very similar fashion, and upon this fact the greater part of the beauty of engraving depends. A method of expression peculiar to engraving grew up as a direct consequence of the limitation, and a somewhat similar method in process of growth is observable in photography. It is no part of the artist's work to attempt impossibilities, and if he does make such attempts, he only proves his incompetence as an artist. In photography it is impossible to differentiate between, say, a red and a blue of the same luminosity, and at the same time preserve the true luminosity values. An engraver can do it by varying the texture of his tints and shades, but not a photographer. At the same time, the engraver will seldom attempt to do it, because nine times out of ten it is quite unnecessary. In general, the contrast is of great importance, and the exact luminosity value of no importance whatever, and the contrast must suffer in the attempt to preserve the luminosity. The question then arises, which of the two colours should be shown as the darker one, and this must be decided according to circumstances. The final result is not a copy, but a paraphrase of the original, and the manner in which the paraphrase is to be effected must be left to the judgment of the artist. Photographers in general have instinctively tumbled to the fact that perfect correction of colour values is not always desirable, and that under, or even over, correction at times has advantages.

\* \* \*

### A Useful Addition to a Camera.

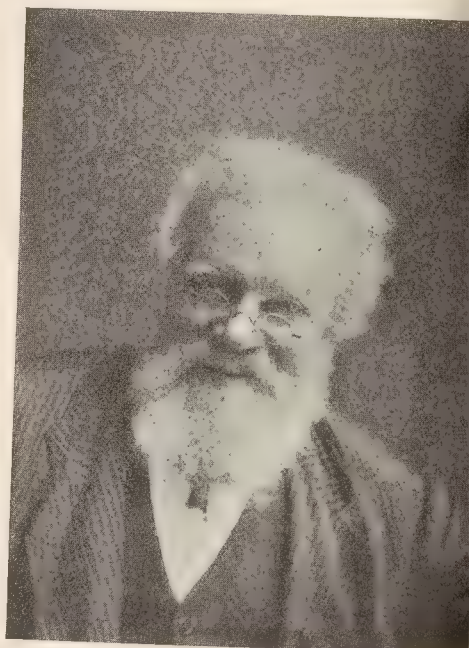
It has always seemed to us to be a curious thing that no camera maker ever puts a scale on the camera baseboard for the purpose of measuring or recording the extension. Focussing scales are common enough, but their use is limited. They are not very closely divided, and they are not long enough for the purpose of measuring extensions. When an ordinary camera is used for a variety of purposes, such as copying, enlarging, comparing different lenses, etc., a finely divided scale on the baseboard is frequently of very great service. It is, of course, advantageous for it to be arranged so that the actual extension from plate to lens node can be determined, but this can only be effected for one particular lens, and, in practice, we have found a simple scale arranged without any regard to position of plate or lens to be of very great service. We use a scale of inches sub-divided into twentieths, but a millimetre scale is perhaps most useful. Considering that the scale is only used to record positions of front and back of camera, and not the actual extension, the unit of the scale is of no consequence, so long as the re-divisions are sufficiently minute. The value of such a scale must be obvious, for it is often desirable to try variations in the adjustment of the camera, and by noting on the scale

the relative positions of the front and back, return to any particular adjustment with the facility. For example, the adjustment for a particular scale of copying is not always readily arrived at when the camera is once set the worker is reluctant to disturb it for the purpose of trying a different lens, or a different scale, even though such a further adjustment may be eminently desirable. With the scale there is no hesitation, seeing that the first adjustment is repeated quite easily.

\* \* \*

### Death of Mr. A. L. Henderson.

It is with extreme personal regret which we feel sure is shared by many friends, that we have to announce the sudden death of Mr. A. L. Henderson, at Bad-Near, on the 5th inst. Mr. Henderson was for many years one of the best-known figures in photographic circles, a constant contributor to our pages. His specialities were ceramic enamels; in the early days, too, of gelatin printing, he was a recognised authority on the subject. He was always ready to give assistance from his experience, which made him a valued member at all meetings, where he was never so happy as when in London.



Photograph by]

[S. J. Beckett, Baker-street, W.]  
A. L. HENDERSON.

eager argument with one or all, and when his fiery enthusiasm frequently culminated in outbursts, at which himself was one of the first to laugh; notwithstanding this, he never carried outside the meeting room any personal feeling, and the regard and esteem in which he was held was proved by the attendances on those nights when it was known he was to speak or exhibit slides obtained in his travels necessitated during the later years of his life through ill-health. He was interred at Norwood on Wednesday last.



# PRINTING TITLES ON POSTCARD AND OTHER NEGATIVES.

The localised production and publication of postcards by the photographer, which none too soon has been taken up by those at last roused to its monetary possibilities, is a natural operation of printing calls for scarcely any departure from the ordinary routine of a studio; the photographer, however humble his establishment, has had to learn, saving only the final incorporation with the negative of a title which should automatically print on the postcard, either on a portion of the picture, in case the title is usually in white letters on the card, or on the white border underneath the card, in case it is invariably in black letters on the positive.

Although we have repeatedly given a short description of the method to be followed in performing either of the operations, requests for information which still appear to justify us in publishing a more detailed account of what is actually a most simple operation.

One may assume to commence with that the negative which the postcard is printed is of the half-plate size and is employed for the purpose, with the subject properly disposed upon it. It matters not whether the negative is an original one or one made from a photograph of transparency; the method is the same in either case. One will take first the second of the two cases mentioned above, namely, that in which the lettering is intended to appear on the white ground below the subject on the card, as it does in the numerous portraits of faces now upon the market. The necessary wording of the title is set up in type, and several good impressions are made in black ink on a white but not too shiny enamelled paper, the object being to obtain a very solid black which is less easily done if an "art" coated paper is used. In studios where a considerable number of subjects are being done as postcards it may be worth while to have a set of types and do the setting on the premises, usually we imagine it will be cheaper to employ a local printer. The impressions having been taken, however, are then photographed down to the desired size on a glass or photo-mechanical plate, on which the necessity of the ground and clearness of the letters can be ascertained without difficulty. The negatives having dried, comes the operation of transferring them to the post-negative. If the spot where the title should come on the negative happens to be fairly clear glass, all that is necessary is to transfer the title direct on to the gelatine of the process mentioned in the next paragraph; but if it is usually the case, the negative has no such clear spot, a strip of film is cut out with a sharp penknife, leaving a little space all round for the reception of the title.

Coming now to the actual method of transferring the title, these latter are cut up on the process negative with a penknife when the film is dry, and the latter is then exposed to the very rapid and easy stripping process described only a week ago (July 5) in these pages. Before exposing the title strip to the postcard negative the small portion of bared glass is painted with a little weak gum solution to secure the adhesion of the film. When dry, as is the case in about ten minutes, the negative is then masked off as shown in the illustration. It is usual to mark off the subject with Indian ink with a drawing and straight edge, as shown in the black line in the illustration. The further blocking-out is then done with a mixture, such as the Vanguard "Photopake," after being taken up as close as convenient to the subject. The stippled portion in the reproduction shows the "photopake" area.

Coming now to the case in which the title has to be printed on the subject portion of the negative itself, there

are several easier methods than the foregoing, depending on the use of rubber type, or thin opaque letters may be purchased and cemented to the negative. The strip method above described may also be employed when a tiny clear strip is obtainable, although it is usually preferable to employ a positive version of the original title negative,



in order to obtain in the final print a lettering in white letters on a dark ground, which looks better, in our judgment, than the black title on a strip of white ground, but the preference is a matter of taste and both forms can be seen on commercial postcards.

**PICTORIAL POSTCARDS.**—The Barton Pictorial Postcard Co., of 15, St. James's, Barton, Bristol, have sent us some specimens of their cards in plain and coloured collotypes, which are of very good quality. Special trade terms are given to professional photographers.

**W. BUTCHER AND SONS, LTD.**—Messrs. W. Butcher and Sons inform us that they have entered into an agreement with Messrs. Charles Tyler and England Bros., and that from this date the businesses will be amalgamated and carried on as W. Butcher and Sons, Ltd. The first directors are William Frederick Butcher, Frank Ernest Butcher, Charles Tyler, Isidor Joseph, and Alec. J. Jones, and the combined business will be conducted on the same lines as the individual businesses have been for many years past. The photographic card and mount factory will be carried on at Copenhagen Street as heretofore, and will be largely developed with the extra space and increased facilities at their disposal. All orders and correspondence previously sent to Charles Tyler and England Bros., Ltd., at Copenhagen Street, should in future be addressed to Camera House, Farringdon Avenue, London, E.C., where all books, manufactured stock, etc., have been transferred.

## THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

How rapidly time slips by us is never more apparent than when one has to draw attention to the meeting of the P.C.U.K., which takes place at Hereford next week. For it seems but a few weeks ago that we were looking forward under somewhat similar conditions to the meeting at Southampton this time last year.

During the previous twenty-one years of its existence the Convention has seen many changes, not only in the character of its meeting, but also in its personnel. There have been, as was inevitable, many sad gaps caused in its ranks by death, and many old members now do not attend, whilst still maintaining their active interest in it. There is, therefore, save for a few ardent enthusiasts, whom one always meets, quite a new set of faces to greet one. This is inevitable, and as it should be to some extent, for new blood is always essential. One has, too, at every meeting, local members who are seen, some for the first and last time, whilst others attend subsequent meetings.

It may possibly be permitted to ask whether that particular rule defining its aim and purpose is actually fulfilled. It runs: "The object of the Convention shall be the advancement of photography, and of the interest of photographers." Bitter criticisms have been directed against the Convention in past years, and probably will be again, but in almost all cases they have come from those who stand outside and fling mud at it, overlooking that the nobler part would be to join and try and improve matters.

Is it necessary, however, that things should be improved?

That the present policy as pursued by the council is generally approved is shown by the success of the recent meetings and the attendances. It is true that we have no epoch-making, startling papers, putting forward some facts revolutionary of photographic thought or practice. But how often during the last ten years

have we had such papers anywhere? There has been a general slow-creeping advance, and we must not expect that an assertion of average photographers is going to each year produce something phenomenal.

What the Convention has done and is doing is to cement the friendship of its members, whether professional, amateur, trade. It is broadening down more and more each year those barriers behind which each class had held itself. If it does it advances the interests of photographers. It has, is, providing opportunities for the interchange of thought, of knowledge, and experiences which make the advance of photography.

Where the Convention fails, and lamentably, is in the misuse of its funds which are now considerable, and increasing year by year. To use the term misadvisably, for it is practically, to give the old simile, wiping the talents on the napkin and burying them. Yet this failure cannot be laid down to the account of the Convention. It is entirely the fault of its members and others, though some years it may truly be said that the Convention has been lax in drawing attention to the fact



Photograph by

ALFRED WATKINS, J.P.,

Harold Baker.

The President of the Photographic Convention of the United Kingdom.

"The Council of the P.C.U.K. is prepared to make grant money in aid of photographic research."

The conditions now in force are as follows:—

1. An applicant for a Research Grant must present (a) a statement of the general nature of the proposed investigation and its object, with an abstract of any results that have already been obtained, and (b) a general statement of the way in which it is proposed to expend the Grant.
2. A Grant must not be expended on the purchase of permanent pieces of apparatus except by special permission of the Research Grants Sub-Committee.
3. The receiver of a Grant must make a general report of expenditure either at the end of, or during the progress of the



search, and shall then be entitled to receive either the whole grant, or such part of it as may have been actually expended. The receiver of a Grant must present a full report on his investigation at the first meeting of the Convention after the research is finished, and an interim report at any intervening meeting. If necessary, in order to secure priority of discovery or invention, the results may at once be published, by communication to such recognised national, scientific or photographic society, as the Research Grant Sub-Committee may decide.

There are two important points here to which special attention should be drawn. First, there is no restriction as to the status of applicant. Obviously he may or may not be a member, free to all, and every application would be considered on merits.

The second point is also the second condition, which deals with the purchase of permanent apparatus. This we know has no misapprehension, and it has been stated that it acts as a deterrent. It is a wise condition, but the Research Grant Sub-Committee has power to abrogate even this.

One may possibly be speaking *ultra vires*, but we believe we are not when we state that the Council of the Convention would not assist anyone by a grant, and would read the conditions generally as possible if they were assured that the application was genuine and likely to lead to good work. There are many things which want clearing up in connection with photographic technique, and we hope that before twelve months have passed we may be able to record one, if not more, grants in aid of research.

We are aware that we called attention to this point last year, and have long since learnt that it is only constant reiteration which fixes the attention.

The prospects for this year's meeting, with all due reservation as to the weather, are good, and we look forward to a successful meeting as in the past. It is not our duty to canvass for a meeting for next year's meeting; but, as the council have unanimously decided to advise Brussels, we trust the members at the next general meeting will adopt the suggestion. It is not the powers of the Convention to meet outside the United Kingdom, for the only rule bearing on the subject states that members of the Convention shall assemble annually in a place to be fixed upon at the previous general meeting." Brussels has the charm of perfect novelty to the majority of members.

It is as easy and cheaper to reach than many places in the United Kingdom, and, speaking from personal experience of those who have sent the invitation, we feel sure that they would find that it is possible to give us from this side a most hearty welcome, and ensure our having a good time.

There is yet one point to which we may draw attention, and that is the honorary secretary's invitation to professional photographers to meet and discuss matters concerning them and their business. We hope that many will take advantage of the opportunity, for such discussion can but lead directly or indirectly to permanent good. Many professional photographers make the convention week an opportunity for a brief holiday, but more will be welcome, and we should like to see it made an integral fixture of the Professional Photographers' Association.

#### CONVENTIONALITIES.

C. U. K.—Who said that P stands for the word picnic? And does, why not? I for one, as an old Conventioneer, do not venture to complain about the arrangements. There is all the rest of the year to struggle with the "old bread-winner" at home, and the least that an old friend from Dalston can do for my five shillings is to give me a rest from it when I try to get a week's holiday. Oh, yes, that's the real BRAIN'S SERVICE that photographers want, either more or less of it, and, thank heaven—I should say thank Bridge—no one need have more photography than he wants at the Convention.

No, photography at Hereford, as at previous centres which the Convention has condescended to visit, may be expected to be at a discount, although there will be some opportunities in the evenings after the day's work is done. But attendance is not compulsory, and for this relief much thanks. A July evening in so charming a place as Hereford can be well employed out of doors. But Big Guns will let themselves off nevertheless, and one of them will be welcomed by conventioners in the person of the past president, Mr. E. J. Humphery, who is going to tell us about his most recent invention, "A new aid to pictorial photography." Ye gods and pretty goddesses who flit about Bloomsbury! Is he about to relinquish platinum and go in for GUM?

I shall certainly go to hear that paper, and also another, to be delivered at the same time and place by my learned young friend, Dr. Mees. Of course, when I write of Mees as my friend I only use the word in a conventional sense; as a photographer he is no friend of mine, or of photography. What connection can there be between gamma and development, I should like to know? Fie, fie upon you, young man, you are mistaken.

The lowering of photography from the heights of an impossible art to the depths of a practical science is mean. To write theses about it and make it a stepping-stone to a doctorate may be said to be mean to a degree, but to collect the writings and publish them in book form at 6s. 6d. is an insult to the "Times" Book Club. I think Dr. Mees should have been satisfied to be able to say, "What I have wrtten I have wrtten"; but some people are never satisfied. At least, I'm not.

I am told that all the arrangements and the programme of our proposed doings at Hereford have been very carefully schemed; in fact, that the entire programme of the Convention will be carried out to the tick of the clock—as a matter of fact, of the Watkins' clock. In language to be comprehended by common people, it is arranged that, precisely at 2.30 p.m. on Monday, July 15, President Watkins, J.P., now happily recovered from his recent accident (those beastly motors again), will start the centre second hand of the 1907 dark-room Convention clock, set the factorial calculator, and, having allowed thirty minutes for the full appearance of the images of good conventioners, and also of that of His Worship the Mayor of Hereford, will thereupon proceed to complete development by delivering his presidential address to the great edification of all concerned. Subsequently there will be a swarty and musical promenade, and, inadvertently, refreshments. Under similar circumstances I believe that Mr. Samuel Weiler would have expressed his opinion that the notion is "werry good."

I like refreshments myself, which reminds me that there is a Convention dinner on the Wednesday evening. Now I come to look at the programme, Wednesday is a regular beanfeast, the president giving an "At Home" in the afternoon and more refreshments. But about the dinner and the speeches. I do not know what time the hotels close at Hereford, but whatever time that may be, if it could but be arranged to have the speeches first we'd never get to the soup. Possibly conventioners might get a peck at the hors d'œuvres, and, in an absent-minded manner, might munch a bit of their dinner roll; but the dinner, as a dinner, as a meal, wouldn't come off. "Come off!"—the words ought to be emblazoned like a text on the wall of the dining-room in the largest of large letters. I hope the president will keep his eye on the 1907 dark-room convention clock this year. But there! The speeches don't come first, the dinner does—and "Time, gentlemen; time, time, please!"

Talking of closing time reminds me that at earlier conventions a few of us have had some of the best fun after "closing time," at convivial gatherings, when the cock and hen brigade were gone to bed! I had supposed those times altogether past, but that I have been told a tale about an editor (whom I hope to see at Hereford this very year) who was so desirous of joining a party of choice spirits engaged in a post-conventional séance at the Southampton meeting that he elected to climb in through the coffee-room windows, admission by the front door being denied by the hotel Cerberus. This

no doubt is but a scandalous tale. At any rate, tales are told at Convention gatherings, and, if you doubt me, ask my Shakespearean friend, Baldwin, who is an authority on tales. I would like to ask you whether you have heard the tale of the man who—but, on second thoughts, wait till we meet at Hereford.

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Note.—“A meeting of professional photographers will be held in the Committee room from 7 to 8 o'clock.” My dear Bridge, this statement is so positive and so sudden. Really, in the present state

of bad trade and high rates you hardly expect professional graphers to attend the Convention, at least not real professors why, they can hardly afford to support their own association P.P.A., which works hard for them. But I have not forgotten “the object of the Convention shall be the advancement of graphy and of the interests of photographers,” and double little attention on your part is only preliminary to handing over of your substantial cash balance to the funds of the Professional Photographers' Association. Won't it be nice?

## FIRELIGHT AND LAMPLIGHT EFFECTS BY DAYLIGHT.

[The two following methods by which extremely novel and pleasing effects are obtained entirely by daylight have been worked out by one of the younger members of the profession, Mr. Henry Essenhigh Corke, of Sevenoaks, in whose hands they have proved of considerable value—from a monetary as well as from a pictorial point of view. The lamplight effects are the outcome of Mr. Corke's earlier work in working out a daylight method of making firelight effects. An example of the final result aimed at in each kind of portrait is presented in the supplement plate contained in this issue.—Eds “B.J.”]

THE idea of firelight portraits is, of course, by no means new, but, to the best of my knowledge, has not yet been generally used commercially by the profession, although they seem to have had a decided fascination for amateurs.

The great objection to the usual method of producing the effect is the inconvenience, not to mention the danger, of using some form of flash powder, also the results of all such studies that I have seen are pictorially spoiled by the very harsh shadows and forced detailless high-lights even supposing that the usual great flame coming from the fireplace is avoided by using a sheet of glass.

It must be remembered, too, that most people want to look at least their best in a portrait, and to achieve this it is imperative that the effect of lighting be capable of being carefully studied and arranged. As this calls for a steady and constant light the use of flash powders is impossible.

Keeping this fact in mind I began about a year ago to try to discover a reliable means of obtaining the firelight effect without the aid of a flash powder, and not having electric light had to employ the only other means and the one that cannot yet be surpassed, “Daylight.” The accompanying illustration of my studio will explain at a glance the arrangement of the sitter and lighting, which, as will be seen, is extremely simple.

The entire studio should be kept darkened as much as possible by having all the blinds closed, with the exception of about one square foot of light, which should be immediately in front of and on a level with the sitter's feet. To do this it will be found necessary in most studios, I presume, to raise the sitter to the level of the side windows. Naturally, to obtain concentration of the lighting, the sitter should be as close to the source of light as possible, and it is advisable to use a dark background. In fact, the general idea of lighting is what is so often called “Rembrandt.”

A fender placed in front of the sitter's feet on the ground (platform) will give the keynote to the idea, the sitter then may be posed, and the lighting carefully considered and adjusted by arrangement of the blinds, etc.; until excessive shadows and awkward high-lights are modified and the exact desired effect obtained. After a few experiments the required exposure can always be given with certainty of the results on that score.

Generally speaking, it is advisable to rather under than over-expose, as the negative should be if anything on the hard side, to accentuate still more the effect aimed at. The average exposure which I find about correct, working with a due north light (through ground glass) with the sitter about two feet from the light, and using extra rapid plates with the lens stopped to about  $f/5.6$ , is  $1\frac{1}{2}$  to 2 seconds.

It may happen that some studios have very little side light

owing to the proximity of high buildings, and in this case would be necessary to adjust a large white reflector placed beside the window at an angle of 45 degrees.



After obtaining a good number of firelight effects by the method described above, the desire to vary the style and yet keep the main idea occurred to me, and next to firelight, as a novel lighting effect, lamplight and candlelight effects seem natural to follow. Accordingly I turned my attention to these, and arrived at such measure of success as shown by the supplementary illustration. The main differences from firelight are the light must strike downwards, and that the actual (supposed) source of light must appear in the prints. Thus, where firelights the fire itself need only be suggested by the effect, yet in lamplights the actual lamp itself must show, and, moreover, it must show properly, as it will be almost, if not quite as important as the sitter.

To obtain a successful result was by no means easy, and a deal of time, thought, and patience, and many spoilt plates expended before a suitable and reliable method could be worked out.

The main point to consider was the lamp itself, and for this purpose I obtained a table lamp with a pink silk shade. This gave me the advantage of avoiding the actual naked flame, although with great care a naked flame can be successfully imitated. I next carefully studied the effect of light and shadow upon the lighted lamp in a dark room, the lamp being the





EXAMPLES OF FIRELIGHT AND LAMPLIGHT EFFECTS BY DAYLIGHT ONLY.

By HENRY ESSENHIGH CORKE.

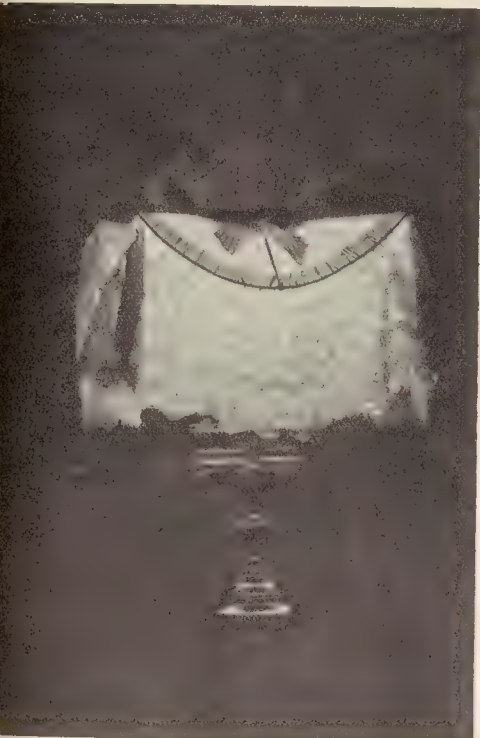
*An article describing the methods employed for producing the above effects appears in the literary pages.*





in the room, because, of course, if an actual lamp was in the picture, and the lighting (daylight) allowed to upon it as it would upon the sitter, the daylight would be much stronger and actinic than the lamp, that the relief upon lamp would make one side light and the other darker, in fact, the whole thing would look merely what it was, would not in any way suggest that the sitter was photographed by the light of the lamp.

It then occurred to me that the lamp must have a perfectly flat surface, just in the same way that a background is a flat surface. For this purpose I photographed the lamp in a dark room, removing the glass chimney. I suspended a piece of mesium ribbon upon a wire inside the shade so that it hung in the place of the wick. After a few failures from one exposure and another I obtained the negative, a print of which is reproduced.



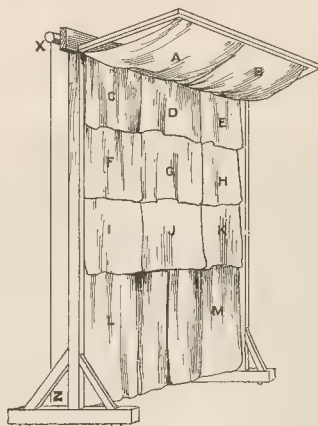
The next step was to make an enlargement from this negative of the exact size of the actual lamp (25 inches), mount it upon stout card and carefully cut out all round the outline. A support back was then fixed to it so that it would stand perpendicular, and then I had a "dummy" lamp, which, photographed again, would give the exact appearance as regards lighting and perspective of a really lighted lamp. Thus by substituting the dummy lamp one has only to arrange the lighting of the subject so that the light appears to shine from it on to the background and surroundings.

In firelight, the room must be kept darkened, and only a small area of light used to give the effect, also the sitter must be placed so to the light to give concentration of lighting.

It is necessary, therefore, to have a very complete set of side-lights, or, better still, to have a screen similar to the one described in a recent issue of "B.J." by Mr. Hewitt, which

forms quite a little studio by itself so far as blinds and lighting arrangements are concerned.

The screen I made for this purpose is 10 feet high and 12 feet wide, and has a complete set of thirteen terra-cotta saten blinds, and also a long butter muslin blind on the back, which diffuses the light when it is used.



It will be observed from this that an almost infinite amount of exact adjustment is obtainable.

The lighting must be very carefully arranged so that the effect is that of strong light coming from the lamp on to the sitter, and graduating into darker tones on the parts of the drapery and surroundings which fall outside the actual rays of light from the lamp. This is arranged so that in reality the light comes from a source on the left-hand side (in my illustration) of the lamp, and passes past it and parallel to it on to the sitter.

The "lamp" being so thin (eight or ten sheet cardboard) does not throw any perceptible shadow.

At the same time a certain amount of light must fall directly on to the flat surface of the "lamp" in order to give an exposure sufficient to obtain the details of it, and this I find is best accomplished by reflecting a certain amount of light back to the lamp from a mirror upon the shadow side.



The greatest difficulty arises in so arranging the lighting that it looks correct, yet is at the same time just the right strength upon both the sitter and the lamp to give each a correct exposure on the same plate. However, a few spoilt plates and a little time and patience will soon enable one to gauge this, and a great

deal can be put right by careful shading, sunning down, and printing up when the prints are made.

For lamplight effects it is better and more natural to retain almost all the shadow detail, and not, as in firelight effects, regard only the high-lights and half-tones. It is therefore advisable to give a full exposure and develop very carefully.

The exposure of the illustration was about six seconds, working at 6.30 p.m. in very dull and rainy June weather, and with the lens at  $f/6.5$  on an extra rapid plate. On a fine day, from 11 till 3, about  $1\frac{1}{2}$  to 3 seconds would be ample.



The accompanying illustration must be regarded more as an experiment than as a pictorial success, as many details, and more especially the pose of the model, darkness of the pedestal, unsuitable background, etc., might be more carefully attended to and avoided. Also, the strut of the lamp should have been hidden by the lamp itself.

The prints are preferably made in carbon upon an orange transfer paper, but if the carbon process is not required then

any other process may be employed, such as P.O.P., or gaslight.

After the final washing the prints should be blotted while still "tacky" are stained to an orange colour by any of the transparent colours now upon the market are used extensively for the cheap colouring of posters. They may either be plunged into a bath of the colour, or only a few prints are to be treated, the dye may be applied with a sponge or tuft of cotton-wool.

My first experiments of staining the prints were made with a solution of eosine and methyl-orange, but as these to be fugitive I tried the Vanguard Co.'s "Bertha Orange." Nothing could be more simple or effective than the use of this colour for the firelight effect.

Should "Bertha Orange" be too yellow it may have a trace of "Bertha Garnet" added to give it a more tinge. The strength of the solution of dye does not matter, as if it is too weak in colour a stronger solution may be used as a second coating, and if it is first applied too thickly the picture may be rinsed under the tap until the surplus is removed. The prints must not be washed after staining. They should be either mounted at once or laid out to dry. Preferably they should be dry-mounted or stuck only round the edges with dextrine paste, otherwise while damp the stain will come off everything with which it comes into contact, with the result that unless care is observed the next batch of mounted prints may be spoiled by the stains.

It is advisable to retain special mountant, blotting paper, etc., and a special bench for stained prints, quite apart from the usual outfit.

Such dark pictures as these must not be mounted upon ordinary mounts. Generally speaking, a dark brown will suit this style to perfection. In the case of enlargements or large prints, if framed, a deep stained oak moulding, without a gilt border and framed close up, will be effective.

It is difficult to state what should be a fair and reasonable price to ask for this style, depending as it does upon the charges of each individual worker, but as the arrangement of the sitter and lighting, and the extra care and trouble which will be necessary at the time of sitting, combined with the novelty of the results, will make an impression upon the public, a higher fee than for ordinary work should be easily obtained. As an attractive window or show-case display a few of these studies will be found to cause considerable comment.

In conclusion, I would strongly suggest that no proofs of subjects should be submitted *unstained*, as the effect is spoiled if the prints are only in black and white.

HENRY ESSENHIGH CO.

## STAND DEVELOPMENT WITH PYROGALLOL.

[Gradually we are all coming round to the idea that examination of a plate during development or tinkering with the solution is of little value. Mr. Harris's article is, therefore, timely, and well worth careful consideration. Two negatives developed by his method have been sent us, and they are perfect technically, presenting no appearance of pyro stain, but the peculiar greenish image so characteristic of pyro and so much admired by some workers.—Eds. "B.J."]

PHOTOGRAPHY, now, is of a sufficient age to permit of many of its earlier processes being re-invented, without their lack of originality being discovered by a generation little given to the historical aspect of the science it professes. Scarcely a week passes that does not see formulæ given and accepted as a new departure which might be found already described in earlier photographic papers. Unfortunately, these formulæ are usually associated with their latest advocates' names, and henceforth the original author is entirely ignored. Too much credit cannot be given to those authors who conscientiously look up

their references when writing on any subject, and duly cite chapter and verse, a practice gratifyingly on the increase.

### Stand Development of the Eighties.

Stand development is one of the processes re-invented for the admiration and use of a later generation without any reference so far as I can find, to its original introducers, Wratten and Wainwright, who described it about 1882 for use with ammonia. Such a method would, of course, at the present time meet with the immediate condemnation of the horrid developers, but it was an eminently workable process, and



very satisfactory results. It was in daily use twenty-five years ago by several large commercial firms, who produced negatives of great excellence and uniformity by it. I, myself, saw it used in the workrooms of Mr. J. Hudson, the photographic publisher, who used it exclusively for all sizes up to 10, and I have known as many as twelve dozen 12 x 10 sized negatives made and developed in one day by two persons using stand development with pyro-ammonia, on the suggestion by Wratten and Wainwright. Of course, as has been said, such a method of work should, according to the day teaching, have been wholly impossible, but the negative yielded could not be surpassed for quality at the present time.

Usually three dipping baths were employed by each worker, and the solution made up in the morning was employed throughout the day, being strengthened when half the day's work was done by the addition of dry pyrogallol and ammonia. The method will naturally suggest itself as to the colour of the negatives, more especially when it is said that no "pyro-pretive" was used. A bath of alum and citric acid was employed between development and fixation, which bath was used as often as necessary, i.e., when it failed to sufficiently remove any stain. The appearance of the developing solution at the end of the day can only be conveyed by comparing it with the familiar "Guinness," yet the negatives had no objectionable amount of colour when finished.

Ten years ago I had several hundred stereoscopic negatives to develop, which it was necessary to accomplish expeditiously, so I decided to adopt Wratten and Wainwright's method of dipping-bath development, using (instead of pyro-ammonia) amidol, which the makers of the plate (a foreign firm) recommended in preference to any other reducer. I was particularly charmed with the facile way in which the plates developed with the fine quality of the negatives. I used three baths, the whole batch was developed easily in one day. This method I mention because, quite lately, I saw a statement to the effect that amidol was not suitable for stand development. It may be that the plates were especially suitable for development by amidol, for I have known plates that would give their best results when amidol was used.

#### A Pyro-soda Formula.

My interest in stand development was re-awakened last autumn on returning from a photographic tour with a large number of negatives to develop, and limited time in which to do so. I decided upon stand development with pyro-soda as the most convenient and expeditious. The exposures and subjects presented a pleasing variety, from one-hundredth of a second to several minutes on landscape and architectural subjects of every description. Three dipping baths were used, each containing forty ounces. The formula was:—

Pyrogallol .....	20 grains.
Sodium sulphite .....	120 grains.
Potassium metabisulphite .....	30 grains.
Sodium carbonate .....	240 grains.
Water .....	40 ounces.

A bath composed as above the plates developed with great clarity and steadiness, and exhibited that charm of stand development, no sign of the fully exposed plates "rushing up" and losing their scale of gradation.

#### Strengthening the Bath.

While the bath was fresh the developed plates were transferred, after rinsing, to an acid fixing bath, and the colour of the negative was of a neutral grey without any sign of yellowing; but as the bath became more oxidised some colour began to manifest itself, so the plates, after development, were placed some minutes in a 1 per cent. bath of sodium bisulphite. When the baths commence to show signs of working slow, which usually happens after several dozen plates have been developed,

I find it advisable to renew them by the addition of sulpho-pyrogallol and carbonate; in fact, I allow half a grain of pyrogallol (plus its preservative) and six grains of carbonate to each half-plate, so that when some three dozen half-plates, or an equivalent of whole plates, have been passed through the bath, I add stock solution accordingly. This probably is rather a rule of thumb method, but it answers very well in practice.

Later on, having a large number of reproduced negatives to make, I gave this method of development a lengthy trial, and found it infinitely more expeditious and convenient than developing in a dish. The strength of the formula given above may, for reproduction work, be advantageously doubled, as the exposures can be adjusted to suit the quicker working bath. The plates used in making these reproduced negatives were of my own preparation, with a speed of about 100 H. and D., and gave density very readily, so, by keeping three dipping baths in operation, I was able to get over a large amount of work very quickly.

The length of time occupied in developing each plate with bath development and the formula given varies somewhat with the make of plate, and is of course largely influenced by the amount of working the bath is subjected to without strengthening. Using plates of my own preparation I find the time for each plate averages pretty constantly five minutes at about 60 deg. F., and when this time is exceeded to any extent I take it as a hint that the bath needs replenishing by the addition of stock solution. Though I have little experience to speak from, I expect that most commercial plates will require rather longer than this.

If uniformity in working is desired, attention must be paid to securing constant temperature, and I find it necessary in winter to use a bath capable of holding the dipping baths and a sufficiency of water at a temperature of 60 deg. F.

Now for years I had exclusively used tray development for all negative work, employing principally pyro-soda, but when I compare some nine months' work with bath development with my previous long spell of dish development, I find the balance of merit to be altogether with the bath. Of course, where only a few plates are in question it will hardly be desirable to make up the quantity of developer necessary for the bath, but a photographer usually has sufficient developing in hand to warrant at least the use of one bath. One great recommendation bath development has is the ease with which the plate can be left if any other work requires momentary attention; there is no need to mount guard over it; a much pleasanter light may be used in the dark room; the baths may be covered up and white light used in the room at any moment; and the fingers are kept free from stain.

It will probably surprise many using bath development for the first time with pyrogallol to find that even when the solution has become quite deep-coloured plates can still be developed free from stain therein. A good deal depends on the plate itself, the plates of one maker will develop quite free from colour in a bath that will cause considerable stain with plates of another make. By using the acid sulphite bath between development and fixation it is not at all difficult to secure freedom from stain, care being taken to replace it with fresh solution when it becomes neutralised and discoloured.

#### Freshly Made Pyro Solution.

One great factor in securing freedom from stain when using pyrogallol is the condition of the pyrogallol itself. Some time ago the Editor of this paper drew attention to the staining proclivities of stock solutions of pyrogallol, and there is no question in my mind as to the correctness of his views. I have experimented very largely with pyro preservatives in the past, and long ago came to the conclusion that to secure freedom from stain it was necessary to use the pyrogallol developer freshly prepared. It may be convenient for the worker whose develop-

ing is intermittent to have a stock solution at hand, but for the daily worker the trouble of making up his developer before commencing work is so small, and occupies such a few moments, that he can well afford to consider himself independent of the vagaries and unreliability of stock pyrogallol solutions. Looked at with the light of later experience there is no doubt that a good deal of the success of the early workers with stand development was due to their method of preparing their baths with fresh, dry pyrogallol.

It may be urged that as long as there are non-staining

developers to hand why not employ them for stand development and leave pyrogallol alone? I seriously question whether it is one of the more recently introduced reducing agents that all-round efficiency and moderation in cost, has any advantage whatever to offer over pyrogallol as a developer for plate suits every make of plate, which is more than can be said of several of the new reducers, and it has so firmly established itself in the photographer's favour that with its possession well claim its proverbial nine-tenths.

G. T. HARRIS, F.R.E.

## DR. SIEGFRIED CZAPSKI.

PROFESSOR DR. SIEGFRIED CZAPSKI, whose death with great regret we briefly announced last week, had been in some-  
what indifferent health for some time. He died suddenly on June 29 from hæmorrhage of the lungs. Professor Czapski was born on May 28, 1861, at Odra, in Posen, and received his education at the Maria-Magdalenen - Gymnasium at Breslau. In 1879 he entered the University at Göttingen, where he commenced his studies in physics, mathematics, and chemistry, which were continued at Breslau. Amongst the celebrated professors under whom he studied were Helmholtz, Kirchhoff, and Kummer. In 1884 the degree of Doctor was conferred on him for work on the thermal variability of the electromotive power of the galvanic battery.

An important step in Dr. Czapski's life occurred shortly afterwards, when Professor Abbe invited him to come to Jena, where he commenced his valuable work in connection with the Carl Zeiss optical institute. Subsequently he was chosen as assistant to Professor Abbe and greatly helped him in carrying out his great industrial and social reforms in that great scientific institute.

It is now universally recognised how nobly and unselfishly Professor Abbe used his position in the firm of Carl Zeiss, first as scientific adviser, then as partner, and finally as sole proprietor, to bring about the well-known reforms in the business and social position of the employees, which culminated in the founding of the "Carl Zeiss Stiftung," which brought employer and employees into the present common interest relations. In this great undertaking Czapski worked side by side with Abbe.

In 1893, Dr. Czapski was appointed a director of the firm of Carl Zeiss jointly with Professor Abbe and Dr. Schott, and in

1902 he succeeded Abbe at the head of the Carl Zeiss Stiftung. That he worthily followed in the footsteps of his great



THE LATE PROFESSOR DR. SIEGFRIED CZAPSKI.

decessor (and not in the social side), amply testified by colleagues, the scientific staff and workmen of the Carl Zeiss Institut at the funeral ceremony. Dr. Czapski was a zealous and warm supporter of the Debating Society, the Technical School at Jena, the German Society of Mechanics and Optics, the German Museum, the Meisterwerke der Naturwissenschaft, Technik, and also curator of the Kaiser Friedrich-Gedenkmuseum in Jena. He aided largely in the conduct of the Zeitschrift für Instrumentenkunde. In recognition of his services in so many fields, the Prussian Government conferred upon him by the Minister.

Since his entry into the Zeiss Works, Dr. Czapski's publications were confined to optical subjects. Sometimes they were communication novelties in optical instruments and other theoretical researches. The former frequently

dealt with new instruments or improvements in existing devices devised by Professor Abbe. Of theoretical researches we need not omit to mention a treatise on the possible limits of the microscope. Dr. Czapski's greatest scientific work was undoubtedly the "Theorie der Optischen Instrumente nach Abbe," which first appeared as part of Winkelmann's "Handbuch der Physik" in 1893. This work has become extremely important in consequence of the great advance in photographic optics during the past twenty years. It had special interest to readers of our journal, and they will doubtless remember that a few years ago Dr. Czapski was elected an honorary Fellow of the Royal Photographic Society. Dr. Czapski's interests



photography was alive to the end, and his last work, which was published in the December and January issues of the "Photographische Korrespondenz," dealt with the "value of photography for scientific investigation."

It may be briefly stated that the main object of the greater

portion of Dr. Czapski's scientific publications was to popularise Professor Abbe's investigations in geometric optics.

His premature death at the early age of forty-six creates a void most difficult to fill, and his death will be deplored in scientific circles throughout the world.

## NOTES ON SULPHIDE TONING.

Sulphide toning of bromide prints is generally stated to be an extremely simple operation, but notwithstanding this there are many who fail to obtain those rich brown tones so much desired, and get instead the sickly yellow, more unpleasant than a fixed untuned P.O.P. print. I attribute their lack of success to the very inadequate directions given by paper-makers and others for working this process. Numerous inquiries addressed to manufacturers and others have generally resulted in information which has not led to a solution of the difficulty; and suggestions as to the cause of failure, when carried out, seldom gave any better result. One told me to boil the sulphide bath; another, to develop the prints exactly for two and a half minutes, and all would be well; but, unfortunately, neither of these directions was of help in my case. If one desires information on the use of development with soda or toning P.O.P. prints, the most explicit and detailed instructions are given, and I hope to supply the demand for similar directions for using the sulphide bath, for want of which as on the point of giving up this most useful process, when I was put on the right path by a hint from another experimenter on this matter, and by further investigation evolved the following essential points of success, by attention to which one cannot fail to obtain a good rich colour on any bromide print. The prints must have been absolutely dry at some time between fixing and bleaching.

The print has not dried it will bleach very slowly, and may take hours, and if parts only are still damp the final tone will be uneven, as it will also be if the hypo be not thoroughly washed out before bleaching.

The final tone is said to be affected by the brightness of the negative and by the duration and completeness of development, these statements may be ignored if the more essential points are carefully carried out.

I have taken prints from the same negative, developed one for about one and a half minutes, one for two minutes, and one for longer. I also purposely over-exposed one and developed it completely, i.e., until it appeared fairly right. I toned all three together, and got identical tones on all.

It is true that the surface of the print affects the colour at times. A glossy print tends to give yellower tones and a rough surface richer browns, but this is not always the case. Different grades of paper will, of course, sometimes differ slightly in the final result.

The composition of the "bleach" and the method of using it, next to point 1, the most important to observe. The strength of the solution does not matter; it only acts quicker or slower as it is concentrated or dilute, but the proportions of potassium ferricyanide and potassium bromide should be carefully noted.

Make up the following:—

Potassium ferricyanide .....	2 oz.
Potassium bromide.....	$\frac{1}{2}$ oz.
Water .....	48 oz.

This will keep in good condition for some weeks.

In cold weather this will be found to act fairly fast, but in

warm weather it can be diluted with once or twice the volume of water.

The amount by weight of bromide should be quarter that of the ferricyanide; less will give the same result, but will bleach slower; more tends to a yellow tone.

4. The amount required for a batch of prints should be taken and thrown away after use. On no account put it back into the stock bottle or use it for a second batch.

Mr. Blake Smith, in his book on this subject, states that the ferricyanide bromide bleach may be put back into the stock bottle and used over and over again. It may be so with ammonium bromide, which he gives, and which I have not tried, but it certainly is not so with the potassium salt.

The prints may be put in either wet or dry—that is, they may be wetted first, if attention has been given to point 1, and if they bleach unevenly through overlapping, etc., it does not matter, provided they are carried as far as they will go. They should then be washed until the yellowness has all gone.

5. The sulphide bath is usually made as follows:—10z. of sodium sulphide is dissolved in 10oz. of water, and boiled to precipitate the iron. It is then filtered, and made up to 10oz. once more. One ounce of this and 9oz. of water make the working solution, into which the bleached and washed prints are immersed, taking care this time that sulphide flows evenly over the print, or markings may result. The prints are then washed and dried.

The Editor of the "B.J." says that the used sulphide will not keep, as it is liable to stain the whites after it has been used a few times. In place of the sodium sulphide I now use ammonium sulphide, of which I pour a few drops to the pint of water. It gives identical tones with the sodium, and, being already a liquid, saves the trouble of making up.

Its disadvantages are that the smell is rather unpleasant and the fumes must be kept away from sensitive plates and paper. As it is in use for only about two minutes at a time, and then in a very dilute state, these difficulties are easily avoided.

6. The sulphide softens the gelatine, and on thin papers is liable to produce blisters, not in the bath itself, but in the final washing. They appear as in albumenised paper where there have been kinks in handling the prints. They may be avoided entirely by using an acid hardener in the hypo, and as an extra precaution in the case of thin papers a few minutes in a 10 per cent. formalin bath before the first drying. It does not appear to be necessary to wash the formalin out. If the prints are required to be glazed they should be given another formalin or alum bath after the sulphide.

The tone always appears colder on drying, but the method enumerated above does not reduce the prints at all, so it is not necessary to get a darker print to start with as generally stated.

Finally, to avoid blisters, it is advisable to keep prints flat, and when working large sizes a zinc dish should be used, which can be economically made by a tinsmith. This may be used for developing and toning, but not for the hypo bath, for which I use a wooden dish lined with wax. One in use sprang a spring to leak after six months' continual use, but a touch with the iron made it as good as new.

It is tant that

## FOREIGN NOTES AND NEWS.

### Stereoscopic Photomicrographs.

M. Monpillard, at a meeting of the Société Française last month, described a method of obtaining stereo-photomicrographs by illuminating the object first from the right and then from the left by swinging the mirror. A later improvement is the use of a half diaphragm on the condenser, which is shifted from one side to the other. This idea was utilised more than ten years ago by Mr. Iles, of Birmingham, we believe, and it gives very effective results.

### The Improvement of Bromide Prints.

M. Underberg suggests that misty bromide prints can be considerably improved by immersion in the mercuric iodide intensifier. On immersion in this the prints assume a nasty yellow tone, but if washed and immersed in a metol-hydroquinone developer, the image is converted into a fine blue-black colour. Prints thus treated have been exposed, both damp and dry, to sunlight for six weeks without showing any change of colour.

### Development in Daylight.

In the current number of the "Zeitschrift für Wissenschaftliche Photographie," M. B. Szilard recalls the fact that, excluding particular forms of apparatus, Spiro, Williams, Ludwig, Herman and Schulze, Süss, Lumière and Seyewetz and others have suggested the use of dyes in developers so that plates could be developed in daylight. It is important that the dyes should be soluble or miscible with alkalies, and also form colourless compounds with acids, or, in other words, that the gelatine should not be permanently stained. Numerous experiments have led him to finally adopt the following formula as perfectly satisfactory:—

Luteol .....	2 gms.
Phenolphthaleine .....	3 gms.
Alcohol .....	100 ccs.
Glycerine .....	50 gms.
Caustic potash .....	1.2 gms.

To every 100 ccs. of developer should be added 20-60 ccs. of the above solution, which is deep red in colour and perfectly protects the plate from any actinic light. M. Szilard states that this, if sufficient depth of developer be used, is applicable to the most rapid ordinary or orthochromatic plates, provided direct sunlight or the electric

light be avoided. The above solution forms also an efficient for tank lamps.

### A New Developer.

A German patent has been granted to Fritzsche and Co., of Hamburg, for the use of protocatechualdehyde or its bisulphite pound as a developer. The action is due to two hydroxyl groups in the ortho position, and is increased by the addition of the hyde. The presence of the latter enables the developer to be with sodium bisulphite. A typical formula is 1 part protocatechualdehyde, 5 parts sulphite, 5 parts potassium carbonate and a little potassium ferrocyanide. It is claimed for this developer that it enables over-exposure to be compensated for, and soft, monious negatives are given, even with long exposures.

### Toning Bromides.

Herr A. F. La Rin in "Photographische Kunst," calls attention to the well-known fact that different tones are obtained on bromide prints developed with different developers, and gives the following table of his results, with some of which, however, we can agree:—

Developer.	Hypo-Alum (Brown).	Iron (blue).	Uranium (red brown).	Copper (red).	Uranium (Green).
Amidol .....	Best	Not satisfactory	Whites stained	Very suitable	Very suitable
Metol - Hydro	Unsatisfactory, sometimes will not tone	Satisfactory, only slight change	Unsatisfactory	Tones less	Unsatisfactory
Hydroquinone	Same as above	Fine tone	"	Stains slightly	"
Edinol .....	Fine tone	Unsatisfactory	Good	Suitable	"
Ferrous Oxalate .....	Satisfactory	—	Fine tone	—	—
Rodinal .....	"	—	Unsatisfactory bronzing	Suitable	Suitable
Pyro Soda .....	Unsatisfactory	—	Unsatisfactory	"	—

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made between June 24 and June 29:—

**PRINTS.**—No. 14,471. Machine to facilitate the production of photographic prints. Frederick William Emuss and Montague Picton Prout, 98, Balham High Road, London.

**CINEMATOGRAHS.**—No. 14,493. Improvements in cinematograph pictures. Bessie Kate Brown and Theodore Brown, 8, Villa Road, Brixton, London.

**PRINTS.**—No. 14,505. Improvements in apparatus for drying photographic prints. B. J. Hall and Co., Ltd., and Benjamin James Hall, 39, Victoria Street, London.

**SOUVENIRS.**—No. 4,662. Device for producing photographic souvenirs. Courtney Spencer Jones, High Street, Woodford Green.

**COLOURING PHOTOGRAPHS.**—No. 14,666. Improvements in the colouring of photographs, and in the apparatus for use therein. John J. Griffin and Sons, Ltd., and Thomas Arthur Moryson, 322, High Holborn, London.

**SHUTTERS.**—No. 14,728. Improvements in camera shutter releases. Charles Chase Little, 53, Chancery Lane, London.

**CUTTERS.**—No. 14,760. Improvements in or relating to cutters for photographic prints and the like. Joseph Thacher Clarke, Chancery Lane Station Chambers, London.

**FILMS.**—No. 14,858. Improvements in films. Ozias Dodge, 7, Southampton Buildings, London.

**CAMERAS.**—No. 14,916. Improvements in photographic cameras. Herbert Holmes, William Albert Edwards, and Houghtons, 188, High Holborn, London.

**BIRD'S-EYE VIEWS.**—No. 14,932. Improvements relating to a method of, and apparatus for, photographing bird's-eye views. Paul Theuerkorn, 20, High Holborn, London.

**CAMERAS.**—No. 14,966. Improvements in cameras. John Edy Thornton, 6, Bank Street, Manchester.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**REPRODUCTION PROCESS.**—No. 11,312. A.D. 1906. This invention has reference to the obtaining of direct positive copies or similes of tracings, or translucent drawings, or other transparencies, without the intermediary of a negative, in Indian ink, carbon black, or any suitable pigment, paint, varnish, enamel, or other coloured inks or substances; or in photo-lithographic transfer or printers' inks, for the purpose of obtaining therefrom multiple copies by machine printing. Whereas gum-ferric inks are now in common use for the purpose of obtaining positive coloured copies of translucent drawings from a photo-impression, by acting on the salts of iron with certain chemical colouring reagents, such as ferro cyanide of potassium and tannic acid, or like substances, which induce only a chemically d



loped, dyed, or stained copy, quite a different property of the gum-ferric film is now proposed, which will be much more certain in its results—namely, its power of combining with some of the cyanides of potash, and of being dissolved thereby, and this invention is confined wholly to the use and application of this species of film or solution and solvents. By using them a photo-impressed gum-ferric film, and solving away the unexposed parts in a primary solving bath of preferably the ferro-cyanide of potassium, or other equivalent solvent, certain stencilling effects are produced in the film, thereby leaving the surface of the substratum in parts bare and naked, and in parts still covered by a so far insoluble film. By now treating the surface all over with insoluble pigment inks, paints, enamels, or varnishes, or with greasy printers' transfer inks, access is gained to the bared surface in the naked parts to which the ink adheres, and by using weak acids as a secondary solvent to remove the remaining film, and with it the superimposed ink, a positive mechanically developed copy of the original subject is obtained, which, being mechanically applied direct on the surface of the paper or other material, and not on a soluble surface film, is fixed hard, and cannot be removed by any solving or ordinary washing. The prepared surface is exposed in the usual way, then primarily treated with a solution of ferro-cyanide of potassium or equivalent solvent, the ferro-cyanide of potassium having, not only the effect of developing up the picture in Prussian blue, as in the blue line process, but at the same time of completely dissolving away the protecting gum ferric in the unexposed parts which are along under the lines, or the dark portions of the translucency where the light has not acted. The print may now be dried, and in this stage of the operation the surface is practically covered with a stencil film in which the parts exposed to light are still covered with the protecting film; but under and along the lines and dark portions of the transparency the raw paper is exposed and stained blue.

For producing direct photo prints or copies of the original, the surface after drying is mechanically treated all over, but particularly in these bare parts, with a prepared solution of Indian ink, pigment, paint, varnish, enamel, or carbon-black, or other colouring matter or dye stuff which will become insoluble on drying; while in the case of multiple copies to be produced by machine printing, the surface is treated with any suitable greasy litho-transfer, or printers' ink, producing thereby, and after the subsequent operation of solving away the stencil in weak acid, a transfer copy which will go down on stone or metal for machine printing purposes. The ink, colouring matter, or the like, may be applied by rolling up or with a sponge, brush, or pad of cotton wool, and will effectually stain or work itself into the surface in the open, bare, or naked parts of the stencil, where it is unprotected by the film, and which have been overshadowed by the lines or dark portions of the translucency; whereas in those other parts exposed to the action of light, on which the impermeable film still exists, the ink or colouring matter or greasy ink will be effectually prevented from reaching the surface. The copy is now immersed in a weak acid bath, which forms a secondary solvent, and which will have the effect of dissolving away the remaining film, and with it the superimposed ink, and of bleaching the copy white. A wash in water to remove the acid and the dissolved film and clean the surface is all that is required to complete the copy. Henry Lionel Shawcross, Dale Street, Liverpool.

Mr. W. F. COOPER, of Water Lane, Watford, writing to "Nature" point out the difficulties experienced by amateurs in obtaining sufficiently rapid films for the purposes of research, says the fastest he has been able to obtain have a speed of H. and D. 100, less a half that of ordinary snapshot plates. This speed is quite adequate for the photography of operations, for in a case observed Mr. Cooper an exposure of ten minutes would have been required. Cooper has been successful in recording the movements of blood puscle parasites, but the chief obstacle in the way of further progress is lack of general interest in the uses of the cinematograph by the part of scientific workers as opposed to professionals. He in correspondence with others who have taken up this line of work with the view of producing a demand for films better suited to purpose in the matter of speed and orthochromatic properties.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Simplified Factorial Development.

I think beginners would take more kindly to factorial development (writes Mr. P. McGregor in "The Photographic News") if they could get it simplified, so that they could divide the number of seconds of first appearance by a factor which would give them the result at once, without having, as in the old method, to multiply by the factor and divide by sixty. My new system, which I have been using for some time, is very simple. There is no calculation required; you merely divide the number of seconds of first appearance by the factor, and you have your answer in minutes required for total development. I give some of the developing agents below, with new and old factors.

New Factor.		Old Factor.
12.	Adurol .....	5
6.	Kachin .....	10
6.	Pyrocatechine .....	10
12.	Hydroquinone .....	5
2.	Metol .....	30
6.	Ortol .....	10
10.	Imogen sulphite .....	6
5.	Diogen .....	12
3.	Edinol .....	20
12.	Pyro .....	5
Divide by 3 and multiply by 2.		Rodinal .....
		40

### Hypo Eliminators and how to use them.

The hypo eliminator I use (writes Mr. Frederick Page in "Photography") is a very dilute solution of potassium permanganate, or, if that is not at hand, Condy's fluid, which is supposed to contain sodium permanganate, will do just as well. After the plate or the print has been washed under the tap or in three or four changes of water for about a couple of minutes, it is placed in water just tinged pink with the permanganate. The pink colour will be discharged almost at once, and the solution is then changed for fresh. It is changed from time to time until the print may be left for three minutes in the pink liquid without altering its colour, and when this is the case it may be assumed that the hypo is completely destroyed. With a negative which is wanted in a hurry, but still is wanted properly washed, this process seems excellent, and has been in use for years without any failure. Now and again the permanganate will leave a slight brown stain on the negative; but a bath of five grains of oxalic acid to one ounce of water removes these very quickly, and a short wash completes the cure. But such stains are not at all common, and can be prevented altogether by washing the negative or the print as much as possible before resorting to the permanganate, and by taking care not to use this too strong.

### Judges at Exhibitions.

With reference to ideal judges in pictorial photography, a writer in "The Amateur Photographer" says: "History shows us that the men who laughed at Turner, scoffed at Monet, sneered at Whistler, and howled down Rossetti, were the leading contemporary painters. If artist-painters showed themselves such poor critics of their own art, are they to be trusted as judges of pictorial photography—an art which few of them understand, and many of them profess to despise? I do not think so. And I doubt whether men who have the artistic temperament to become first-class pictorial photographers have a temperament which will qualify them to act as clear-sighted judges. Having eliminated these, there still remains that class of men who have cultivated their critical and appreciative talents, I mean art critics of the class to which Mr. Bernard Shaw belongs. And, taking Mr. Shaw as an example, and leaving his diatribes and fireworks out of the question, I have never met with such a calm, just, unerring critic of pictorial photography as Mr. Shaw has proved himself to be. If Mr. Shaw, and several such as he, acted as hanging committee at the Royal Academy, and jury of admission at the Photographic Salon, art would be the gainer."

### The Reflex Camera.

Probably the best method of holding the camera (writes Mr. A. Lockett in "Focus") is to suspend it from the neck by a strap, with the back resting against the body. Only a slight steadying pressure of the hands is then required, and the latter are left at liberty to manipulate the focussing screw and exposure lever. It is best to have these two movements on opposite sides. When they are both on the same side the exposure cannot be given quite the exact instant that

the subject is focussed. It is advisable to have an additional focussing screen to fit the back. The apparatus can then be used on a stand at any height if desired; most reflex cameras are so provided. If, however, the camera has a screw bush at the side, it can be fastened to the tripod on that side, and the focussing done through the reflex finder. The best apparatus of this kind is fitted with a revolving back, which can readily be turned for either upright or horizontal pictures, without removing it—obviously a great convenience.

## New Books.

"The Poetry of Architecture." By John Ruskin. Pp. 276. 6 x 3. London: George Routledge and Sons, Ltd. 1s.

A well-known writer on every photographic topic, from art to chemistry, once delivered himself of an obiter dictum to the effect that no architectural photograph could be pictorial. This may be true, but as early as 1837 Ruskin had discovered that there was at least poetry in architecture, and from November of that year to December of 1838, a series of articles by him appeared in the "Architectural Review." A costly reprint appeared in 1893, but now by the issue of this edition the said articles are placed within the reach of all, and a careful study of them will, we think, teach many a photographic worker, not only that there is beauty in architecture generally, but also in detail.

Reproductions of the original woodcuts are given, because, as the editor, Mr. F. C. Tilney, says, "They evidently passed the censorship of the author, whose need of them as diagrams has led to their unhesitating inclusion here." The book is further embellished by full-page half-tone reproductions and a three-colour frontispiece, the inclusion of these being explained by the editor in the following lines: "In the case of photographs of the very places that are exhaustively treated by the author, the case is different; for the physical features, the architectural characteristics, the phenomena of light, of air, and of distance, the water surface and reflections, as well as other qualities impossible in an outline sketch, are inherent in a good photograph. It is therefore with much gratification that the editor has been able to avail himself of the excellent photographs of Mr. R. Child Bayley, F.R.P.S. (Editor of "Photography," and author of "The Complete Photographer"). These camera pictures confirm, in a remarkable way, the searching observations of Ruskin upon natural effects in those sections of the work which deal with Lakes Como and Lecco. Ruskin himself took a keen interest in photography, and such a use of it as the present could scarcely fail to give him pleasure were he alive to witness it. Further, could he have known that photographic processes would have made it possible to reproduce a Turner drawing in its actual colour, he would doubtless have eagerly availed himself of the first opportunity of pressing them into his service. No apology is needed, therefore, for the coloured frontispiece of this edition, which reproduces the Lake of Como—his favourite drawing—in Group XI. All his remarks as to the hues, the reflections, the white villas, the snowy peaks of the Larian Lake, are borne out by Turner's exquisite vignette."

We welcome this reprint most heartily, and congratulate the editor, his photographic illustrator, and the publishers on the results obtained, and we commend a careful study of this and the other Ruskin reprints in this low-priced series, to the careful perusal of photographers.

"The Year Book of Photography." Edited by F. J. Mortimer, F.R.P.S. Pp. 614. 7½ x 4½. "The Photographic News," London. 1s. paper. Cloth, 1s. 6d.

The literary portion of this work is divided into five sections, dealing with "Seascape and Yacht Photography," by the Editor; "Landscape Photography," by J. C. Warburg; "Practical Portrait Photography," by C. H. Hewitt; "Architectural Photography," by H. W. Bennett; and "Flower Photography," by Edward Seymour. There is thus considerable choice for the reader, and the information given is by no means too solid, but of the light character which will especially appeal to the amateur reader, and illustrations lend point to the stories that each writer has to tell. It is invidious to pick out any article as the best, but one may possibly think that those by Messrs. Hewitt and Bennett are the most practical, the former because it deals essentially with portraiture in a room and not a studio, and therefore being all the more valuable to the amateur

worker. Mr. Bennett's article is welcome because, whilst thoroughly practical, it lays stress on the fact that the architect-worker must be in sympathy with the work—a "sympathy amounting to reverence," as the author says.

The usual collection of formulæ and tables and novelty section appear, with complete lists of societies, trade names, etc. The forty-eighth volume of the "Year Book," and it is quite up to standard of its predecessors, and will form, as in the past, a useful reference work for amateur workers.

"Telephotography Simplified." By Captain Owen Wheeler. Pp. 8½ x 5. R. and T. Beck, Ltd. 3d.

This little pamphlet deals with the use and advantages of the lens for telephoto work, as described in our issue for May 10, p. Captain Wheeler's notes are practical, and with the illustrations thoroughly convincing as to the advantages of this hood, which now made by Messrs. Beck.

"Monographie du Diamidophénol en Liqueur Acide." By G. Balagny. Pp. 84. 7½ x 5. Paris: Gauthier-Villars. 2fr. 75c.

"Applications de la Photographie aux levés Topographiques." Henri and Joseph Vallot. Pp. 237. 7½ x 5. Paris: Gauthier-Villars. 4fr.

M. Balagny's little work is an elaboration of his method of developing with an acid solution of amidol, which was abstracted in issue for April 26, 1907, p. 308. There is, however, rather more to this in the work, and it may be taken as the best monograph on use of amidol that has yet appeared.

M.M. Vallot's work is of a somewhat more scientific interest than the above, and it deals with what we in England should call photogrammetry, or surveying by photography. The application of photography to this particular work has been much more neglected here than in France, where doubtless it owed much of that attention bestowed on it to the work of Colonel Laussedat, whose death we have only recently had to chronicle. The work deals very thoroughly with the theoretical side and the necessary apparatus, and will doubtless take its place as one of the classics on a subject which appeals to the few and not to the many.

NEW CINEMATOGRAPH FILMS.—The Charles Urban Trading Company, Ltd., of 48, Rupert Street, London, W., are placing a number of new films on the market, some of which appear to be of considerable historical and scientific interest, notably "Visit of the Color Premiers to Portsmouth," "British State Ceremonies," "The L. Shamrock," and "Through the Microscope." Several of these films should prove valuable also as "records," and as such will be welcomed by all who desire the preservation, in picture form, of unique events.

NEW EDINBURGH PHOTOGRAPHIC ASSOCIATION.—At a large meeting of Edinburgh photographers held last week it was resolved to start a new photographic association. Rules and regulations were drawn up, office-bearers and council elected, and it was agreed to open a session in October. The name of the new association is to be the Mid-Lothian Photo. Association.

TOURIST LITERATURE.—From the Health Resorts Development Association, 29, John Street, Bedford Row, W.C., we have received copies of booklets published by them for the town councils of F. mouth, Harwich and Skegness. These little guide books give much useful information, together with a number of illustrations of various districts dealt with, and those of our readers who anticipate being in the neighbourhood during the summer months would do well to secure a copy, which may be had post free on application by letter or postcard to the respective town clerks.

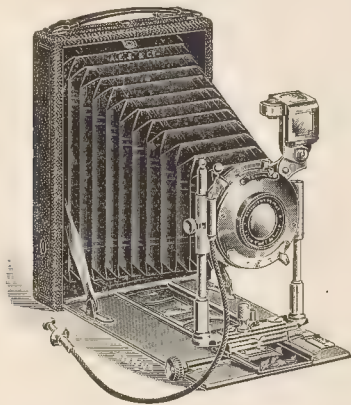
SHEFFIELD PHOTOGRAPHIC SOCIETY.—The annual report shows that the society is in a prosperous condition with a considerably increased membership. There have been twenty-two meetings held during the year, which have been well attended. Several well-known photographic workers have lectured before the society, and the large attendances at such lectures lead the council to believe that the policy of interchanging lecturers with other societies is appreciated. photographic workroom, which can also be used as a studio, has been acquired for the use of members, and fitted up with conveniences for developing, enlarging and reducing. A series of elementary demonstrations will be held in it at an early date. The secretary of the society is Mr. James W. Wright, 62, Vale Road, Sheffield.



## New Apparatus, &c.

The "Mite" Pocket Folding Camera. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, E.C.

This camera is well named, as it is extremely small, and really a pocket camera, measuring, in the quarter-plate single extension,  $\frac{3}{4}$  by  $4\frac{1}{4}$  by  $1\frac{1}{4}$ , the weight being only 20oz. It is fitted with an aluminium baseboard, with rack and pinion and infinity catch. The lens is cut with a diagonal screw, and the head bears a coarse-cut ratchet, which enables it to interlock with the baseboard when pushed in, thus fixing the extension at any given point. The

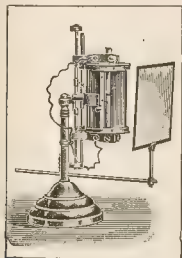


utter is automatic, with various speeds, and is fitted with the best form of Antinous release. The lens is a rapid aplanat working at  $f/7.5$ . A brilliant finder, with level attached, which can be used for both horizontal and vertical pictures, is fitted to the lens front, which has rising and cross movement, actuated by rack and pinion. The whole camera is exceptionally well made, is covered with fine grain Morocco leather, and forms an excessively dainty and compact outfit. The camera is made in quarter-plate, with single and double extension, and also postcard size, the prices being respectively 65s., 80s., and 75s.

The Jupiter Electric Effect Lamps. Sold by the Jupiter Light Studio, 72, Victoria Street, Westminster.

The increasing use of electric light as the illuminant for portraiture is due not only to the variability of daylight and the greater faintness of the former, but also to the ever-increasing facility with which the current is obtainable. This new lamp is made in two forms, the one essentially a studio lamp on iron standard, and the other a portable "effect" lamp.

The studio lamp consists of a small umbrella reflector, fitted with a ring of incandescent lights, used for focussing and judging the



direction of lighting. In the centre is a special form of arc, the effect rays of which are shielded from the sitter. This arc is practically a central carbon, with an opposite pole at either end, the carbons being cored, and impregnated so as to give an intense

bluish-white light. The exposure is made with a flash lasting about 1.40th of a second, or for large groups a continuous arc can be formed. We have had the opportunity of practically testing the efficiency of the flash arc, and find that it gives fully-exposed plates. The lamp can be raised or lowered or shifted at will, and a special resistance is provided with the outfit so that it can be used with alternating or continuous current of 100 or 200 volts. The price of this is £40 complete. The "effect" lamp is, as will be seen from the accompanying illustration, a small portable arc lamp, which can be attached to any plug where electric light is available. It lends itself admirably to some charming and unique effects, and, being sent out with resistance and all complete, it can be readily used by amateurs, as well as professionals, thus opening up another amusing and useful field of work for amateurs. The price of this is £5.

### CATALOGUES AND TRADE NOTICES.

MESSRS. REYNOLD AND BRANSON, LTD., of Leeds, have sent us a descriptive price list of their sequential developing baths, the main feature of which is that each plate is placed in a separate bath, and the whole then inserted in an outer case, which can be made light-tight. Now that development in total darkness is so much to the fore with panchromatic plates, this should be of special interest.

MESSRS. ENTWISTLE, THORPE, AND CO., photo-engravers, photographers, etc., of 42, Deansgate, Manchester, send us a dainty illustrated booklet, showing half-tone examples of the class of work produced by their firm. Their studios are fitted with every facility for photographing or sketching objects to be reproduced, and members of the staff are sent to any part of the country for the convenience of customers. Full particulars, price list, etc., may be obtained from the firm at the above address, and all inquiries and orders will receive prompt attention.

THE ACTIEN-GESELLSCHAFT FRITSCHE PHOTO-ABTHEILUNG, of Leipzig, send us a price list of their photographic specialties, which include mounts, albums, and Vidil and cut sheet films. The list is tastefully arranged and profusely illustrated, and appears to contain the latest productions in mounts and albums at very reasonable prices.

"GOLDONA" MANUAL is the title of a booklet issued by Messrs. J. J. Griffin and Sons, Ltd., of Kingsway, London, W.C., which gives clear and concise instructions for working their "Goldona" paper, together with two illustrations, one showing the depth to which printing should be carried before fixing, and the other, the final result. All users of this paper would do well to obtain a copy of the booklet, which will be sent free to our readers on application, and a careful perusal should enable them to overcome any difficulties they may have met with in working this or other self-toning papers. Free demonstrations and lectures on "Goldona" are given in the exhibition room at Messrs. Griffin's rendezvous, on Wednesday afternoons at 3.30, to which all visitors are welcomed.

SECOND-HAND APPARATUS.—MESSRS. SANDS, HUNTER, AND CO. have just issued a new list of their second-hand goods, which includes a large variety of cameras and lenses, by practically all the best makers, enlargers and reducers, changing-boxes and roll-holders, shutters, and a quantity of sundries and accessories too numerous to mention. All goods are listed at a price much below the original cost, and we think those who intend purchasing any kind of photographic apparatus would do well to visit Messrs. Sands, Hunter, and Co.'s establishment at 37, Bedford Street, Strand, W.C., or to send for a copy of this list before purchasing elsewhere.

THE JUNE ISSUE of the Gaumont Company's "Elge" list contains particulars of the latest additions to their cinematograph films, some of which possess a special interest at the present time. The company state that they have obtained sole rights for the reproduction in film form of the Bury St. Edmunds pageant, now taking place, and this, together with the Oxford pageant just past, will doubtless be in great demand by all cinematograph entertainers. The Gaumont Company also draw attention to their hiring department, and to some bargains in second-hand films, which they are offering at greatly reduced prices, particulars of which may be had by applying to the company at Chrono House, 5 and 6, Sherwood Street, Piccadilly Circus, London, W.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, JULY 13.

Edmonton and District Photographic Society. Outing: Ponders End to Enfield Lock.  
Chelsea and District Photographic Society. Outing to Leatherhead.  
Aberdeen Photo Art Club. Outing to Fough, Banchory.  
Borough Polytechnic Photographic Society. Outing to Bookham.  
North London Photographic Society. Outing to Richmond.  
Hackney Photographic Society. Outing to Broxbourne. Ladies' Day.  
Rugby Photographic Society. Visit of Northampton Society to Rugby.  
Handsworth Photographic Society. Excursion to Cannock Chase.  
Manchester Amateur Photographic Society. Outing to Chapel-en-le-Frith and Cooombe.

SUNDAY, JULY 14.

L.C.C. Staff Camera Club. Outing to Oxshott.

MONDAY, JULY 15.

South London Photographic Society. Monthly Competition—(Prints).

TUESDAY, JULY 16.

Manchester Amateur Photographic Society. "Self-Toning Paper." A. G. Thistleton. "P.O.P." F. Eastwood.  
Hackney Photographic Society. "Animals of the Zoo." F. E. Roope and Walter Selfe.

WEDNESDAY, JULY 17.

South Suburban Photographic Society. Portfolio Chat and Criticism of Prints.  
Leeds Camera Club. "Cloud Photography." Discussion.  
Bristol Photographic Club. Outing to Frampton Cotterell.  
Worthing Camera Club. Outing to Arundel.  
Evertown Camera Club. Half-Day to Storeton.  
Edmonton and District Photographic Society. "Characteristics of Modern Developers." A. E. Worfolk. Competition, June 29 Prints.  
Manchester Amateur Photographic Society. Outing to Moreton.  
Borough Polytechnic Photographic Society. A Demonstration of Mattos Materials. Mattos, Ltd.

THURSDAY, JULY 18.

Hackney Photographic Society. Outing to Guildford.

## Commercial & Legal Intelligence.

**PHOTOGRAPHER CHARGED.**—Frank Dudley (64), photographer, who was very respectably dressed, was charged, at the Stafford Quarter Sessions, with having obtained a quarter-plate camera and outfit from Mr. Albert Perry, tailor, Uttoxeter, by false pretences. Mr. B. C. Brough prosecuted. Mr. Perry said he had the camera and outfit (which originally cost 17 guineas) for disposal, and he advertised it for sale in a photographic journal. He received a reply from Bournemouth, in the name of George Rivers, whose communication represented him to be an artist and photographer. Prosecutor offered to sell the outfit for seven guineas, and upon the representations made by the correspondent, the outfit was sent to the address at Bournemouth. Prosecutor afterwards received neither money nor answers to letters he sent to "Rivers." Evidence was given that the parcel despatched from Uttoxeter was received by prisoner, who subsequently pawned the goods for £3. The Inspector, in reply to prisoner, said that Dudley had given every assistance in the recovery of the property. At this stage the prisoner pleaded guilty. Mr. Brough said that prisoner was wanted by the Shropshire and other police. The Chairman said this was prisoner's first offence, and the Court felt justice would be met by committing him to one month's hard labour.

**PHOTOGRAPHERS AND LICENCES.**—At the Blackpool Police Court it was stated of George Quarumby and William Taylor, who were charged with peddling without a licence, that they were going from door to door in Charley Road with a camera, asking if occupants would have their photographs taken. The Chief Constable did not press the charge, and defendants were dismissed on paying the costs.

**TELL-TALE PHOTOGRAPH.**—During the hearing of a case at the Lambeth County Court, in which the defendant failed to appear, the plaintiff produced an illustrated paper, and said: "Here he is, your Honour, in a picture, which shows that he was at Henley yesterday."

**AN UNENVIABLE RECORD.**—At the North London Police Court last week Henry James Cray, aged 34, photographer, of Markhouse Road, Walthamstow, and Edward Brunjes, of Harries Street, Walthamstow, were charged with behaving in such a manner as to be calculated to cause a breach of the peace. A police inspector stated that he saw the prisoners pushing against young women, whom they disturbed

with offensive attentions. The prisoners denied any intention of annoying anybody. They admitted that they had had some difficulty but were surprised when they were taken into custody. Insp. Summerfield stated that he was inclined to think that there was some motive in Cray's actions, as he had been several times convicted of theft. Cray said he went out on business on Monday, when he accidentally met the other defendant, and they had a few words together. Cray was fined 21s. and Brunjes 10s. 6d.

**ALLEGED DAMAGES.**—In the Court of Session, Edinburgh, last week the Lord Ordinary was informed of the settlement of the action of Charles Sweet, photographer, Rothesay, against William Caird Muir, draper, Montague Street, Rothesay, for £700 damages for the cost of restoring his property at 19, Battery Place, Rothesay, which, it was alleged, had been irretrievably damaged by defender's building operations. By the terms of the agreement defender was granted absolver, no expenses being due to either party.

**CLAIM FOR WAGES.**—John Bickerstaffe, photographer's assistant, 89, St. Luke's Road, Southport, summoned Frederick Dodd, tenant, 31, Old Haymarket, Liverpool, for payment of £5 15s. 9d., wages alleged to be due to him. Defendant did not appear. Claimant said he had been engaged by defendant to manage a photographic shop opposite the Prince of Wales Hotel. Defendant transferred the business, and the sum claimed then remained owing to him as wages. An order for payment in fourteen days was made.

### NEW COMPANIES.

**CITY PICTORIAL WORKS.**—July 1, by Jordan and Sons, Ltd., Chancery Lane, W.C. £1,000 (£1). To acquire the business of photographic enlargers, artists, and printers, etc., carried on by A. Smith and H. Craeley, at 59-61, Queen Street, Cardiff. No public issue. First directors (not less than two nor more than five) to be appointed by signatories. Twenty ordinary shares. 55, Queen Street, Cardiff.

## News and Notes.

**DECEASE OF MR. J. T. CHAPMAN.**—One of the oldest dealers in the photographic trade, in the person of Mr. J. T. Chapman, Albert Square, Manchester, has now been lost to us through death on the 28th ult.

**BAIT OF THE FREE PHOTOGRAPH.**—A Dalston photographer offered as an advertisement, to photograph free any baby between months and five years. His place was soon besieged with mothers and their offspring. In all he succeeded in photographing babies.

**THE NEW RADIUM.**—M. André Lancien, the discoverer of molybdenum, or the new radium, as it is called, is a medical student at Rochefort. He says he has been studying photography for about two years, and in the course of experiments he combined molybdenum and uranium by treating nitrate of uranyl with molybdate of ammonia, thus obtaining a white precipitate, which, being dried in vacuum, yielded molybdate of uranyl. This substance affects photographic sensitive plates, and has been named molybdenuranyl. Its radio-activity is very low, reaching a maximum of 40, as compared with 1,800,000 of radium bromide, but, on the other hand, the new substance appears to produce no burning of the skin, and thus, besides being far less costly, offers a double advantage over radium bromide in cases in which only a low degree of radio-activity is required.

**MARK TWAIN'S PHOTOGRAPH.**—Mark Twain, who was the guest of the Savage Club on the 6th inst., was presented, by Mr. E. Peacock, with an excellent portrait of himself, executed by Mr. Ernest H. Mills and signed by all the members present. In thanking the donors for their gift, he said: "I am very glad indeed to have that portrait. I think it is the best that I have ever had, and there have been opportunities before to get a good photograph. I have sat to photographers twenty-two times to-day. Those sittings, added to those that have preceded them since I have been in England—if we average at that rate—must have numbered between 100 and 200. This is the best I have had."

**CAMBRIDGE PHOTOGRAPHIC CLUB.**—The fifth annual meeting was held on June 25, when there was a good attendance of members and



friends. The secretary, in presenting the annual report, stated the past year had been a very successful one in all ways—in membership, in attendance at the meetings, and in the interest manifested. The club had made very distinct progress, and at no time since its commencement had there been more life and vigour at present. During the year sixteen meetings had been held at which lectures, demonstrations, etc., had been given, twelve of which had been undertaken by their own members. The exhibition had been a great success. The treasurer, in submitting the statement of accounts for the year, said that the club was entirely free from debt of any description, and had a substantial balance in hand. Both report and balance-sheet were adopted. The officers for the year were then elected, the president (Mr. W. Farren), the president (Mr. C. H. Nicholl), and the secretary (Mr. Sowdon) re-elected, with Mr. W. C. Squire (treasurer) and Messrs. J. Coulson, S. J. Parson, J. H. Leech, W. Tams, D. J. Scott, Barrett, and A. Farren forming the new committee. The proceedings closed with votes of thanks to the officers both past and present.

**SUMMER HOLIDAYS** is the title of the Great Eastern Railway Company's handbook for 1907, in which special prominence has been given to some of the less known districts in East Anglia and to the country between Cromer and the Norfolk Broads. It is profusely illustrated with facsimile water-colour drawings and pen-and-ink sketches, and contains much useful information respecting the objects dealt with, together with a sketch map of the broads and a comprehensive list of golf-links in the eastern counties. The booklet is well worth perusal by those who intend spending their summer days in any part of the district which it covers, and copies may be obtained from the publishers, at 30, Fleet Street, London, E.C.

**BROMIDE ENLARGEMENTS.**—Mr. Henry M. Ward, of Leicester, whose reputation for enlargements is well established in the photographic trade world, sends us examples of his latest achievements in "toned bromides," a subject to which he has devoted special attention for a number of years. These subjects, which include portraits, interiors, animals, statuary, etc., vary considerably in subject, but all alike show a richness of colour and delicacy of gradation which is altogether admirable, and one looks in vain for any of the harsh contrasts so frequently met with in bromide enlargements. The rich sepia and velvety-purple blacks might well be taken for carbon, and the name of "carbon bromides," which they give them, seems to us extremely appropriate. We feel that any of our readers who entrust their enlarging orders to Mr. Ward will be quite satisfied with the results, and a trial will convince them of the excellence and exceptional quality of the work. Mr. Ward's address is 9, Belgrave Road, Leicester.

**THE YEAR 1905** saw a phenomenal rise in the price of platinum and a greatly increased production in the United States (says "The Mining American"). The annual report of the United States Geological Survey on the production of platinum, prepared this year by Mr. F. W. Horton, contains details of exceptional interest. It states that early in March, 1905, the price of ingot platinum advanced from 78s. an ounce to 84s. an ounce, surpassing gold in value. On May 11, 1905, the price fell to 82s., and remained firm at this quotation until February 1, 1906, when it jumped to 100s. an ounce, where it remained until September 1, 1906, when it leaped to the unprecedented value of 123s. an ounce. Mr. Horton's report also shows that the production of platinum in the United States increased from 100 ounces in 1904 to 318 ounces in 1905.

**DRESDEN INTERNATIONAL PHOTOGRAPHIC EXHIBITION, 1909.**—We think that much interest has been awakened in the above exhibition by the announcement that it will be held under the patronage of His Majesty King Frederick August of Saxony, and that H.R.H. Prince John George will act as president of the honorary committee. It is intended to issue a comprehensive programme in several languages early in September. All information may be obtained from the office of the exhibition, Dresden-A., Neumarkt, 1, Hotel Victoria, Berlin.

**ANNUAL OUTING OF THE ROTARY COMPANY, LTD.**—The employees of the above firm visited Hastings on July 6, on the occasion of their annual outing, and were fortunate in being able to enjoy a day free from rain. The numbers were rather reduced, owing to the early season having commenced; but a contingent numbering some

350 were present, and appear to have taken full advantage of the arrangements made for their benefit. Luncheon was provided in the St. Leonards Pier Pavilion, after which the party separated and spent the afternoon in the manner which appealed most to their individual tastes, tea being provided at special charges at all the establishments of Messrs. Atkins Bros. and Cox, on production of the firm's programme. This programme consisted of an eight-page booklet, containing all information necessary to keep in touch with the day's proceedings, the cover being printed on "Rotograph" bromide paper and ornamented with views of Hastings, the whole providing an interesting souvenir of the outing.

**THE "RAJAR" CAMERA**, offered monthly by Messrs. Rajar, Ltd., of Moberley, Cheshire, for the best print on "Rajar" P.O.P., has been awarded to A. E. L. Vial, Esq., 5, Dulverton Road, Leicester, his entry having been judged the best received during June. The paper on which the print was made was purchased from Messrs. Wands, Chemists, Leicester.

**THE NATURALIST'S STAND.**—Under the above name Messrs. Sanders and Crowhurst are placing on the market a new form of tripod, specially designed for photographing birds' nests, flowers, seashore objects, etc. The legs, which are 21 in. high, fit into a tilting table, thus enabling the camera to be inclined at any angle, and the top, measuring 8 in. x 7 in., is covered with a cloth, the whole being finished in dull green. The tripod is very strong and rigid, and though only weighing three pounds, is capable of supporting any ordinary half-plate camera fully extended. The price is 18s. 6d. Further particulars may be obtained from the makers, Messrs. Sanders and Crowhurst, 71, Shaftesbury Avenue, London, W.

**THE STRANGE ADVENTURES OF Emerich Dorsay**, a Hungarian photographer, are now forming the subject (says the Central News) of diplomatic notes which are being exchanged between Budapest and Cairo. Dorsay set up in business some years ago in the Egyptian capital and gained a high reputation among the members of the European colony. He was eventually appointed Court photographer to the Khedive, and in this capacity was largely patronised by Prince Mahmud. Dorsay alleges that the Prince ran up a large account, and that when he respectfully hinted at payment he was promptly arrested and thrown into prison. He managed to make his escape and reached Budapest in a state of destitution. He laid his case before the police, an unhappy step to take, for the police surgeon declared he was mad, and the luckless photographer speedily found himself in a lunatic asylum. Fortunately for him it occurred to the Budapest police to investigate his story, which, it is now stated, they have discovered to be true, and the Austro-Hungarian Consulate in Cairo is taking steps to obtain satisfaction for the long-suffering creditor.

**SECRETARIES OF SOCIETIES** who are now preparing their programme for the winter session may be glad to learn that Messrs. Kodak, Ltd., are arranging for their Mr. W. F. Slater to give a lecture on "The Theory and Practice of Time Development," accompanied with practical demonstrations of their daylight developing tanks, etc. Those desirous of securing this for one of their meetings should communicate at once with Kodak, Ltd., 57 to 61, Clerkenwell Road, London, E.C., in order that suitable dates may be arranged.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—Only eighteen out of the 150 members of this society attended at the Society's rooms, 75, High Street, Lewisham, on Wednesday evening for the discussion on bromide printing opened by Mr. Philibert Melotte. Mr. P. B. Danatti presided. Mr. Melotte is engaged in the Photographic Department at the Royal Observatory, Greenwich, where at least a ton of hypo and many thousands of sheets of bromide paper are used in the course of the year. Hence he was able to give the society much curious information not generally known to amateur photographers about the exposure and development, and the eccentricities and peculiarities of bromide papers and developers. Amongst other things he said that as a matter of experience he found the correct exposure of bromide paper in winter was double that required in summer; but to show the latitude obtainable in exposure he produced three prints, exposed respectively for 30, 40, and 50 seconds, and developed with amidol, the result in each case being almost identical. Another point he emphasised was the possibility of developing bromide prints with practically any known developer. In proof of this he showed a number of prints developed with a variety of

developers—including pyro-metol—and all yielding approximately the same result, with very little to choose between them. Amidol apparently gave the most satisfactory print; but he cautioned the members against attempting to develop an under-exposed print with amidol. For forced development of that kind he preferred metol-hydroquinone. Among the bromide prints shown at the meeting were a couple of framed enlargements of architectural subjects by Mr. Percie Edwards, and several toned enlargements made by Mr. W. C. Chaffey and Mr. F. N. Palmer, from negatives obtained at the Epping outing.—The secretary reported that the Epping excursion was thoroughly enjoyed by those who attended, mainly owing to the help and hospitality extended to the members by Mr. J. T. Ashby, F.R.P.S. Mr. Ashby guided them to the best views in the Forest, and after tea invited them to his house, where they discussed pictorial photography.

CHANGE OF ADDRESS.—The Tella Camera Co., formerly of 110, Shaftesbury Avenue, announce that they have moved to larger premises at 68, High Holborn, W.C., where all future communications should be addressed.

## Correspondence.

\**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed by our correspondents.*

### TIMES IS HARD.

To the Editors

Gentlemen,—Times is hard, there is no gainsaying that, and the following style of business does not improve them. The enclosed circular was left at my private house this week, and apparently this very important firm, which gives no address, was doing a good business.—Yours faithfully,

A PROFESSIONAL.

[The circular enclosed is as follows.—Eds. B.J.]

MESSRS. STUART LANCASTER AND SON,

ARCHITECTURAL AND TECHNICAL PHOTOGRAPHERS.

Photographers to H.M. the King. Photographers by special appointment to H.M. the King of Portugal. Photographers appointed by the Admiralty to H.M. Dockyards,

have been favoured with instructions to photograph certain Houses and Premises in this district. To give pictorial and artistic effect to these photographs the tenants or their children are invited to stand outside to be photographed with the premises.

NO CHARGE IS MADE.

A proof of the photograph will be shown in a day or two.

We shall be Photographing in your Street between 12 and 2 o'clock.

Address .....

### "LUSTRALENE" AND "POISONED FINGERS."

To the Editors.

Gentlemen,—Having myself been a sufferer from fingers poisoned by chemicals (many and many is the time I have been compelled to leave my bed in the small hours and, in order to gain relief from the itching torture, plunge my hands into the hottest water I could bear), I shall have pleasure in imparting to "Fingers," who appealed to you for help in last week's "Journal," and to all other like sufferers, how I overcame the difficulty for myself.

Several weeks ago I had on my shelves a tube of "Lustralene," a preparation sold for imparting lustre to dull prints. It suddenly struck me that as the principal part of this preparation was evidently wax, if I smeared it over the fingers it might reasonably be expected to give some protection to those tortured members. I did so before commencing work each morning. By the end of the week the improvement was so marked that I forcibly felt the thrill of gladness we all experience when we have discovered the remedy for an evil that has long depressed us. For years, up to a few weeks ago, my fingers had such an unpleasant appearance, on account of the texture of the skin in its poisoned state, that I never willingly displayed them. I was simply ashamed of them. At this moment I look at them with pleasure—they are now as healthy in appearance as they ever were in my life, and I am now quite free from that horrible itching which once possessed and distressed me. Allow me to commend "Lustralene" to all my suffering fellow photographers; it in no way incommodes one in one's work, but performs its protective office—at any rate, so far as I am concerned—perfectly.

There is one suggestion I would like to make to the "Vang Company," and that is that, if they think it worth their while, might impart to this, to me, precious preparation a more pleasant odour.

In recommending this proceeding to my fellow photographer who suffer in the same way as I myself once did, I must, of course, add that even now I take all possible precautions to keep my fingers out of the solutions with which I work. Trusting that this communication will be of some value, I am, yours respectfully,

24, Lark Street, Burnley.

FRED. BRUNTON

### THE ALUM TROUGH.

To the Editors.

Gentlemen,—Indeed, we believe it has been stated that the w is the more efficient of the two." This quotation is from an Ex C note on the use of the alum trough in your last issue. But is t any ground for the diffidence implied in the "we believe"? Su Melloni and Tyndall, the first investigators of diathermancy, al went out of their way to emphasise the fact that water is sli less diathermanous than alum solution. Tables of the nume results of these investigators are quoted in almost every text-bo heat, and it is therefore somewhat astonishing that the attentio lanternists should have to be directed in this year of grace 1907 to superior athermancy of water over alum solution. May it not that the alum tank habit has arisen, not from the irresponsible st ment of any "great authority," as you suggest, but rather from unwarranted deduction from partial knowledge? It was found Melloni that alum in the solid state is, after sugar-candy and ice, most athermanous of the solids investigated. And, as is well kno this property of solid alum is turned largely to practical accoun the refrigerating and fire-protection industries. May not then installation of the alum-trough in lantern work have arisen as result of the knowledge on the part of some "practical" man, acquainted with the literature of the subject, that solid alum super-eminently athermanous; this knowledge provoking the in ence that what is super-eminently done by the solid must also super-eminently done by its solution?

I have for many years used plain water troughs in lantern w when delicate slides were being exhibited, and can answer for th protective efficiency.

Blackheath.

DOUGLAS CARNEGIE

### THE EFFICIENCY OF IRIS SHUTTERS.

To the Editors.

Gentlemen,—Two points dealt with in Mr. Anderson's letter see to me very debatable. First, with regard to the use of stops. M Anderson cannot conceive of any hand camera worker stopping do beyond f/8, and therefore he does not think the effect of aperture any moment. The modern hand camera lens generally has an apture of f/6, but if it is used for marine work (and this is a most popul branch of hand camera work) it has to be stopped down to f/16 f/22, owing to the fact that the majority of lens shutters will not gi a higher speed than about 1-34 sec. The average speed for this ty of work in fine weather is about 1-50 at f/16, therefore stopping do is necessary. I often use f/22 myself, hence the apertures to be co sidered, so far as they affect shutter exposures, range from abo f/6 down to f/22, and this series is quite long enough to give marke differences in efficiency. In my former letter I considered a serie down to f/64, but only for the purpose of illustrating the comparativ effects with the two shutters. As to the marking of the speeds, I a quite in agreement with Mr. Anderson with regard to the wron marking so prevalent. I can see no excuse for marking a series fro about 1-15 to 1-100, when, as a matter of fact, the shutter has prac tically only two useful speeds of perhaps 1-17 and 1-35. As a rul the highest speed is only about twice the lowest. I do not, howeve agree with him in thinking that the effective exposure should be marked in preference to the duration. The ideal would be to mar both, but if one only is provided I should prefer that to be the dura tion. High efficiency is, of course, desirable, but this affects exposur only, and in hand camera work we cannot calculate exposure to a great deal of nicety, and we have to trust a great deal to the latitud of the plate. The duration of the exposure is, however, an importan matter with moving objects, and there is no saving clause here. If the exposure is twice as much as it ought to be, a moving object is badl blurred, though the plate is not hopelessly over-exposed. Hence I prefer to have the duration marked accurately. High efficiency is



wanted, but I am not particular as to the exact amount of the exposure.

his leads to another matter in which the iris shutter has an advantage. The marked duration of the exposure is correct for any with the iris, but only correct for one stop with the other form shutter. When you stop down with the blind shutter the duration of exposure is reduced unnecessarily, though the efficient exposure remains the same. If you could lower the speed so as to allow for you would gain in efficiency and make the blind shutter nearly effective as the iris shutter, but such adjustments are too troublesome in practice.—Yours, etc.,  
C. WELBORNE PIPER.

#### ILLUSTRATIONS WANTED.

To the Editors.

Gentlemen,—The undersigned ventures to address you on the following subject, viz. :—

the years 1855 and 1856 the British Foreign Legion was stationed at Shorncliffe, Aldershot, Colchester, and Bournemouth, near Portsmouth. Their disbandment about 2,100 officers and men volunteered for the Colony. Writer of these lines is one of the few left of the men; he also served in India subsequently to coming to the Cape, helped to put down the Mutiny. He is at present a pensioner, still engaged in agriculture. He is writing a history of the British German Legion, German and Military Settlers, and Volunteers in the Indian Mutiny, and has collected a lot of material for the purpose.

What is wanted are some illustrations, groups of officers, and generally, views of the camps at Shorncliffe, Aldershot, etc., as it was in the year 1856. Although no personal profit is to be derived from publishing the history of the B.G. Legion, but all goes towards the work among the natives of these parts, yet I offer some good photographs of colonial scenery and native life to any photographer at the aforesaid places, towns, etc., in return for some old photographs taken about the year 1856, or even earlier. I am quite sure there are some good pictures in existence, and if you would be so kind as to insert a short notice in the BRITISH JOURNAL OF PHOTOGRAPHY, my object would be realised. As it is a matter of English history and that of Cape Colony I hope some patriotic photographer will come to my help.

Thanking you in anticipation of your assistance.—I am, yours

C. C. HENKEL, J.P.,  
Late Conservator of Forests.

## Answers to Correspondents.

*Matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.

*Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

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#### GRAPHS REGISTERED :—

Small, 43, Norton Road, Stourbridge. Photograph of Sleepy Mill, Leys. (3)  
D. & Watson, Station Road, Hinckley, Leicestershire. Photograph of Needham.

T.—We know of no such paper as you require, but any bromide paper manufacturer would coat you some, particularly if you are prepared to take large quantities, as you say. The price would naturally depend upon the quantity.

P.—Yes, "pottasche" is the German for potassium carbonate.

QUESTIONS.—1. Where can the dye known as filter yellow K be obtained? 2. What is the price of the dye? 3. Is gamboge soluble with methylated spirit?—W. MACARTHUR.

Fuerst Bros., 17, Philpot Lane, London, E.C. 2. 2s. 6d. half-ounce. 3. Gamboge is almost entirely soluble in methylated spirit.

RED BATH.—Some time back you gave a formula for a combed bath containing alum, which enabled the prints to be

washed with hot water. I have been unable to find this, and shall be glad if you can give the reference or repeat?—POSTCARDS.

The formula will be found on page 776 of the "Almanac" for 1907, and it runs as follows :—

Hypo .....	5 ozs.
Sodium bisulphite lye .....	100 minims.
Lead acetate .....	20 grains.
Alum .....	400 grains.
Gold chloride .....	5 grains.
Water to .....	20 ozs.

Dissolve in the above order.

BLACK MARKS ON GASLIGHT PRINTS.—I have to use a lot of glossy gaslight paper for making copies of plans, and find that I get a lot of fine black marks on the whites. What is the cause, and how can I prevent or remove them?—PETERBOROUGH.

The marks are due to friction, and it is extremely difficult to avoid them. They may be prevented by adding from 30 to 60 minims of a 10 per cent. solution of potassium iodide or cyanide to every ounce of the developer. They can generally be removed by rubbing the print with a pad of cotton wool dipped in methylated spirit.

LENS WANTED.—I am about to commence business and am having a studio built which will be fifteen feet long and nine feet six inches wide. Will you kindly let me know in the "Answers to Correspondents" page what inexpensive lens I should get? I have a good whole-plate camera, and I shall want to take whole-plate pictures, cabinet groups, and midgets.—NORTH LIGHT.

No inexpensive, or costly one for that matter, is made that will do what you desire in a studio but fifteen feet long. A lens of eight inches focus requires about eleven or twelve feet between the lens and sitter for a full-length or group cabinet portrait. Such a lens will not, of course, do for whole plates. For those you will require one of about 12 or 13 inches focus, which will also be suitable for large cabinet heads. We think you are unwise in building so short a studio for professional portraiture.

UNRULY APPRENTICE.—I have got a lad as an apprentice for three years, and I can do nothing with him. He will not do what I tell him. He "cheeks" me, and tells me I cannot sack him as he is bound for three years. Will you kindly say what I can do in the matter, as he has only served nine months out of the three years, and I am sure I cannot put up with it for the remainder of the term? I had a small premium with him.—MASTER.

You have a very simple remedy. Take the lad before the local magistrate and state the circumstances. The magistrate has the power to cancel the indenture, and that will end the matter.

C. R. SMART.—We cannot possibly advise you without knowing more. If you like to write describing the process, we will treat it as confidential and then advise you. The idea may be valuable or it may, of course, be very old.

PHOTOPLASTIC PROCESS.—I desire as much information about photoplastic as I can get, or even the swelled gelatine process would be an aid. I was told that an article appeared in the "Almanac" three or four years back, giving the photoplastic process pretty completely as practised by some French firm; but on looking through the Almanac back to 1898 I could find no reference to the subject at all, so I thought I had better write you and hope you can aid me.—D. RUTHERFORD.

Notes on photoplastic or relief photographs appear on p. 818 of the "Almanac" for 1907, p. 845 of the "Almanac" for 1906, and "B.J.," June 30, 1899, p. 408.

J. ALLEN.—There is no directory in print now. One was published about ten years ago. You might possibly find what you want in Kelly's Directory of Chemists and Druggists.

J. ROSE.—It entirely depends upon the light you want to use, the aperture of the lens, and the plate. No one can answer such a vague question.

E. LEUTNER.—We are sorry that we cannot publish your letter, as it would open up a controversy which we do not think suited to our pages.

MILTON.—What do you mean by "register"? Unless it is a design you cannot register; if it is a process, then you can patent it. Write more fully.

**H. T. CAVE.**—Your best plan would be to send to "Country Life," the "Sketch," "Tatler," and the "World and His Wife."

**WET PLATE.**—We should not advise you to abandon the substance for the shadow. Wet collodion is much used for process work and reproduction, but chiefly for half-tone negative making. If you attended the classes at Bolt Court and learnt this you would stand a better chance.

**TONING.**—Lately I have had trouble with the toning of P.O.P.s in sulphocyanide bath, and shall be much obliged if you can help me in tracing the cause. The prints, soon after immersion in the toning go a sickly yellow, and although after a time they turn a reddish brown, they will not tone fully, being a very yellow colour by transmitted light, and fixing to a yellow; addition of more gold does not make the slightest difference, it seems impossible to tone them beyond a yellowish brown. The bath is composed of 30 gr. sulphocyanide to 3 gr. of gold, and is mixed up some time previous to use, so as to ripen. I have used this formula for many years, and have never had any trouble until lately, and am at a loss as to the cause. I should be much obliged if you would give me your opinion on the following questions:—1. Does the amount that a print is toned, as long as it is thoroughly fixed, affect its permanence? 2. Are P.O.P. prints toned to a reddish brown in acetate soda 1 oz., gold chloride 15 gr., as permanent as those toned in sulphocyanide?—**PUZLED.**

We can only suggest that the bath is not properly mixed, or not allowed sufficient time to ripen. The proper way to mix the bath is to dissolve the sulphocyanide in half the total bulk of boiling water, dissolve the gold in the remainder boiling, then gradually add the gold solution to the sulphocyanide, stirring well, and allow to cool. When cold it will be ripe and fit for use. 1. No. 2. Certainly. The amount of gold deposited in toning has no practical influence on the permanence of the prints. It is the elimination of the hyposulphites which chiefly conduces to permanence.

**STUDIO QUERY.**—I have a sitting-room 21 ft. x 15 ft., with a French window (opening outwards) 10 ft. high by 8 ft. wide. Could you suggest reflectors and screens suitable to make a studio of it, and how high to screen up the window. Unfortunately the latter is very near the background. I should like to make the reflector and screens, if possible.—**STUDIO.**

We should advise you to make the window fitted with three curtains running horizontally on rods or wires—say 4 ft. long each. Then you could arrange the height of the light according to the effects desired. The colour of the curtains may be of a light blue or buff colour. A suitable reflector would be one about 6 ft. by 4 ft., covered with white or very pale blue paper. The sketch shows but a very small space between the side of the window and the end of the room. Therefore we should advise you to work the room somewhat diagonally, by placing the camera very near the side of the room and the background at right angle to it, and as far back as you can get it.

**LIGHTING, ETC.**—A customer got a proof, which was returned marked "Satisfactory," and instructions to finish one dozen cabinets therefrom. Two days later the customer and a photographic friend (I have presumed an amateur) called to cancel order as sitter was lighted wrong, the so-called complaint being that the subject was lighted from side and top, and lighting should have been from the back, and on no consideration would cards be accepted. This is the first I have heard tell of a subject being lighted from behind, and I shall be pleased if you can tell me (because photographic friend spoke with such assurance that I felt bewildered, although a lot of his talk was nonsense) whether there is such a style of lighting. 1. Is there such a style of lighting; and if so, how is it done; or is there any book I can get dealing with the same? 2. Can I compel full payment, as order was given after proof was submitted, and especially as I have five prints from negative? 3. Can you give any other suggestion in the matter? 4. Can you give me formula for making collodion enamel for glazing prints? I have tried the following, but it is so opalescent that it is useless—viz., 50 gr. pyroxyline, 4 oz. alcohol, 4 oz. ether, 15 drops castor oil. 5. How is high gloss on enclosed print obtained? I have tried ferrotype plates, and glass

cleaned with chalk, etc., but fail to get such high glaze. **AVONDALE.**

1. There certainly is a method of lighting from behind, which is usually known as Rembrandt. You will find full details in "The Studio, and what to do in it," by Robinson, "The Lighting in Photographic Studios," by Duchochois, "Professional Photography," by Hewitt, No. 2 of the "Photo Miniature," "Artistic Lighting," by Inglis. 2. We think that you would have good cause for claim for the work done at the time the order was cancelled. 3. We should suggest writing a polite letter to the sitter, pointing out that the order was partly completed, and suggesting that this must be paid for; if this produces no satisfactory reply, we should proceed. 4. Probably the pyroxyline is at fault, as the formula should give a perfectly clear structureless film, but we should prefer to use the castor oil, which serves no purpose. 5. The print has obviously been squeegeed to waxed glass. If you wax the glass, which must be plate, and polish with a rag, and then squeegee the prints after hardening, you should get the high glaze.

**POSTCARD.**—You would certainly be justified in refusing the card, and we should advise you to inform the firm that, if sent, you will not accept delivery.

**MAKING POSITIVES.**—I have some half-plate negatives which I should like to obtain again, and which I should like to duplicate. Would you kindly let me know what kind of plate to use, best for making the positive and negative; the best developer for the work; whether to expose the plate in frame to a light, through a camera by reduction?—**H. M.**

The best plan would be to make the positives by contact, using an ordinary dry plate, and a soft working developer, such as metol, rodinal, or pyrocatechine. Formulae for these will be found in the "Almanac."

**PRINT WASTES.**—We get a tremendous waste at every turn with printing. Will you kindly give me what your ideas are as to amount of returns we ought to get—e.g., if we give out a quantity of paper for 12 x 10 and 15 x 12 work, or say a gross of 12 x 10 cut paper—what proportion, making all reasonable allowance, ought we to get back in good prints? Or, again, say from gross of postcards? All work is either enamelled or "matted."—**PERPLEXED.**

This is a question we are scarcely able to answer, as all must depend upon circumstances. If the paper used is free from defects theoretically there should be no waste at all. It stands to reason that if the printers have to deal with a larger number of faults than they can properly attend to a certain amount of waste must be expected, especially when the light is bright, and the print goes on rapidly. We should advise you to exercise some personal supervision over your printing staff, and see where the faults, if any, lie. You will then be able to form an opinion better than we—knowing nothing whatever of the conditions under which the work is done—could possibly do. We might add that very much depends upon the class of labour you employ. If it is of the cheap kind—lads, girls, or apprentices you must expect to have far greater waste than if you employed really skilful hands. With them the waste should be next to nil.

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## SUMMARY.

Photographic Convention.—The earlier proceedings are over this week. A reproduction of the group taken on Wednesday presented. The Convention will meet next year under the presidency of Sir E. Cecil Hertslet. (P. 538.)

Alfred Watkins, in his presidential address, suggests that photography is mainly the outcome of British genius. (P. 538.)

Scheffer's paper, with reproductions of his photomicrographs, is in full. (P. 540.)

Death of Mr. John Stuart, of Glasgow, one of our oldest and most respected photographers, is reported. (P. 534.)

Relation of photographers to sitters as regards the ownership of negatives is dealt with. (P. 535.)

E. W. Foxlee continues his articles on the wet collodion process, dealing this week with the all-important subject of the bath. (P. 536.)

Letter on stand development, with suggestions for a new form of tank, appears. Obviously, this method is attracting much attention. (P. 550.)

Pressure on our space has compelled us to hold over many items for next week.

## EX CATHEDRA.

**A Photograph of the Latent Image.** We stated last week that any phenomenal paper or fact was not to be expected at every meeting of the P.C.U.K. We think, however, that this year will be marked by the first appearance of a photograph of the latent image itself, which, by the kindness of Dr. Scheffer, we are able to reproduce with a digest of his paper (Fig. 9, page 541). It may be considered that this is not actually a photograph of the latent image. At any rate, it is a photograph of an image which has not been seen before, and can only be rendered visible by development. This was obtained by exposure of a gelatine emulsion to light, and subsequent fixation, without development, a process, which, as is well known, leaves behind something which is analogous to the latent image, as on it can be built a picture exactly as in the case of the true latent image. Whether this is actually a photograph of the latent image or merely the image of the gelatine in a state of strain caused by the action of light on the silver bromide, as has been suggested, we cannot say. Dr. Scheffer, however, is to be warmly congratulated on his success in photographing it.

**The Substance of the Primary Fixed Image.** As to exactly what this substance may be, there are very conflicting opinions. Possibly the best and most concise summary of all the opinions is to be found in the recently published work by Drs. Sheppard and Mees, and this concludes as follows:—"While the latent image before fixation resists nitric acid far better than silver, the primary fixed latent image behaves rather as a mixture of metallic silver and photo-bromide. Apparently, part of the subhalide is converted to metallic silver by the thiosulphate." Whether this is the authors' own opinion or a deduction by Dr. Eder, whose conclusions they quote, is not quite clear. If this assumption, that is that the "Rest" or remainder after primary fixation is metallic silver, then one can understand to some extent Dr. Scheffer's success. In any case, it is to be hoped that his researches will throw further light on the subject.

**Hydroquinone and Glass.** A dealer the other day confronted us with two packages. One was a paper packet containing one pound of hydroquinone and bearing a label to the effect that the contents should not be stored in a glass bottle. The other was a small packet containing one ounce of hydroquinone in a glass bottle. Both packets belonged to the same consignment and came from the same manufacturer. The dealer wanted an explanation, but it was beyond us; it was too much of a puzzle. If hydroquinone will not keep in glass, why send it out in glass? But perhaps an ounce will keep where a pound will not?

If that is so we should like to know why, for the reason is not apparent. Is it a fact that hydroquinone is damaged by storage in glass bottles, or is it a myth that the manufacturers have only just found out? An answer to this query would be of service to many photographers, for bottles are more convenient for storing dry developers than paper or card boxes, and most of us would prefer to turn out the hydroquinone into a bottle when we have bought it in a card box.

\* \* \*

### The Alum Trough.

The letter of Mr. D. Carnegie in our issue of July 12 gives a very probable explanation of what he aptly terms the "alum tank habit." Unwarranted deductions from partial knowledge have played a great part in photographic matters, and, possibly, this alum tank habit is only a somewhat remarkable instance of the trouble that people will take to perform a wholly unnecessary operation that serves no useful purpose. It is certainly very curious that belief in the efficiency of the alum tank should be so widespread, and that the more efficient and far more convenient water tank should be neglected. If this one particular myth can be effectively settled, owing to Mr. Benham having drawn attention to it, something useful will have been accomplished. We wish that all the other myths that hinder the photographer in various directions could be disposed of in a similar authoritative fashion. Reference to these other myths reminds us that for some strange reason alum plays a prominent but doubtful part in many photographic operations. A list of all the troubles for which alum has been prescribed as a cure would make curious reading, and we doubt very much if some of its assumed properties and actions would stand proper investigation.

\* \* \*

### Dark-Room Aræmia.

In our issue for May 31 we inserted a note on this subject expressing a doubt as to the production of anæmia from prolonged stay in the dark-room. Herr Ocum, of the Finsen Light Institute, Copenhagen, has now discovered that darkness and red light reduce the quantity of blood by about 3 per cent. Assuming, then, that there are about five litres of blood in the average body, this would be reduced by continued working in the red light by about fifteen to eighteen cubic centimetres. With more than three hours' stay in the dark-room there is considerably less blood in the heart. His advice to dark-room workers is that they should take as frequent sun-baths as possible.

\* \* \*

### The Correction of Convergent Distortion.

When a photograph is produced in a tilted camera, vertical lines are only shown as parallel when the camera back is set quite plumb. If the back is out of the vertical, then the perpendiculars will appear to either converge or diverge upwards. It is fairly well known that this effect can be corrected, and the parallelism of the lines restored, by copying the distorted negative in the camera and inclining either the negative or the copy until the lines become parallel. It is, however, not so well known that a distortion of another kind is introduced in this "correcting" process if certain precautions are not observed. The original distorted image not only shows convergency, but also considerable dwarfing of the heights, and if in the correcting process the negative alone is inclined, this dwarfing is very much increased. On the other hand if the copy alone is inclined, the dwarfing is over-corrected, and heights are magnified. To secure perfect correction without any errors in height, it is necessary to incline both negative and copy to certain definite angles, which vary with the scale on which the copy is being made and the focal length of the correcting

lens. If these precautions are not taken, we simplify a very obvious distortion that cannot deceive an and introduce another of a kind that cannot be detected readily, and is therefore likely to deceive everyone. precise conditions of correction can be ascertained, the aid of somewhat complex rules and formulæ, practice the following is a very simple method. Convergencies are avoided by the simple expedients of using the same lens as that which produced the distortion, always enlarging on a scale of not less than two to one. The new copy, or the focussing screen, is inclined the vertical to the same angle as the camera back was inclined when taking the original negative, and the negative is inclined in the opposite direction until the convergency just disappears. Both convergency and height are thus corrected together. If the scale of enlargement is greater than two to one, it will be found that the image improves without the aid of small stops. A bigger scale is, in fact, advantageous in all ways, and the suggested scale of two to one is a minimum. A less degree of enlargement gives an incorrect result in this simple method, in addition to the fact that it renders sharp more troublesome to attain.

\* \* \*

### An Anti-Snapshot Law.

It has been held by the Courts that a photograph of any person, provided it does not constitute a libel. There has been considerable friction on this point, particularly in the United States, where the Press photographer is particularly to the fore, but in England there are few instances of trouble. In Germany, however, law has just been passed which is somewhat drastic as it applies not only to snapshots of private persons but also to photographs of works of art, interiors of churches, etc. Damages to the extent of £300, with a fine of £50, or, as an alternative, two months' imprisonment are the penalties to which the wild snapshotter is liable. The Kaiser or members of the Royal family, statesmen, actors, and all sorts of public buildings and public works of art may, as heretofore, be photographed and reproduced without permission. It is obvious that this law may be a saving clause to the average tourist, armed with a camera, but the saving clause is that no police prosecution will immediately follow, action being dependent upon formal complaint by the party aggrieved.

\* \* \*

### Death of Mr. John Stuart of Glasgow.

Another well-known figure has been removed by death on Saturday last in the person of Mr. John Stuart, of Glasgow. He was one of the leading photographers in the North had been for close on fifty years connected with the business in Buchanan Street, Glasgow, now carried on under his name. He was a Fellow of the Royal Photographic Society and a staunch supporter of the Photographic Convention from its inception, and was President at the Glasgow meeting in 1898. His presidential address was marked by that broad-mindedness and kindness of spirit so characteristic of the man, and, at the same time, showed him as he was, a man of wide and old experience but always interested in the very latest advances in photography. His work, widely known for its artistic and technical excellence, was marked out by that restraint which, whilst showing his appreciation of the artistic merit in photography, prevented him from descending to eccentricity. One of the most genial and kind-hearted men, ever ready with a joke, we shall sadly miss him.



## THE OWNERSHIP OF NEGATIVES.

As we have dealt in these columns with the questions of the rights and liabilities of the photographer in reference to negatives which he may take for his customers, it is evident that there are still a large number of persons who are completely ignorant of the legal points involved in the business by which they earn their daily bread. It may, therefore, not be out of place if we refer briefly to the matter, and thereby, we hope, set at rest for a time the questions which with monotonous repetition are weekly added to us. The most common relation in which a photographer can stand towards a sitter is that in which he acts as portrait taker to any person who walks into his studio and orders a dozen cabinet photographs. The photographer may suppose that when the prints have been delivered to the sitter his (the photographer's) responsibility ends. Not so; there is an implied contract to the effect that the photographer will not take or permit copies to be taken from the negative, unless he is expressly so authorised by the sitter. This tacit agreement, which is intended to be made in the case of every portrait negative, is made—or, indeed, of every negative whatever for the making of which the photographer is paid—is not contradicted by the fact that the negative is the photographer's property. So far as we are aware—and our recollection is based on over business matters in photography for a greater number of years—we do not know of any case in which an action has been sustained against a photographer for anything he has done with a negative made by him for a customer, other than something concerned with the taking of copies. The most common case has been for the photographer to have made an enlargement from a negative in possession, which enlargement he has displayed in his window. The sitter whose portrait he uses in this manner, of course, restrain him, and can equally prevent the photographer from employing the negative in other ways for the production of copies. But there, we imagine, the sitter's right stops. It has not been shown that he can prevent the photographer, for example, from smashing the negative, or that he can do anything if the photographer chooses to destroy negatives from which the sitter has been supplied with prints made. It may be easily supposed that the implied contract, upon which the relations of the photographer rest, should include the preservation of the negative by the photographer, but if a sitter ever gone to law with a photographer over this matter we have never heard of it, and in the long history of cases connected with photography we doubt if one bearing on this point has been recorded.

A question arises: What are the photographer's rights in the matter of the sale of negatives taken in the circumstances to which we are now alluding, that is to say for a purpose in the ordinary course? Undoubtedly the sale of negatives would confer upon the purchaser no other rights in the negative than were possessed by the photographer by whom the plates were exposed. The purchaser would merely print or enlarge to the sitter's order or with the sitter's sanction, and if he transgressed in either of these particulars the law would not exculpate him because he is not the person who entered into the contract in the first instance. We cannot recall any case in which such an action as this cropped up, but it is difficult to imagine the course being followed in the event of such an infringement of the sitter's right being committed.

It needs to be impressed upon many photographers that the limitation of the use which they make of the negative—its use as countenanced by the sitter—applies equally to other photographic negatives. It holds good of equal force in the case, say, of a photograph which

is taken of a football group to the order of the club committee or of the secretary, to that of a piece of furniture made by order of a firm of cabinet-makers, and in any case where the photographer is recompensed for his work by the party for whom the work is done.

Arising out of this general statement is the case in which certain negatives out of a number taken for the sitter are rejected by the sitter as unsuitable. To whom belongs the right to make use of such negatives, to the sitter or to the photographer? We know of no case in which this point has been settled in reference to landscape or other "technical" photography, but in regard to portraiture the law is clear. It has been held that the payment which a photographer receives is for the attempt which he makes as an artist to provide the sitter with a satisfactory likeness, and therefore any negatives which the sitter may choose to reject for printing purposes are nevertheless considered as within his control, and are to be used by the photographer only as he (the sitter) may permit. In short, the surplus negative is exactly on all fours with the negative from which the sitter's orders are executed.

So far we have dealt with the liabilities and limitations of the photographer. We must now turn to his rights in reference to the negatives which he produces, and it is found that the photographer does possess a very distinct right, namely, the right to retain the negative which he makes of a sitter or of any scene or object for photographing which he receives adequate payment. This point was settled long ago in a number of cases, but of late years a still more important issue of the same principle has been decided in the High Courts. It was a case in which a photographic firm, in order to carry out certain work of printing with which it had been entrusted, prepared a number of duplicate negatives from that placed in their hands by the customer. These duplicate negatives were duly charged for, and were then claimed by the customer as his own property. The decision of the Court, however, gave the custody of the negatives to the photographers on the ground that they were part of the work done by them in order to carry out the customer's order.

It should be pointed out that the above considerations are not based upon the copyright law. Although there is a very clear condition in the Copyright Act with respect to the proprietorship of the copyright in a photograph taken by a photographer who is paid, or ought to be paid, for certain work, yet the law of the ownership of the negative does not depend on this but on the law of contract, and on that important factor in all business relations, the custom of the trade. The position in which a photographer is placed with respect to copyright has been so often the subject of examples in our correspondence columns that we could scarcely believe that it could be misunderstood by any professional portraitist did we not receive constant documentary evidence of the fact. The question crops up constantly in all sorts of business transactions, consideration of which we must defer for some notes in an early issue.

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PHOTOGRAPHY IN THE COLONIES.—We are glad to note that there appears to be a rapidly increasing interest in photography in the Colonies, and that the number of both professionals and amateurs has been considerably augmented of late. With a desire to help its amateur readers, the "Daily Colonist," published in Victoria, B.C., has arranged to devote a section of its Sunday edition to the subject, and Mr. Arthur V. Kenah, who has been a contributor to our own pages, has been placed in charge of this department. Mr. Kenah has had many years' experience in all branches of photography, and his writings will doubtless prove both interesting and instructive to those interested in the subject. A special feature will be made of "Answers to Correspondents," and Mr. Kenah will place his services at the disposal of those requiring his help.

## THE WET COLLODION PROCESS IN PRACTICE.

[In continuing the two preceding articles of this series, in which the preparation of the glass plates and of the collodion has been dealt with, the following deals with the silver bath. Its immediate successor treats of the development. The aim of this series is to present essential points in the working of the process.—Eds. "B.J."]

AFTER the collodion, the next subject for consideration is the silver bath. Before, however, going into this matter it will be as well to say a few words about the vessels in which it is usually contained. For small sizes—say, up to 12 by 10—the ordinary glass dipping-bath, with a glass (or, better, a silver wire) dipper, is the most general. The latter form of dipper has the advantage that there is no risk of the plate slipping off it when put into the solution, and then, possibly, cracking the bath. The glass bath should be enclosed in a wooden casing, with a loose-fitting cover to keep out light and dust. In size it should be a little larger than the largest plate that is to be sensitised in it, so as to permit of its being moved a little laterally while in the solution, as that facilitates the avoidance of streakiness when the solution is in a certain condition.

### Developing Dishes.

For the larger sizes trays are preferable. On the Continent ordinary flat trays, or dishes with wooden covers, are usually employed. In this country what are sometimes called wave-baths are more generally used. These are made of wood with a waterproofing lining, such as asphaltum or paraffin wax. At one end is a well to hold the solution when it is raised up. These baths are mounted on trunnions on a frame, the trunnions being so pivoted that when the bath is reared up—say, to an angle of 45 degrees—it retains its position by the weight of the liquid at that end. When placed flat it remains so by reason of the weight of the solution covering the whole of the tray. These baths are usually fitted with a light hinged lid covered with American cloth. The plate is put into the bath so as to rest upon pegs or a ledge, just above the well, and the lid then closed. The bath is then lowered to the horizontal position, when the solution flows over the plate in one even wave. The vessel can then be tilted up and down to facilitate the washing away of the ether and alcohol from the collodion film. When the plate has been sufficiently sensitised the bath is simply raised and the plate is left draining. As during this time it is enclosed in a moist atmosphere there is no fear of its drying. In this vessel the plate may be left for half an hour or more without suffering injury, or without risk of its yielding in the negative what are commonly known as "oyster shell" markings. It is for this reason that I personally prefer this form of bath to the ordinary dipping one, even for small plates. It has, however, one disadvantage, which is that it, in use, necessarily takes up much more room in the dark-room than does the ordinary dipping-bath.

### Preparing the Silver Sensitising Bath.

It is, I think, needless for me to mention that the sensitive salt, the iodo-bromide of silver, in the collodion film is brought about by a double decomposition. The collodion contains iodide and bromide haloids, which in the nitrate of silver solution are converted into the iodide and bromide of silver.

In compounding the silver bath it is imperative that the purest of materials must be employed. Distilled water should be used, but it must be obtained from a reliable source. That obtained from retail chemists or druggists is frequently very impure and useless for the purpose. A pretty sure test of its purity is to add a few grains of nitrate of silver to it, and if it shows no turbidity nor discoloration after a few hours'

exposure to sunlight it may be taken to be all right. If distilled water is unobtainable the best thing to do is to use ordinary tap water and purify it oneself. It is a very simple matter. Put the water, which should have been previously boiled and allowed to get cold, into a gallon white glass bottle and add a grain or two per ounce of nitrate of silver, and dissolved the water will be milky. Expose to sunlight for three days. The organic matter will combine with the silver and will be reduced by the action of the light, and can then be filtered out. Water so treated may be relied upon in making up all silver solutions, but not for other purposes, as it contains a small proportion of free nitrate of silver. If the collodion process is in continual use, and good distilled water is not to be obtained, it is a good plan to always keep a stock of water sunning for stock.

### How to Compound the Bath.

The nitrate of silver should also be of the purest, and known as recrystallised is what should be employed. Some of the old workers used to prefer the fused, as they considered it answered better than the crystallised in giving greater detail in the negatives, but the writer thinks that this idea is not founded—that is, if the crystallised is of good quality. The strength of the solution, it should be between thirty and thirty-five grains to the ounce of water. If it is less than that there will be a tendency to thin and unsatisfactory negatives, but no advantage whatever accrues from its being stronger than thirty-five to the ounce, with collodion iodised, according to the formula already given. A good formula for the sensitising bath is:—

Distilled or purified water	...	...	2½ pints.
Nitrate of silver	...	...	4 oz.

This will give us a bath of thirty-five grains to the ounce. It may here be mentioned that the solution gets slightly weaker by use, but it rarely falls below thirty grains. Therefore, better to make it this strength at the beginning.

When the silver is dissolved the solution requires to be iodised—that is, saturated with iodide of silver. Unless this is done, iodide of silver being soluble in a solution of nitrate of silver, the first few plates sensitised in the bath would have some of the iodide of silver dissolved out of the films. One of the objects of iodising the bath is to dissolve the silver in about a quarter of the full quantity of water and then add a solution of iodide of potassium until the iodide of silver, first formed, ceases to be dissolved. Then add the remainder of the water, when excess of the iodide will be precipitated, and can then be filtered out. This method ensures the complete saturation of the bath in a condition which is really not necessary. Another plan is to pour a little of the collodion into the bath and then well stir it. The method preferred by the writer is to iodise the solution after it is filtered by leaving a collodionised plate in the bath for some hours—say, all night. The solution then takes up as much iodide as it requires. It will be noticed, when this method is adopted, that the film, which after a few minutes immersion in the new bath was dense and creamy, becomes thin and transparent with the longer time owing to the solution having dissolved the iodide of silver. The solution must be filtered through either paper or a pledget of cotton wool plugged in the neck of a funnel. Personally, I prefer the latter, as



at is sold as filtering paper is by no means pure. The Swedish filter paper may be relied upon, but is rather expensive. To facilitate the percolation of the solution through the filter it is a good plan, after placing it in position, to wash it with a little alcohol through it, followed by a little distilled water.

The silver solution will then pass through quickly. The alcohol and the distilled water also remove any little impurities that may happen to be in the cotton-wool. After the solution has been filtered it should be tested for acidity with a drop of blue litmus paper, for with the iron developer the bath should be acid, but only slightly so. The less acid it is the better, so long as the bath works clear, for an excess has a tendency to slowness. If, at the end of a minute, the blue colour of the litmus paper has changed to a decided red, it may fairly be assumed that the bath is all right. It does not, however, follow that it is; that can only be determined by a trial plate.

### Adjusting the Bath.

When dealing with the compounding of the silver bath it was assumed that if, after testing it with blue litmus paper, it was found to be acid, it might be assumed that it is in the right condition. If, however, pure recrystallised nitrate of silver is used, the probability is that it would not show an acid reaction, or only a very slight one. Therefore, acid must be added—say, five or six drops of pure nitric acid to the quantity of solution given in the formula. A plate should now be tried in the dark-room. It should be coated with collodion and exposed in the bath till the film is freed from greasiness.

Without exposure to light, the iron developer is poured over the plate and allowed to remain on for a minute or two. The plate is then washed and fixed. If the film shows no trace of fog or streaking, and is as clear as the glass itself, the bath is in a satisfactory state for use.

It is here assumed that the reader has some little knowledge of the process. But the manipulation and the composition of the bath will be fully treated upon in future articles. I have, however, thought it well at this stage to deal at some length with the silver bath, as upon its state depends success with the process, particularly as after continued use it will become disordered, and will require to be rectified. Therefore, I shall deal with the whole of this portion of the subject at once. With this digression I will resume.

As just mentioned, the plate proves clear and transparent, and the bath is in a satisfactory condition. If, on the other hand, the plate should turn out fogged, it proves that either the nitrate of silver or the water was impure. Should, however, there be only a slight trace of fog, matters will generally be set right by the addition of a drop or two more of nitric acid to the solution. Should, however, the collodion employed in the testing be newly added, slight fogging may often be remedied by the addition of a small crystal of iodine, just sufficient to deepen its colour. It is better than adding more acid to the bath, if it is already decidedly acid, to test paper. If the fog is of a very decided character, no other treatment must be resorted to. It is here assumed that the collodion is above suspicion, and that may be assumed if any of the well-known commercial brands are employed. The treatment is then as follows:—The solution is put into a white bottle and a solution of carbonate of soda added until the carbonate of silver thrown down ceases to be dissolved, and the bath remains with just a milky appearance. The bottle is then exposed to the sun for a day or two. With this treatment the impurities which cause the fogging will be precipitated by the action of the light. The solution is then filtered and five or six drops of nitric acid added, when the bath should be found to work satisfactorily. If not, a drop or two more nitric acid should be added. Instead of treating the solution with carbonate of soda, freshly precipitated oxide of silver is theoretically better, but the carbonate answers all purposes, and is the substance employed by the most practical workers.

### Signs of Bath Exhaustion.

Sooner or later a bath which is in use will become disordered—there is no known way of avoiding it—and will require to be doctored. It will in time become supersaturated with iodide-nitrate of silver and over-charged with ether and alcohol from the collodion. The result of the former is the formation of pinholes, or sometimes of a sandy deposit in the negatives. It is a curious fact that a cold solution of nitrate of silver will hold more of the iodide-nitrate of silver in solution than will a warm one. It frequently happens, more especially in summer time, that a bath which in the early part of the day, while it is comparatively cool, will work quite satisfactorily, will later on, without any warning, yield only very pinholey negatives. If, under these circumstances, the plate be closely examined when taken out of the bath, fine crystals will be noticed sticking out of the film, and probably a plentiful crop of them will be seen at the bottom of the vessel. These are the iodo-nitrate of silver which have separated from the solution in the form of the fine needle-shaped crystals.

### Renewing an Old Bath.

The treatment in this case is to dilute the bath with about an equal bulk of distilled water, when the excess of iodide will be precipitated; for, as explained in the last article, iodide of silver is far less soluble in a weak solution of nitrate of silver than it is in a strong one. If the bath be now filtered the excess of iodide will be removed. After filtration the solution may be made up to its original strength by the addition of fresh nitrate of silver. Most workers, however, prefer to bring back the bath to its original strength by evaporation, and this is by far the better way, as then the accumulated ether and alcohol from the collodion—which is always more or less a nuisance—is got rid of at the same time. An excellent way of renovating an old bath (after it has been diluted and filtered to remove the excess of iodide) is to neutralise the acid with a little solution of carbonate of soda, and then put it into a large, clean, flat dish and expose it to sunlight until it is reduced to its original bulk. A glass plate should be put over the dish, raised an inch or two above it, to keep out dust and dirt. The bath is then filtered and acidified as before. Baths so treated, as a rule, work better than quite new ones.

Instead of evaporating the solution in this way some put it into a Berlin basin, over a Bunsen burner, and boil it down to its original quantity. This is a quicker way than the other, which is a somewhat lengthy one. But it is not better, if, indeed, so good, inasmuch as the organic matter is not so completely reduced as by the former method. Instead of merely evaporating the solution to its first strength, some go further, and drive off all the water and crystallise the silver, or even fuse it into a solid mass. An entirely new bath is then made up. In making up a new bath with such silver it is rarely necessary to iodise the solution, as it usually retains sufficient iodide in the crystals for the purpose.

When a bath is old, and has been much used, more especially in hot weather, it will found that after standing a few hours a thin scum is liable to form on the surface. This should be carefully removed with a strip of blotting-paper, and, if in the usual dipping bath, the solution should be well stirred up with the dipper; if in a flat tray, the tray should be well agitated. If a plate were put into the solution with a scum upon it the negative would show stains or markings on the surface of the film when developed.

By the methods just described, baths, however disordered they may be—of course, within reason—can be restored to good working order, but it will be realised that the operation takes time. Therefore, all careful workers keep a bath, known to be in good working condition, in reserve, so that when the one in use breaks down the other can be taken into use at once. The disordered one can then be dealt with at leisure.

E. W. FOXLEE.

# THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

## TWENTY-SECOND MEETING.—IN HEREFORD.

THE proverbial good luck of the Convention in the matter of weather was in evidence when the proceedings opened on Monday at Hereford. The day opened with the sultry heat of the Sunday, but by midday an unobscured sky and a light refreshing breeze formed an altogether agreeable atmospheric condition, and up to the time of going to press no single item of the programmed fixtures had been affected by any cause. In municipal hospitality Hereford has shown itself a generous host. The Town Hall has been placed at the disposal of Conventioneers for headquarters, and the offices and large council hall in the handsome premises have provided all the accommodation which could be desired. The Hereford Photographic Society, its secretary (Mr. Cecil Gethen), and the hon. local secretary (Mr. W. T. Carless) may also be congratulated on their thorough-going support of the Convention, a support which has had its outward and visible sign in the record local membership of 120. This is eighteen more than the previous highest number of 102, reached in 1903, when the meeting was at Perth.

At 2.30 on Monday the members assembled in the council hall to be formally welcomed to Hereford by the Mayor (Mr. G. J. Caldwell), who in a few appropriate words expressed his pleasure at the selection of Hereford as the venue of the Convention, and referred to the valuable work of photographers in making and preserving records of beauty spots and objects of historic interest, such as Hereford and its surroundings contained.

Mr. E. J. Humphery (retiring president) then formally introduced Mr. Alfred Watkins to the meeting, and vacated the chair in his favour. In accordance with Convention custom, Mr. Humphery

was presented with a silver replica of the badge of office. Watkins then delivered his presidential address, and at its Mr. C. H. Bothamley, in proposing a vote of thanks, said he would like to add to the list of names of those who had advanced photography that of their new president. Mr. Watkins, he said, deserved all the credit that could be paid him for his work in giving quantitative character to the practice of photography and suggesting rules for guesswork. Mr. F. A. Bridge, in seconding vote of thanks, congratulated Mr. Watkins on his recovery from the effects of his recent accident.

On the proposition of Mr. Harold Baker, the thanks of the meeting were accorded to the Mayor of Hereford for his presence and words of welcome.

The meeting then composed itself to listen to the paper by Dr. Scheffer on "Microscopical Researches on the Grain in Gelatin Plates." Dr. Scheffer, who has recently joined the scientific staff of Carl Zeiss, and is known already to English readers by his contributions to the *BRITISH JOURNAL OF PHOTOGRAPHY*, proved to be an altogether charming lecturer. With needless apologies for an English enunciation which was only just sufficiently intelligible to be picturesque in places, he explained to his audience the nature of the scientific researches he has recently made into the structure of the silver image in developed gelatine plates. Dr. Scheffer's extraordinarily skilful section-cutting and photomicrography have given us an actual demonstration of the different kinds of grains which exist in the photographic plate, and explained the theory of the development of the latent image.

## PRESIDENTIAL ADDRESS.

THE first words addressed to the members on visiting a county which is new to them as a body must be words of greeting. It seems the custom for each county to take to itself the title of "the garden of England." I should rather regard England as a huge garden, and welcome you to Herefordshire, as one of its most fruitful and delightful corners, where the grass grows deep and lush, where the cottages peep out from the fragrant orchards as creations of native growth, where hill, vale, and wood combine in ever varying landscape; a county, too, watered by the most beautiful river in England, and dotted with more than its share of ancient churches and castles. Before the week is over I think that many of you will have touched the fringe of that curious individuality which distinguishes separate shires, and I trust that some of you will visit us again in the fruitful autumn time, when Herefordshire is at its best, more especially to the picture maker.

The year's work in the technics of photography has been one of steady and quiet advance. The invention of a distinct process, Ozobrome, by Mr. Manley, seems likely to be a most useful addition to available printing methods, as it produces carbon enlargements with the minimum of intermediate steps, and without any daylight exposure.

The revival of the oil or litho-ink process, by Mr. Rawlins, provides quite another kind of power to those who wish to convey a maximum of individuality to their photographic impressions, and promises to be the most elastic of printing methods for that end.

Orthochromatic and colour photography both make steady and satisfactory progress in the provision of more perfect dyes for the screens and for the silver halides; and methods of printing from the three-colour negatives are improving.

In the making of negatives, simple time development, as laid down and introduced by Hurter and Driffield, rapidly advances in favour. Its advance would be still more rapid had not its commercial advocates, in their efforts to produce an apparent simplicity, given a time for one stated temperature only. Several workers, however, who find it quite impracticable to develop at one even temperature, summer and winter, have, during the year, compiled and published

tables of times for different temperatures, which tables, of course, are only applicable to one developer and one brand of plate.

Whatever merit the factorial plan of development possesses in the fact that it allows for, and does not shirk, these variations of temperature, which, in the actual limits of practice, require variations of time to the extent of 300 per cent.

The tendency of the year in the matter of hand camera work has been in the direction of reflex cameras, and members have a good opportunity of judging their merit by the fine exhibition of such cameras shown here.

But the year's progress is not the subject I propose to dwell upon. The theme which I take is that of our national destiny in the matter of photography in the past and in the immediate future.

We are assembled as a national, as a British (using the word in its widest sense) Convention of Photographers, and I put it to you a glance at the causes which have given Britain a glorious record in the past is a distinct help to our position in the future.

There has been much misdirected inquiry on the question, "Who discovered—or invented—photography?" Almost as truthfully might be asked, "Who discovered Windsor Castle?" Our present practice of photography has been evolved—like all branches of science and industry—through the labours of countless workers, each adding at least one stone to the edifice of knowledge. Here and there stand out the name of a worker of surpassing genius or application, who has contributed a foundation, a story, or a whole wing to the building; and in giving due honour to such a name we are apt to forget how dependent he was on the work of others.

The present-day handicraft of photography (I do not treat of its artistic aspect) takes as an essential basis a negative image, formed out of sensitive silver halides and held on a transparent or translucent support. With it is required its complement—the positive print (in many forms) derived from it. What is the national aspect of the evolution of these two essentials? In tracing its history find British names so much in the majority, both as to minor workers and as to those who stand out as leaders in the march of progress, that photography might be truthfully described as







MEMBERS OF THE TWENTY-SECOND ANNUAL PHOTOGRAPHIC CONFERENCE

HELD AT HEREFORD.

Henry Greenwood & Co., Publishers,  
24, Wellington Street, Strand, London.





PHOTIC CONVENTION OF THE UNITED KINGDOM.

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presented to the world—in the main part—by the steadfast genius of the British race. There must be some reason for this. It may be in some part the national temperament, but I think I find a fitting point in a name not usually associated with photography. The early pioneers of photography in Britain possessed in the work, the methods, in the achievements of the Cambridge professor, Newton, an impulse and an example which it is difficult to over-estimate. We all work with that implement which Talbot has happily called the Pencil of Nature. Newton found the knowledge of light a chaotic jumble. He left it so orderly and so comparatively simple that his book on "Optics," of 1675, might, with very little editing, serve as a first text-book for the modern student.

Let us briefly follow the line of evolution from this point, the era of the obscure Italian invention being already common knowledge. In 1770 Dollond, an English optician, invented means to achromatise lenses, and thus brought the optical side of the unborn art to comparative perfection before the chemical side had taken form. But at this time many observers, English and foreign, noted the blurring effect of light on silver salts. It was an English manufacturer, Tom Wedgwood, who, in 1802, made the first coherent and ordered attempts at true photography. He failed, chiefly for want of a fixing solution, but he tried to record the image of the camera obscura by photography, and if the solar microscope can be called a camera (as I think it can), he succeeded in producing the first camera image, although not a permanent one.

And then, in the next generation, came those great episodes, the making out of complete and successful photographic processes, almost simultaneously and quite independently, by Fox Talbot (a country gentleman with a science training), in England, and by Daguerre (a professional diorama painter) in France. Both inventors used sensitive silver salts, but, while Talbot followed in the steps of Wedgwood, Daguerre struck out in an independent line. Both inventors used perfect fixing methods, and both, a few months after publication of their processes, made them complete by the addition of hyposulphite of soda for dissolving the silver salts, as discovered by John Herschel, an Englishman of science.

While Daguerre's name will always shine as the genuine inventor who was probably the earliest complete process of photography, while it will always take a front position in the history of photography, I am bound to point out that his work takes a very minor position in the continuous evolution of the art. The Daguerreotype process died in the course of time; it left no family, no process derived from it. Talbot's process also died in course of time, but left a numerous family, for practically every succeeding process has been derived from it. Talbot had hit upon the essential point to make a negative from which prints might be taken. Daguerre only missed this essential, but it was impossible to attain it in his process. In the evolution of photography Daguerre's success was a great stimulus to the band of British workers, and he appears to have been the first to use iodide of silver as a sensitive salt. A complete negative and a complete print from it was first given to the world by Talbot, although he may be largely indebted to other workers completing his process. But they were all a British band of workers perfecting the same idea.

To use a simile borrowed from gold mining, Daguerre struck a pocket of ore, which was quickly exhausted. Talbot struck the main reef, thin at first, but rapidly widening out, and good for generations to come. Our present method of development is also directly descended from development with oak galls, published by Rev. J. B. Reade, in March, 1839, before the publication of Daguerre's method.

To follow down the chain of evolution: An English operator, Nicéphore Niépce, first used bromide of silver as a sensitive salt, adopting it in the Daguerreotype process, and thereby greatly increasing its stability.

Nicholas P. M. first used a glass plate as a support for the negative. Then a Frenchman, St. Victor, devised an advance on Talbot's process, in 1847, by using the silver salt with a film of albumen on a glass plate, and, although this process did not come much into use, it is an important link in the chain of evolution. Another Frenchman, Louis J. M. E. M., in the next year applied the suggestion to positive prints, and produced the albumenised paper, which soon superseded Talbot's plain paper prints.

Then Scott Archer, a British photographer, worked out the well-known wet collodion process in 1851. Collodion had been previously

suggested for the purpose, both by Bingham, in England, and Le Gray, in France, but neither produced a workable process. Wet collodion stood as the standard negative process for many years. The disadvantage of having to prepare the plate immediately before use caused a whole array of experimenters to attempt the preparation of a similar film to be used dry, and therefore capable of keeping. A Frenchman, Taupenot, made the first successful "dry plate," and innumerable English successes followed. And now came the idea to prepare the silver halide in its vehicle before coating the plate or paper. In other words, the era of emulsion photography set in, and at every stage of the march of progress the advance was made by one of the innumerable band of British workers.

Sayce and Bolton, Liverpool amateurs, produced, in 1864, the first collodion emulsion. Dr. Maddox, an English physician, following in the same lines, substituted gelatine for collodion, and British workers, such as Kennett, Burgess, and Bennett, chiefly amateurs, perfected the present gelatine plate, and incidentally secured to England the lead in a huge dry plate industry. After this period British supremacy probably wanes. Vogel, the German chemist, in 1873, introduced colour sensitiveness by staining the silver halides with dyes, and the German nation having captured the English dye industry by superior science organisation, they now have an overwhelming advantage for advancing in this work. In the same way, although the application of the earlier organic developers was entirely British (gallic acid, by Reade and Talbot, pyrogallol, by Scott Archer, and hydroquinone, by Abney), and alkaline development, a British invention (Russell), the manufacture of the developers has now passed to the German nation, who therefore have a natural advantage in devising new ones.

In direct printing processes Britain takes an overwhelming lead. Plain silver paper, the use of chromates for printing, blue prints, carbon, platinotype, collodio-chloride, and bromide emulsion paper are all British inventions.

In process work Niépce, in France, invented the bitumen process long before it could be usefully applied, and although Britain has contributed photogravure (Talbot) and Woodburytype, such processes as collotype, photo-lithography, and half-tone screen work have been worked out abroad. In three-colour work the genius of British investigators had pointed a clear path long before the time was ripe. Newton paved the way. Young discovered the physiological appreciation of light in three colours.

Clerk Maxwell, a Cambridge professor, in 1861, was the first to describe and demonstrate the outline of our present three-colour process, but the want of colour sensitive plates made it impossible to proceed further at that time. Vogel's discovery, previously referred to, made colour work possible, and the rapid advance since has been international, Ives, of Philadelphia, contributing largely.

Roll film photography was first devised in England, although made a commercial success and perfected by the use of celluloid in America. Conventioners will recall with satisfaction that absolutely the earliest cinematograph exhibition was made by the inventor, Friese Greene, at the Convention meeting at Chester in 1890.

In science researches bearing on the speed of plates and course of development, Britain can claim the leading place in the work of Hurter and Driffeld, although Germany, as regards the training and nationality of Dr. Hurter, bears a share of the credit.

In this brief and imperfect outline we have caught a glimpse of a long line of British workers—manufacturers, landowners, clergymen, physicians, traders, journalists, and professors—bound by a common desire for knowledge of the unknown, who have succeeded in presenting to the world a new power and a new art. Does not the vision carry a lesson to us, members of a British Convention, composed of the same elements, and bound by a common tie? Are there not still advances to be made, and can we not do our share in the work? Science is now cosmopolitan; we can cordially welcome any advance made outside our shores, but we should, in friendly rivalry, match each with one of our own. Is the body of earnest British investigators as large now as in the seventies? What can we do to enlarge it? Our council, by its grants to research, have shown that it is alive to the question, although, perhaps, the same sums might be quite as usefully spent by rewards to the best unpatented advances of the year. Individually, we can all do something. Even minor observations are of value if recorded, but they must be recorded in print or they perish. And this brings up the subject of our technical journals. It is said that a community gets just

the literature or journal it deserves, and this is probably true, although I find it hard to think that any community can deserve the knowledge-deadening contents of some of our morning newspapers. In photography Britain has been fortunate in its journals and their editors. On the title-page of the first volume of "The Photographic News" (1858) appears the name of William Crookes as editor, and it was a good commencement. But a journal can do no more than reflect the highest ability of the class in which it circulates, for no editor can make bricks without clay. There was a forcible example of this a few years ago in the photographic press of the United States, where, at the time, no considerable body of experimental workers existed, and editors had to fill their papers with clippings from English journals. But America is increasing her band of workers, and in some of the papers the proportion of British articles now only averages 50 per cent. Every conventionner can help in this matter by contributing to his journal, and not remaining a dumb subscriber.

Another way in which the health of the press can be upheld is to vigorously discourage the deadening introduction of the

trail of the advertiser into the editorial columns. In photography we are fairly free from this evil as yet, but there are alarming signs of its growth.

All of us, too, can aid in the national aim by supporting, by active work, our local photographic societies. They are the nurses of the minor workers, from whom the experimenters of to-morrow are recruited.

But it is by bringing our national, secondary, and science training somewhere near the standard adopted by our German cousins that our greatest hope lies. We are not standing still, but our methods are not so thorough as theirs, and, to follow the most advanced world photographic investigation, an ability to read German is now essential. And then, with British capacity tempered by German method, who can doubt that we shall still march on in the van of progress? For, in Milton's prophetic words, "Consider what nation it is whereof ye are: a nation not slow and dull, but of a quick, ingenious, and piercing spirit, acute to invent, subtle and sinewy to discourse, not beneath the reach of any point, the highest that human capacity can soar to."

### MICROSCOPICAL RESEARCHES ON THE GELATINE FILM.

THE subject of the researches, upon which I have the honour of addressing you, is, first, the morphology; and, secondly, the topography of the grain of photographic plates. As a rule, the greater public, especially the professional and amateur photographers, have

for the lecturer and for the auditors, a regrettable lack of success. It is possible to explain even the most difficult scientific question so that everybody with average knowledge can follow and understand everything. The path which I wish you to travel with me is that

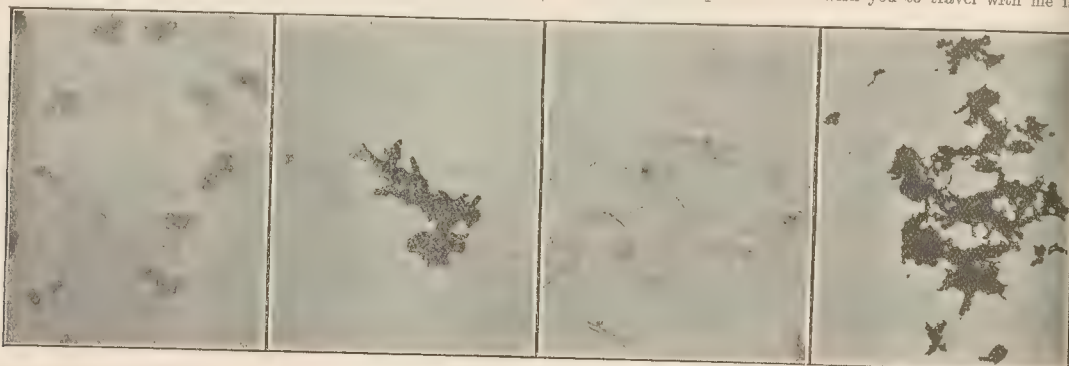


Fig. 1.—After washing.  
Grains of the Stas flocculent form of silver bromide precipitated in water.

Fig. 2.—After development.

Fig. 3.—Crystallised silver bromide.

Fig. 4.—The same after development.

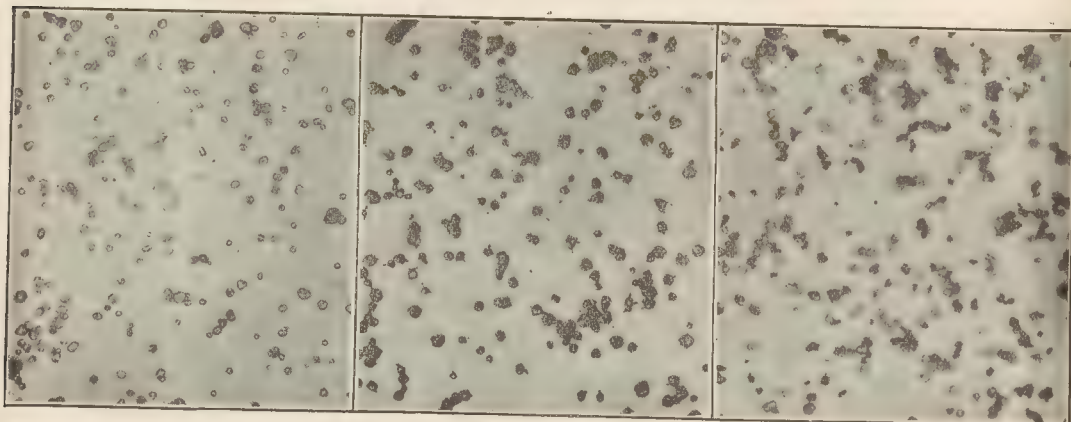


Fig. 5.—Undeveloped.

Fig. 6.—Early development.  
Grain in thinly coated emulsion of silver bromide.

Fig. 7.—Early development of portion rich in germs

certain misgivings as to such scientific lectures. Every science has a special language and special expressions, which have their special meanings. It is much to be regretted that sometimes the majority do not entirely understand such scientific lectures, which means, both

which I have traversed in my researches, and that which leads scientific research to a success.

There have been many researches published on the plate-grain. The subject of these investigations was either the grain of the



undeveloped plate or that of the finally, or nearly finally, developed plate. There has not been much published on the different stages of the formation of the developed grain. The first experiments which give me a clear question to be solved are shown by the photo-micrographs, Nos. 1-4.

A light-sensitive compound of silver was precipitated in water and developed. In Figure 1 you see bromide of silver, and in Figure 2 the result of the development of this salt. In Figure 3 you see another light-sensitive form of the silver compound, and in Figure 4 the result of the development. It can be clearly seen from



Fig. 8.—Germs visible after primary fixation. Magnification 2,000 times.

these figures that the developed grain is quite different from the undeveloped. It is neither similar to the original grain as regards the colour nor size. Also the chemical reactions of the developed grain are absolutely different from those of the undeveloped grain. Obviously Figures 2 and 4 are the final result of a process the different stages of which it was my first task to examine.

The first experiments were a failure, but still I think they are worth mentioning. The question was, What are the different stages of the formation of the developed grain? This process can only be examined

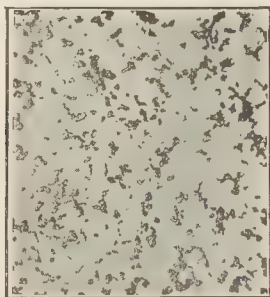


Fig. 9.—Developed with solution containing silver bromide.

under the microscope, and the experiments must be carried out in such a way that we develop less and less until finally we see the first just visible commencement of the development. It is not possible to carry out these experiments with bromide of silver precipitated in water. In this case the usual form of the emulsion in gelatine is of great help. Plates were very thinly coated with emulsion. The gelatine has the very convenient property of retarding chemical processes, but itself does not take part in the said processes. In the next series of experiments a number of thinly coated plates were exposed for the same time, and developed for different times, so that at the first visible stages of development could be detected.

In Figure 5 you see undeveloped bromide of silver enlarged 2,000 times. In Figure 6 you see the very first stages of development. Around the original grains you see fine bodies.

They are formed by small knobs, which are connected with the original grain by fine straight or curved filaments. Sometimes in the path of such a filament can be seen two or three of these knobs, sometimes the knobs are quite close to the original grain without any filament; sometimes a fairly thick filament is visible which does not show a knob.

These small formations, which are the first stages of development, are very probably due to something like an eruption, which is caused by the action of light upon the bromide of silver. Small particles are shot off, and they pierce the gelatine, thus forming these filaments. Sometimes their path through the gelatine is straight, sometimes curved; it may be long or short. Sometimes a piece of the shot-off particle is arrested on the way, and another one penetrates further. Sometimes the particle which is shot off reaches nearly intact the end of its path, and sometimes it is exhausted on the way through the gelatine. In this case we have a relatively thick filament without a knob. These processes can be made visible with every developer and every emulsion of bromide of silver.

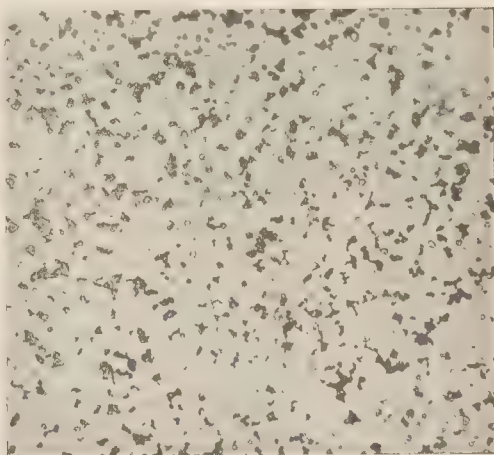


Fig. 10.—The result of short exposure.

The micro-photographs shown here are made with an apochromat of 2 millimetres focus and N.A. 1.40, constructed by the well-known firm of Carl Zeiss, of Jena. It is possible to make these germs visible in quite another way, and we can show that really they represent the latent image. It is well known that it is possible primarily to fix out exposed plates and afterwards, to develop them with solutions containing silver. Figure 8 shows the result of such an experiment. The original grains are dissolved by the hypo the germs have resisted. If we develop somewhat longer we have forms like Figure 7. Around the germs a large black grain is formed on development. You can see very well that this developed grain is situated outside the original grain. The longer we develop the more this developed grain grows, and finally it covers the original grain entirely.

That the original grain originally remains in its original form inside the developed grain can be easily shown. If we dissolve the original grain with persulphate of ammonia we see the little bodies remaining, as described by Dr. L  ppo-Cramer, and the original grain.

The next question is, What forms the developed grain?

I can only partly answer that question. But what I am going to state here adds considerably to our understanding of those processes which are important in negative making. Figure 9 shows you the development in a somewhat modified form. If we examine very carefully normally exposed and shortly developed emulsions under the microscope we see that all the grains do not show the germs here described. Those grains, around which we do not see germs, become very faint after some developing, and the developer seems to have dissolved them. If we develop longer these germless grains finally disappear. Figure 9 shows you this fact. In the exposed plate we

have two sorts of grains. First, original grains—i.e., grains which have around them the aforesaid germs; and, secondly, what I should like to call nourishing grains, which do not show any germs. These grains are dissolved by the developer, and form the developed black grain around the germs. The original grains are not touched by the developer. Figure 9 was obtained by dissolving some unexposed

we see the result of solarisation. The emulsion, Fig. 12, exposed 60,000 times as long as the first one. This solarised emulsion gives a result very similar to the very shortly exposed one. We see developed grains and also very many undissolved nourishing grains. From these figures it can be seen that to give a maximum exposure means to induce the condition in which the relative number



Fig. 11.—Exposure 100 times that for fig. 10.



Fig. 12.—Solarised image—exposure 60,000 times that for No. 10.

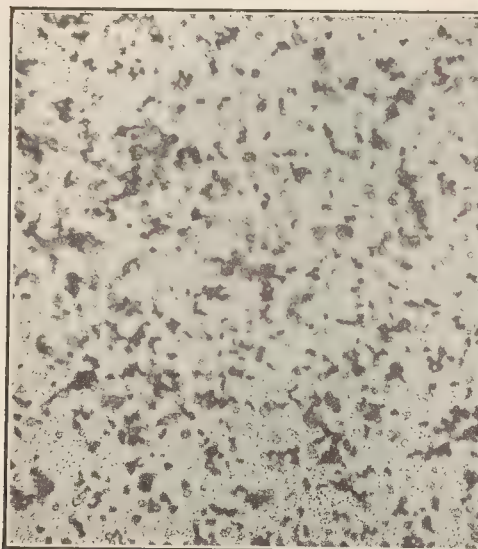


Fig. 13.—The effect of a weak developer.



Fig. 14.—The result of a strong developer.

bromide of silver in the developer. The consequence was that the nourishing grains were less rapidly dissolved, and they remained visible in the plate developed rather long.

In the next series the influence of the exposure was examined, all other conditions remaining unchanged. Figure 10 shows an emulsion exposed for a very short time. We see the developed grains and a large quantity of nourishing grains yet undissolved. In Figure 11 all the nourishing grains have disappeared. In this case, Figure 11, the exposure was a hundred times as long as the first. In Figure 12

nourishing and original grains is favourable to the formation of maximum masses of developed grain.

Apparently, there have not been enough germs formed in the unexposed plate, and the over-exposure has brought too many grains into the state of original grains, so that we have here a lack of nourishing grains. In my former articles in *THE BRITISH JOURNAL OF PHOTOGRAPHY*, I have used the expression "dissolving grain" instead of "nourishing grain." I am very much indebted to Dr. Siedentopf, of Jena, for this very characteristic and significant expression.



In the series of experiments just described we only changed one condition, the energy of light which acted upon the plate. In the next series we do not change anything but the concentration of the developer. In Figure 13 you see a plate developed in a very weak solution, and in Figure 14 developed in a stronger solution. All other conditions were absolutely unchanged. You observe that in Figure 13 the weaker developer has not been able to dissolve all the nourishing grains, and has produced the maximum of development—i.e., maximum developed masses.

Now we come to the second part of our subject, and we shall examine the topographic distribution of the plate-grain in the film. These sections are made with a microtome. First, the film has been

exposed part the majority of the developed grains lie quite in the upper part of the film, and in the longer-exposed part we find the developed grains also in the deeper parts of the film.

This fact will be very useful and of great assistance in enabling us to understand the different processes of intensification and reduction. It is well known that not every plate that is developed is suitable for printing, and very often an after-treatment—i.e., intensification or reduction—must be resorted to. I will restrict myself to the examination of only three or four typical processes. The morphological changes in the intensification are shown by Figs. 19 and 20. In these experiments the same part of the plate was photo-micrographed before and after intensifying with chloride of mercury and ammonia. You see that all grains visible in Fig. 19 are enlarged, and

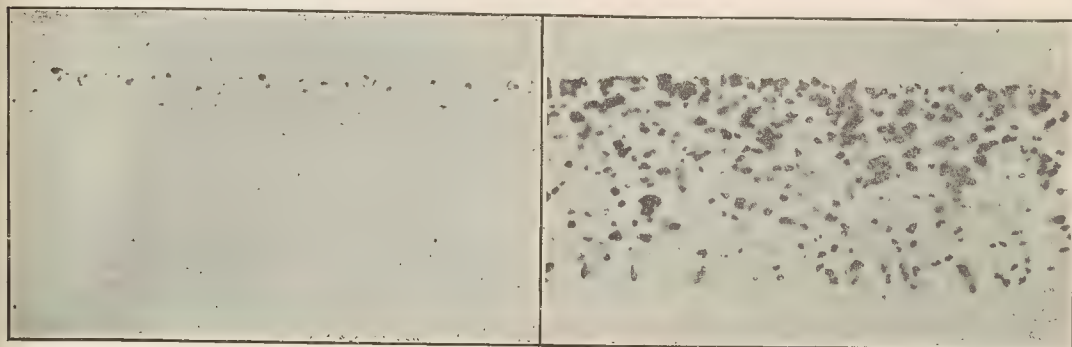


Fig. 15.—Early development.

Fig. 16.—Full development.

Sections through a film in different stages of development.

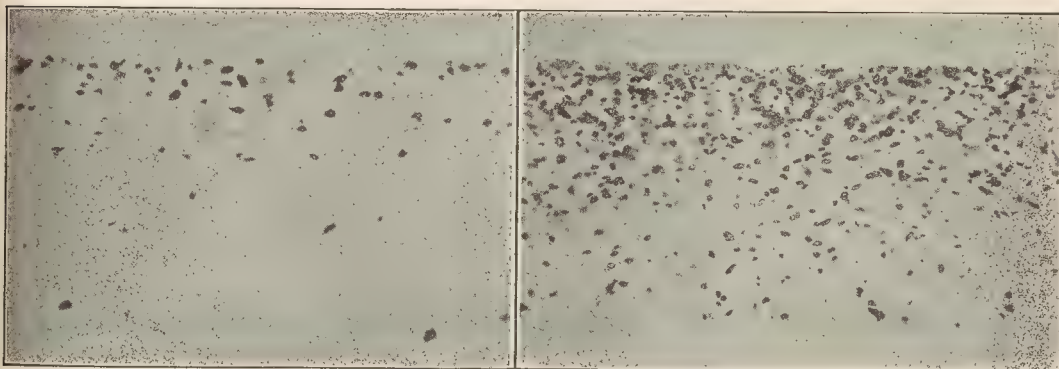


Fig. 17.—Short exposure.

Fig. 18.—Long exposure.

Sections through films which have received different exposures.

fully stripped off, and after different treatments it has been made ready for cutting. It gives me the greatest pleasure to have the opportunity of thanking my friend, Herr W. Loew, care of Herr G. of Heidelberg, for the excellent microtome which he has put at my disposal. It has afforded me considerable assistance, and it is a pleasure to work with an instrument of such high precision. It has been easy for me to make with it sections of 1/1000th of a millimetre. We expose two films for the same time and develop them for different times we have results as shown in Figs. 15 and 16. Fig. 15 shows a slight development, and Fig. 16 the final result of prolonged development. The films are then fixed with hypo. A comparison of the two figures shows us that the developed grain grows in the course of development, as we have already seen. We see, however, that the developer diffuses gradually into the depths of the film.

Figures 17 and 18 show the influence of the intensity of the action of light, all other conditions unchanged. We see that in the shorter-

thicker in Fig. 20. It seems at first sight that in Fig. 20 some new grains are formed, but this is not the fact. If you observe more carefully you will see that those grains which seem to be newly formed can be seen in Fig. 19 as faint shadows. They did not extend into the focal plane of the microscope, and therefore, and through their small size, only gave traces of shadow-like images. As the result of intensification they became larger and the conditions for visibility improved. From these figures we can see that the intensification is nothing more nor less than an enlargement of those grains which already exist. Intensification never forms new grains, only the mass of the already existing grains becomes enlarged. It is quite easy to understand the importance of this fact as regards the increase of the contrasts in the image. Every single grain becomes enlarged.

The opacity of parts which are richer in grain must be increased much more by the intensification than the opacity of parts which have been less exposed, and therefore are poorer in grain.

From this it can be easily understood that every intensification must raise the contrasts in the negative.

We will first study reduction with ferricyanide and persulphate of ammonia. It is well known that these two reducers act very differently. Farmer's reducer increases the contrasts and the persulphate diminishes them. Every reduction is a more or less complete solution of developed grains. The difference between the action of the ferricyanide and the persulphate of ammonia reducers was clearly shown in the illustrations to my previous paper ("B.J.," Dec. 7, 1906, p. 964). The ferricyanide reducer has only penetrated to a certain depth. But in those parts where it has penetrated it has dissolved all grains. The persulphate of ammonia, on the other hand, has penetrated into the deepest parts, right up to the glass, and has diminished all grains equally. Before reducing, both parts had the appearance of the lower untouched part of the ferricyanide section, where the

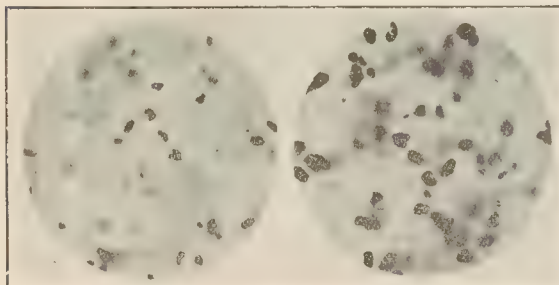


Fig. 19.—Before mercurial intensification.

Fig. 20.—After mercurial intensification.

grains are absolutely untouched. We have already seen that in shortly exposed parts of the negative the grains are distributed near the surface, and the more the plate is exposed the more the mass of the developed grains extends into the depths of the film. In a certain way of speaking the developed grains are arranged like a flight of steps. If we dissolve, as happens in the case of Farmer's reducer, only the top layers of the developed grains, it is obvious that in the less exposed parts we can dissolve the whole mass of developed grains; whilst in the more exposed parts in the depth of the film, a considerable mass of developed grains may remain untouched. The action of the persulphate of ammonia is quite different. It attacks all grains evenly, no matter whether they lie in the top parts or down in the depths of the film, and therefore the latter reducer must render the parts rich in grain relatively less opaque than those poorer in grain, because, in the first named parts, a much greater loss of mass takes place. Lately Dr. Lüppo-Cramer has found that if we add sulphocyanide of ammonia or a similarly acting substance to the persulphate of ammonia, this works exactly like Farmer's reducer.

Fig. 21 shows clearly that in this case the persulphate of ammonia behaves topographically exactly like Farmer's. From this it is clearly seen that the kind of action of the reducer—i.e., whether it works harsh or softly, depends upon the relation of the velocity of the diffusion and the time in which it dissolves the grains. We have another means to diminish the contrasts of negatives at will to reduce it at the same time. This process was published by Obernetter, and recently Herr Hans Werkner has improved the formula. We can bleach out the developed negative, for instance, with hydrochloric acid and potassium bichromate. The neg-

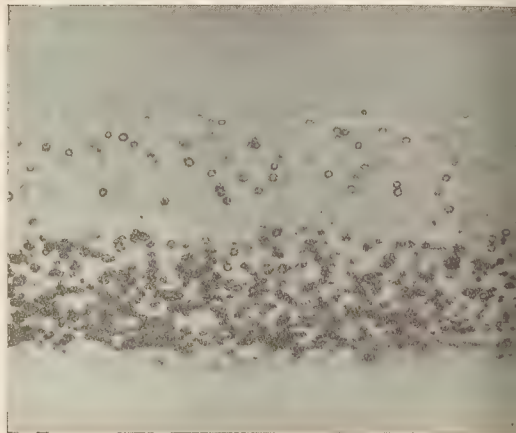


Fig. 21.—The effect of persulphate plus sulphocyanide.

can then be easily re-developed. We can allow the developer to penetrate into the depth as far as we like. We have also seen several times that in the more exposed parts the grains extend deeper into the film. We can allow the re-developing solution to diffuse into the depth as much as we please; that means that we can completely re-develop the less-exposed parts, whilst a considerable portion of the deeper layers of the more-exposed film remains undeveloped. We can observe this fact very well if we examine a negative through the glass. At the right moment we can stop development and dissolve the bleached grains not yet developed. By this we can considerably diminish the opacity of the exposed parts, without having reduced the less-exposed parts. This process is, to a certain extent, even superior to the reduction with persulphate, because it does not in the least reduce the shadows. On the contrary, it increases slightly the opacity of the under-exposed parts, whilst with persulphate of ammonia we cannot avoid reducing the shadows.

DR. W. SCHEFFER

### THE CONVERSAZIONE AND EXHIBITION.

ON Monday evening a large company filled the halls and corridors of the municipal building, where they were received by the Mayor and by Mr. and Mrs. Watkins. Among those present, in addition to the retiring president and Mrs. Humphery, were G. W. Atkins and Mrs. Atkins (Elstree), Harold Baker (Birmingham), J. H. Baldock (Croydon), F. A. Bridge (London), George E. Brown (London), George J. Caldwell (Mayor of Hereford), Fred B. Catley (Harrogate), C. M. Channon (Cheltenham), Thomas Clarke (Moseley), Henry J. Comley and Mrs. Comley (Stroud), A. H. De'Ath and Mrs. De'Ath (Ashford), Ernest B. Docker (Sydney, N.S.W.), W. E. Dunmore (Purley), Gus Edwards (Hereford), S. Herbert Fry (London), Cecil Gethen (Hereford), Miss H. Rosalind Goodey (Derby), W. A. Grosvenor (Hereford), A. Horsley Hinton (London), Cuthbert Harrison (Sligo), T. A. Knoblauch (Edinburgh), C. Phipps Lucas and Mrs. Lucas (London), Walter Potter and Mrs. Potter (London), Alfred Roods (Croydon), Misses M. E. and F. A. Roods (Hastings), Dr. W. Scheffer (Berlin), Thomas Scotton (Derby), W. H. Smith

(Purley), Frank C. Starnes (Dartford), W. Tate (Keighley), Turnbull (Blackhall, Midlothian), Herbert J. Unwin and Mrs. Unwin (Hereford), H. Snowden Ward and Mrs. Ward (London), A. Watkins (Hereford), Joseph Watson (London), F. Welch (Lea), Courtenay Wells (Gloucester), Edward Woodward and Mrs. Woodward (Macclesfield), William Andrews (Hull), Alfred Atkinson and Mrs. Atkinson (Leeds), Harold Baker (Birmingham), Arthur C. Baldwin and Mrs. Baldwin (London), C. S. Bay (Birmingham), R. R. Beard and Mrs. Beard (London), George Bingley (Leeds), C. H. Bothamley (Weston-super-Mare), John Brand (Leeds), and Miss Brand (Perth), T. M. Dickinson (London), P. L. Earl (Leeds), Mrs. Earle (Hafod), E. Bartley Finn (Hendon), C. E. M. F. (Ventnor), Henry C. Jones (Rhayader), S. G. Kimber (Southampton), Colonel J. D. Lysaght (Chester), A. S. Ray (London), A. Seaman (Sheffield), J. B. Simpkins (Chichester), Thomas Taylor and Mrs. Taylor (Birmingham), James Taylor and Mrs. Taylor (Leeds), P. J. Thomsen (Brussels), J. W. Wade (London)



so. W. Watson (London), Alfred Ellis (London), W. Willis (London), W. S. Hobson (Leicester), F. J. Mortimer (London), and Ibbetson (London).

The exhibits included a very tasteful display by the Platinotype Company, who showed some excellent examples of platinotypes worked up in water-colours, as well as examples of Japine and other brands of platinotype paper. The reflex cameras and prints recently won at the "B.J." house attracted much attention, as did also her apparatus at the stall of Kemp and Brook.

At the annual general meeting, held on Tuesday evening, Mr. J. Humphery proposed, and Mr. F. A. Bridge seconded, that an invitation for the 1908 meeting from Brussels be accepted. An amendment, proposed by C. H. Bothamley and seconded by A. Horsley Hinton, that the 1908 meeting be held in the United Kingdom was lost, and the original motion was carried.

On Wednesday the official group was taken by Mr. Herbert J. Edwin, of 42, Commercial Road, Hereford, by whose kindness and comititude and that of the London Studio, who delivered the finished block within six hours of the receipt of the print, we are enabled to present it with this issue. The key to the group will be given next week.

At the council meeting, held after the annual general meeting, Sir Cecil Hertslet, Consul-General at Antwerp, was elected president 1908.

Votes of condolence with the families of the late A. L. Henderson and John Stuart, of Glasgow, were passed.

The exhibition of photographs in natural colours by Mr. H. J. Smiley, of Stroud, exhibited in the Town Hall, has attracted considerable notice and favourable comment.

## Photo-Mechanical Notes.

### Brass as a Substitute for Copper Half-Tones.

Now that copper seems to be getting higher and higher in price attention must be given to finding a substitute for it in half-tone making, says the "Inland Printer." Zinc is such a substitute, and much of the engraving that uses up valuable copper could be done on it just as well. We have in brass a perfect substitute, if manufacturers of brass would make a special alloy for the use of engravers and maintain the alloy of zinc and copper in its composition at exactly the same proportion. The trouble with the brass found in the market is that the alloys vary even in the same sheet so that it etches unevenly. Tin and other metals and impurities are allowed to get in. If the copper and zinc were properly selected before smelting and care taken in the manufacture, particularly in the rolling, brass half-tones would be more common than those of copper. Brass was used many years ago, and has been occasionally used.

**ETCHING PROCESS.**—No. 18,217, 1906. The object of the present invention is a photographic etching process in order for furnishing a face that admits of etching with a drawing, or the like, in which it is necessary to cover those places which are not to be affected by acid with a substance capable of resisting the acid. This coating the surface to be etched may be done by hand or by a photographic process. By the latter means the transfer, development and etching of drawings which consist of points or strokes, is possible. The drawing thus produced, however, only represents one tone. A picture developed by photographic means in asphalt, gives an exact copy of the original in this material in all depths of tone, could not be made as the thin parts of the coating corresponding to the lightest of the picture, offer the same resistance to the acid as the thicker parts of the coating. Assuming that etching can only take place at those parts which are not covered, then the coating prevents the etching is gradually removed in accordance with the photographic tones, or, in other words, the surface is made more and more accessible to the acid. It follows that by this means an etched gradation from light to dark would be the result. In accordance with this invention, the surface to be furnished with the picture is coated with a substance sensitive to light, such as asphalt, which, when the copied picture is being developed, either permits the coating to be correspondingly dissolved to the toning, or allows the acid to

penetrate freely, whereupon the picture to be produced is copied for instance by means of a negative. When the surface to be furnished with the picture is coated with asphalt, which is the sensitive coating, then the process is as follows:—A developing medium, turpentine, is poured over the copied plate, which is then placed in the acid bath. To the latter is added a dissolving medium which dissolves the varnish freed by the beginning development. Alcohol or any other suitable preparation for dissolving the coating would serve the purpose. Now the following takes place. The turpentine having penetrated the coating develops the copied picture. The dissolving medium added to the bath has meanwhile dealt with the coating medium—in this case varnish—removed by the developer, and the acid works by following the hole to a depth corresponding to the degree of the tone of the picture, i.e., the etching parts are etched to a depth in exact proportion to the removal of the different parts of the coating. After the etching process has taken place, the surface represents a relief, the depths and tones of which correspond exactly to those of the picture. Anton Dillmann, 6, Herrngartenstrasse, Wiesbaden, Germany.

### PHOTO-MECHANICAL PATENTS.

The following Patents have been applied for:—

**PRINTING.**—No. 13,573. Improvements in means for use in photo-mechanical printing processes. Franz Spaeth and Richard Charles Scrimgeour Austin, 321, High Holborn, London.

**PROCESS PLATES.**—No. 15,214. Machine for spreading an even-surfaced film upon copper, zinc, or other photo process plates. Clive Burton Heaton and William Alfred Catherwood, 7, Pocock Street, Blackfriars Road, London.

**INTAGLIO.**—No. 11, 849. Photo-mechanical intaglio for transferring ceramic inks on china. Thomas William Lascelles, Maybury Studios, Maybury Gardens, High Road, Willesden Green, London.

## Patent News.

The following applications for patents were made between July 1 and July 6:—

**REFLEX CAMERAS.**—No. 15,199. Improvements in reflex or reflecting cameras. John Edward Thornton, 6, Bank Street, Manchester.

**COLOURING PHOTOGRAPHS.**—No. 15,249. Improvements in the application of colour to photographic pictures and the like. William James Townsend Barker, 56, Ludgate Hill, London.

**STORAGE CASES.**—No. 15,277. Improvements in receptacles for photographic papers and the like. Charles Coventry and Henry Williams, 15, Carrington Road, Liscard, Cheshire.

**CINEMATOGRAPHS.**—No. 15,333. Improvements relating to duplex or multiplex cinematograph apparatus and the like. Robert Thorn Haines, 322, High Holborn, London.

**MINIATURE CINEMATOGRAPH.**—No. 15,449. Miniature or toy cinematograph. Oskar Messter, 4, South Street, Finsbury, London.

**CINEMATOGRAPHS.**—No. 15,459. Improvements in moving picture projecting machines. Siegmund Lubin, 322, High Holborn, London.

**FRAMES.**—No. 15,560. Improved back and method of adjustment thereof to photo frames. Charles Westwood, Gold Street, Pendleton, Manchester.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**MAGAZINE CAMERAS.**—No. 16,148, 1906. This invention relates to magazine photographic cameras, and has mainly for its object to provide improved mechanism for moving the sensitised plates of films into and out of position for exposure in cameras which are used with focussing screens, whereby objects to be photographed can be focussed in the usual manner at the back of the cameras. The magazine is arranged at the top of the camera (but it may be arranged at the sides or bottom) and is provided

with a slide for withdrawing the sensitised plates or films one by one from the said magazine and returning them thereto after exposure, the focussing screen being arranged so that each plate or film as it is moved into the camera moves the said screen out of its normal or focussing position and takes its place.

A convenient arrangement for carrying out the invention is as follows:—The slide for moving the plates or films from the magazine into the camera, and hereinafter termed the plate-slide, is in the form of a rectangular frame into which the front one of a series of such plates or films, carried in suitable carriers, is pressed by a spring piston or plate, the said front plate or film being prevented from passing through the frame by guide strips on the sides of the magazine. These guide strips are pointed or tapered at their lower ends so that as the plate-slide is moved upwards after exposing the plate or film carried thereby, the said plate or film will be guided to the front of such strips into the front of the magazine, the front unexposed

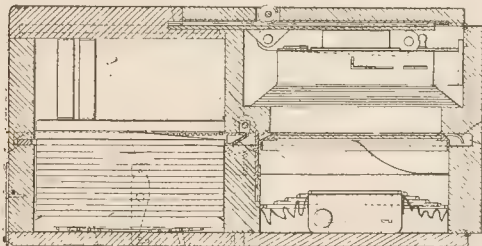


plate or film being pressed into the said plate-slide when it again reaches its upper position ready to be carried down into the camera for the next exposure. The exposed plates or films are maintained in an upright position by a spring piston or plate. Convenient means for operating the plate-slide comprise rack-teeth on the sides thereof engaged by pinions on a shaft operated by gearing from a handle outside the camera. The focussing screen is carried in a frame pressed forward into its normal or focussing position by suitable springs and provided at its upper end with an incline against which the lower ends of the plate-slide (which is preferably inclined also) impinges when the latter is lowered, so that the said screen is moved out of position, the plate or film in the plate-slide taking its place. To avoid the use of a focussing-cloth a bellows extension, preferably spring actuated, is employed at the rear of the camera, and provided with an opening for the eye of the operator, which opening can be closed by a shutter while a plate or film is being exposed. To prevent light penetrating into the magazine when focussing, a sliding shutter is employed to cover the slit through which the plate-slide works, the said shutter being normally pressed forward by a spring or springs and operated to uncover the slit, when the plate-slide is moved down, by one or more pivoted arms engaging cam surfaces on the said plate-slide.

The figure is a sectional side view of a magazine photographic camera constructed in accordance with the invention, the parts being in the position they occupy when the camera is not in use. Walter James Gilchrist and Johns, Son, and Watts, Limited, 40, City Road, London.

**REPEATING BACK.**—No. 18,690, 1906. This invention relates to photographic cameras and has particular reference to those in which a series of photographs can be taken upon one sensitive plate. A screen is provided having a movable opening which can be arranged to allow the image to fall in succession upon various parts of the plate held in a dark slide movable relatively to a stationary camera-back. This movement of the dark slide is in one path only, that is to say, if it moves horizontally relatively to the back, it cannot or need not move vertically, and vice versa. The screen may be in the form of a plate or panel fitting in the camera at the place usually occupied by the sighting screen, the openings in the screen being then so arranged as to control the vertical position of the pictures on the plate, whilst the horizontal position is determined by sliding the dark slide into definite predetermined positions relatively to the camera-back.

The screen itself comprises two members relatively movable to give the openings in the required positions. For instance the front member may be furnished with a slot having its width equal to that of the required small photograph, and its height equal to the vertical distance from top to bottom of the plate.

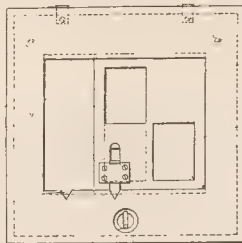


Fig. 1.

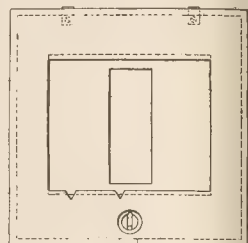


Fig. 2.

Moving behind this front member is a slide or shutter having two or more openings so arranged that they can be brought into register with the slot in the front member and in conjunction therewith give the necessary space for one of the small photographs, all the rest of the slot being cut off by the shutter. A sliding bolt or catch may be provided to keep the two parts of the screen in any required position.

Instead of the shutter sliding longitudinally behind the front member of the screen, it may be arranged to rotate in a recess

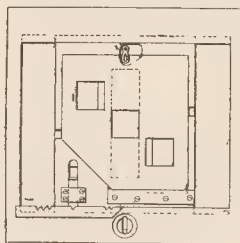


Fig. 3.

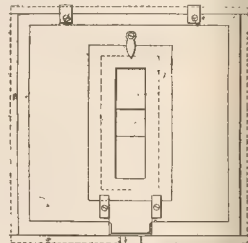


Fig. 4.

in which case it is convenient to provide the required number of openings in the front section and say one opening in the revolving shutter, a catch being also provided in this construction to keep the parts in register. This revolving pattern screen may be made so as to fit into a recess in the back of the camera in front of the dark slide. By the use of the screen in conjunction with a movable dark slide any required number of photographs can be taken upon one plate, the screen controlling the number of rows vertically upon the plate, and the movement of the dark slide the number of photographs in each row, all the changes being accomplished without any reversal of the dark slide or of a mask used in conjunction therewith.

The invention may be applied to cameras without any alteration of the structure of the body portion, the screen being fitted to the back, or, as before mentioned, in the place provided for the sighting screen. Figure 1 is an elevation of one form of screen according to this invention; figure 2 is a similar view with one member of the screen removed; figure 3 is an elevation showing a slightly different form of screen, also according to this invention in place in the back of a camera; figure 4 is an elevation corresponding to figure 3, but viewed from the opposite side. Reginald Herbert Payne, 43, High Street, Aylesbury, Buckinghamshire.

**DAYLIGHT FILM PACKS.**—No. 12,003, 1906. This invention relates to detail improvements in daylight loading packets of flat photographic films of the type in which a spring division plate is employed to hold the films up to focus, and in which the films are provided with extensions terminating in film manipulating tabs which pass through light-tight valves in the packet. Reference may also be made to former patents Nos. 4,995 of 1904



29,631 of 1904, 11,033 of 1906, 11,346 of 1906, and 11,884 of 1906. It is applicable wholly or in part to that type of film pack in which the unexposed films lie in a pile at the front of the case, each film being separate and independent from the other, and transferred from front to back of the case after exposure; it is also applicable wholly or in part to the type of film pack in which the unexposed films lie in the folds of a pleated strip, by which they may be moved from front to back, or back to front of the case, according to the arrangement of the parts. It will be understood that the invention relates entirely to the type of packages of films which are sealed up by the manufacturer for sale in their wrappers or cases, and that the said cases are placed bodily, with their sensitive contents intact,

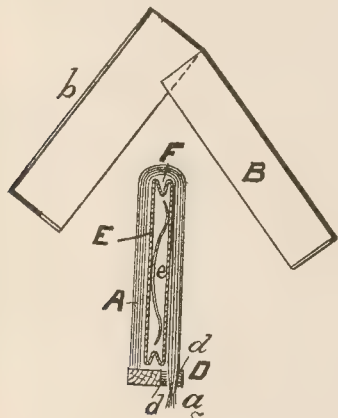


FIG. 1.

into the camera or an adaptor for use. Whilst in this position the films may receive the photographic impression by exposure, then have their order or position changed by the operator, in rapid sequence; and after all have been exposed, the package, still complete in its original wrapper or case, is removed from the camera. The whole operations are performed in broad daylight, without recourse to a dark room.

The films A are contained in a light-tight enclosing case or wrapper B having an exposure opening *b* cut in the front side thereof, and are superimposed in a pile therein in one of two positions, being transferred or moved from the first to the second position as they are exposed, by means of pull tabs *a* attached to the films, or by means of a pleated strip of paper. The outer case or light-excluding wrapper B may be made of paper, cardboard, thin sheet metal, or other like material that can be readily bent and will retain its shape thereafter.

The films A, which may be mounted in the case B either to be drawn from the front to the back or from the back to the front, may be mounted in any convenient way upon an opaque backing.

In some of the earlier film packs, including that now in general use, the user places the package in the camera in daylight and unseals it or uncovers the films when in that position. The package has to remain there until all the films are exposed or changed to the back, whereupon the pack becomes automatically resealed and can then be removed from the camera in daylight.

Thus each picture cannot be separately focussed upon the ground glass of the camera, and the only way to secure that desideratum is to use an adaptor, which is a dark slide that receives and completely encloses the film pack on all sides except an opening in the front, this opening being closed by a sliding shutter or equivalent device. By withdrawing this shutter when the adaptor and package are in the camera the front film is exposed, and after replacing the covering shutter the whole adaptor and film pack complete may together be removed from the camera and the picture focussed on the ground glass.

In this invention the necessity for an adaptor with covering shutter is dispensed with by making the latter an integral part of the film pack itself, which can be done in various ways.

In addition to the tabbed films and tabbed covering shutters I may add tabbed colour filters for orthochromatic or for tri-chromatic work, consisting of sheets of gelatine, collodion, or other like transparent media, dyed with suitable transparent colours, and each sheet filter being provided with its own manipulating tab. By interspersing these filters with films in sets for tri-chromatic negatives (such as yellow, red, and blue, for example), the respective exposures can be made in rapid sequence without removing the pack from the camera and without need of the cumbrous sliding backs or holders containing glass colour screens which have to be moved after each exposure or the

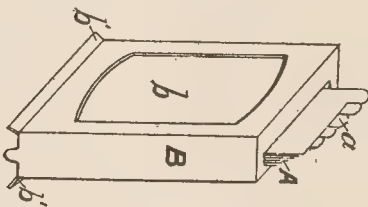


FIG. 2.

other alternative and equally inconvenient method of changeable colour screens on the lens with corresponding changing of plates and plate-holders.

The screen may be of gelatine, collodion, or the like ruled with fine close lines or bands of colour arranged thus—red, blue, yellow, red, blue, yellow, according to the well-known process of Professor Joly, or of the Lumière type of colour film, with a layer of fine coloured starch-grained particles which split up and filter the light passing through before it reaches the sensitive surface, or it may consist of a number of layers which go to build up a composite film being prepared according to the process of Dr. Smith, in which each sensitive layer is stained to filter or be affected by a different colour of light and the respective layers are isolated from each other by a transparent stripping media such as india-rubber, collodion or the like, to enable them to be split apart afterwards, but the whole forms a single sheet, which is attached to the opaque tabbed backing.

Such colour screens can, if preferred, be attached to the films or to the backings so as to cover the films and pull with them, but by making them to work quite independently of the films or backings, the thickened stiff edge that interferes with freedom of turning over when transferring is avoided, as happens when all are joined together and operated as one piece. John Edward Thornton, Altrincham, Chester.

## New Trade Names.

FIGARO.—No. 293,740. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Pinchin, Johnson, and Co., Ltd., 23, Billiter Street, London, E.C., varnish, colour, and paint manufacturers. June 13, 1907.

THE "PHOTO-MINIATURE" FOR MARCH.—This issue of our useful little contemporary is just to hand, and deals with the choice and use of photographic lenses. The five aberrations are dealt with in a simple manner, and we then have a brief description of the different types and lens constants. The English publishers are Dawson and Ward, 6, Farringdon Avenue, E.C.

J. GUNSTON, LIMITED (photographers, Bradford).—A debenture, dated June 24, 1907, to secure £200, charged on the company's undertaking and property, including uncalled capital, has been registered. Holders—J. W. Booth, Keighley, York; J. E. Longdin, Park Crescent, Bradford; and T. O'Keeffe, Wellington Crescent, Ecclehill, Bradford.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Focussing.

The dark corners of the ground glass (writes Mr. W. Easton in "Photography") are veritable "booby-traps." It is so difficult to see the picture on them, that one gets to ignore what is there. But, dark and obscure as they are on the focussing screen, they will be as bright, and the objects there may be as conspicuous in the print, as those in the centre of the image, and if we ignore them we may find that they have had their revenge by spoiling our picture, either by including something that ought to be left out, or by showing something fuzzy that ought to be sharp. Having noted the position of the ground glass for these two objects, either by observing the position of the milled head of the focussing screw, or, better still, the actual position of the sliding part of the camera on the fixed baseboard, the back is to be set as nearly as possible midway between the two positions, and should not afterwards be removed therefrom until the exposure is made. Then the largest stop that there is any prospect of being able to use to get both those objects sharp at the same time is to be put in and tried. If they are sharp, that is the stop to use; if they are not, then stop by stop must be tried, examining the image carefully after each change, until one is found that gives them both with the definition that is required. That is, then, the stop to employ.

### Simplified Factorial Development.

Mr. Alfred Watkins, writing in "The Photographic News," with reference to the paragraph on page 525 in our last issue, says:—"Anyone can find the method fully expounded on page 93 of the third edition of the 'Watkins' Manual,' published early in 1906, the opening paragraph being as follows: 'Simplifying Calculation.—The total time of development can more easily be calculated if such a developer be used that its factor divides evenly into 60, the product being then used to divide the seconds appearance in order to obtain the number of minutes to develop.' A full explanation of the method follows. Of course, I have no doubt that Mr. McGregor hit upon this simplification quite independently, and no doubt others have done the same, for no one could go on long using, for instance, a developer with a factor of 10, multiplying the seconds appearing by 10, and dividing by 60 to get the minutes to develop, without seeing that it is the same thing to divide in the first place by 6. But, useful as this is as an adjunct, it can never take a place as a universal method. It is only applicable to such factors as will divide evenly into 60. Factors such as 7, 8, 9, 11, 13, and 14, all those between 15 and 20, between 20 and 30, and between 30 and 60 cannot be calculated by this simplified method, and this limitation cuts out quite one half the pyro-soda developers. Besides, the method tends to a want of elasticity in development. I, like many other workers, use a higher factor for a negative for carbon than I should for enlarging, and prefer to have no limitation in my choice of a suitable factor for my want. For these reasons I find the small mechanical calculator the most suitable, as I then use neither pencil nor mental arithmetic. I am sorry to see the word 'factor' applied to these new dividing numbers, and I must point out that this may lead to endless confusion and inconvenience. Already there has been some little confusion between the development factor of Messrs. Hurter and Driffield and the entirely distinct factor in the factorial method, and technical writers designate the latter the Watkins' factor for distinction. Editors and other writers referring to developers now often speak of them as 'high factor' or 'low factor' developers, as these terms conveniently describe their attributes. But with the dividing numbers these proportions are reversed—high becomes low and low becomes high. I think the most convenient designation for them would be 'divisors.'"

### Tank Development.

Glycin is preferred by many for this method (writes Mr. G. E. C. Morris in "The Amateur Photographer"), but it is an expensive salt and a very slow developer. Nevertheless the results obtained by its use are excellent. I find the use of bromide with rodinal is not actually necessary when working with slow plates, but with orthochromatic

plates and ordinary plates of high speed several drops of 10 per cent solution is advisable. With pyro and all other developers it is necessary, but should be used with discretion to avoid harsh contrast, especially with pyro. I am sure that this method of development will prove a tremendous blessing to those who have no aptitude poring over the developing dish on a fine day. It tends to produce technically better negatives, and with colour-sensitive plates the fact that they are developing in complete darkness should at once recommend itself. Everyone has his own favourite developer, and, far as I know, tank development is applicable to most. There is reason why each worker should not experiment for himself with his own particular formula, bearing in mind that the chief point is to mix the solution from three to four times its normal strength, give plenty of time for it to act.

### CATALOGUES AND TRADE NOTICES.

Voigtländer and Sohn, of 12, Charterhouse Street, E.C., have sent us a copy of their latest price-list, a beautifully printed and illustrated work of 130 pages. The first half is confined to "Hens on Lenses," by Dr. Hans Harting, F.R.P.S. Here will be found some useful hints not only as to the particular lenses, but also general work, the subjects dealt with being depth of focus, aperture, colour filters, telephotography, etc.

The Tella Camera Company have just issued an illustrated, up-to-date price-list of all kinds of photographic apparatus and accessories, which may be obtained at their new establishment, 68, E. Holborn, London, W.C. Particulars and illustrations of the latest models of cameras, lenses, etc., are given, and the selection by large and varied, should meet the requirements of all classes of photographers. This firm also makes a special feature of second-hand goods, of which they have a large stock at much below original cost, and monthly catalogues relating to these will be sent to any of our readers post free on application. Old apparatus also taken in part payment for new, and goods may be purchased on the extended payment system extending over periods varying according to the amount of the purchase.

## Dew Apparatus, &c.

The "Sanderson" Rubber Tripod Shoe. Made by the Altrincham Rubber Company, Altrincham.

This useful little device is constructed of stout white rubber an enlarged finger-stall, and can be easily slipped on and off tripod end. Being corrugated at the end, it grips a polished face well, and will thus prevent that annoying slip to which the legs are so prone. They are sold in boxes of three, in three sizes: 1s. 6d., 2s., and 2s. 6d. respectively.

A NEW SHUTTER.—Remarkable interest has been excited, the "Photo-Miniature," by the announcement of the multi-speed shutter, a new lens shutter introduced by the Multi-speed Shutter Company of New York. This shutter is guaranteed to give accurate exposures from slow, instantaneous, bulb, and time exposure high instantaneous speeds, ranging from 1-200th to 1-2,000th of a second, with three times as much illumination at the highest speed as is obtained with a focal-plane shutter. It is even claimed the multi-speed shutter will give exposures of 1-4,000th and 1-6,000th of a second.

NOTTINGHAM CAMERA CLUB.—At the Mechanics' Institution a meeting was held on July 9 of those members of the Nottingham Camera Club who had subscribed to a purse of gold for Mr. Arthur Black presented as a slight mark of their appreciation of his work for the club, more particularly in connection with the last six annual exhibitions. The presentation was made by Mr. Thomas Wright (president), and, among others, Mr. H. Roberts (chairman) and S. W. B. Vines (hon. secretary) spoke. Mr. Black expressed thanks and briefly foreshadowed the future work of the club.



# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

SAURDAY, JULY 20.

ed Stereoscopic Society. Outing to Chislehurst.  
th London Photographic Society. Outing to Zoological Gardens.  
t London Photographic Society. Outing to Staines Moor.  
th Middlesex Photographic Society. Outing to Lemsford Mill and Brockett Park.  
th London Photographic Society. Outing on River Thames.  
ntol Photographic Club. Outing to Brisington and St. Anne's.  
ds Camera Club. Excursion to Hebdon Bridge.  
th Suburban Photographic Society. "The Pilgrim's Way."  
th Park and District Photographic Society. Joint Outing with the North  
Middlesex Photographic Society to Lemsford Mill and Brockett Park.  
i Photographic Society. Outing to Thornton Abbey.

MONDAY, JULY 22.

ford Photographic Society. Ramble to Kirkstall Abbey.  
thampton Camera Club. Print Trimming and Mounting Competition and  
nction of Members' Photographic Goods.  
rton Camera Club. Evening at Bidston.

TUESDAY, JULY 23.

dney Photographic Society. "Oil Printing." H. W. Lane.  
chester Amateur Photographic Society. "Bromide Paper." Dr. A. T.  
Lakin. "Velox." J. J. Phelps.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—At the last meeting of the  
ve society the new Leto Pigment paper was demonstrated by the  
n. secretary, Mr. Gideon Clark. The paper is sent out coated with  
thin layer of gum pigment, at present in black only, and is  
sitised with ammonium chromate and methylated spirit. With  
s quick-drying sensitiser it is possible to produce a finished print  
thin forty minutes from time of sensitising. Mr. Clark remarked  
at the attractive feature of this new pigment paper was the extra-  
nary scope it allowed for personal control during development,  
ich can be done with hot water in a similar manner to the  
inary carbon process, the first print being far less delicate and not  
liable to extreme solubility as in the ordinary gum bichromate  
cess. The finished prints have an appearance similar to a fine  
mezzotint engraving. Several fine examples in landscape, archi-  
ture, and portrait work in this process were shown, the latter  
ng specially admired.

## Commercial & Legal Intelligence.

**PHOTOGRAPHER FINED.**—William Dawson, photographer's can-  
ser, residing at 29, Harbour Street, was charged at Nairn Police  
rt last week with having been found drunk and incapable.  
used pleaded guilty, and was fined 5s., or three days' imprison-  
nt.

**ALLEGED WRONGFUL DISMISSAL.**—At the Clerkenwell County  
rt on July 11 the action was mentioned of Robert Melville,  
ountant and foreign correspondent, Crayford Road, Holloway,  
Messrs. Underwood and Underwood, stereoscopic publishers, 105,  
gh Holborn. In this case, heard before the judge and a jury on  
y 10, plaintiff claimed £72 11s. as damages for alleged wrongful  
missal. Plaintiff, as book-keeper and foreign correspondent in  
endants' employ, was receiving £240 per year. He declined to  
e a reduction, and tendered his services on the old basis. The  
r was declined, so plaintiff left. He claimed that he was  
titled to three months' notice. The jury found that, having  
ard to defendants' position, one month's notice would be a  
sonable one. Upon the judge's direction, they awarded £20 for  
month's salary in lieu of notice, and £4 15s. as money due to  
n. Mr. Thomas, for defendants, said his clients had paid into  
rt £25, and as the damages awarded by the jury were below  
t sum, he asked for judgment for plaintiff. The entering of  
gment was postponed. Mr. Ward, counsel for plaintiff, now  
mitted that his client was entitled to three days' salary above  
at the jury had allowed. He worked on two days after his week

ended, and tendered himself for work on the Monday. That being  
so, he asked that judgment be entered for plaintiff for £26 19s.  
Mr. Thomas said the entering of judgment was postponed for the  
question to be dealt with as to whether defendants, having paid  
more than the amount awarded into court, were entitled to costs.  
He pointed out that in the particulars the day of the alleged  
wrongful dismissal was set down as Friday. The judge held that  
the verdict must be entered for defendants. Mr. Ward applied for  
a new trial on the grounds that the jury's verdict was against the  
weight of evidence; that his Honour did not sufficiently direct the  
jury as to the measure of damages; and that the damages were  
inadequate. The application was refused.

## News and Notes.

**THE STEREOSCOPIC SOCIETY** is now engaged in distributing the  
year's slides among the members. During the past twelve months  
275 slides and four stereoscopes have been allotted to the children's  
ward of the Royal Infirmary, Aberdeen, and 120 slides and two  
stereoscopes to a local cottage hospital. This is the fifteenth year of  
the society's existence. There is a vacancy for one member; entrance  
fee is 1s. 6d., and annual subscription 2s. Application should be  
made to the hon. secretary, B. Diveri, B.A., Huntly, N.B., who will  
be pleased to give further particulars.

**CELLULOID DANGERS.**—Mr. Herbert Gladstone, the Home Secre-  
tary, in reply to a question put to him, foreshadowed the possi-  
bility of Government legislation on the subject of the dangers of  
fire arising from the use of celluloid articles. On being asked  
whether his attention had been drawn to the danger from fire caused  
by articles made of celluloid, xylonite, and other similar sub-  
stances, which are highly inflammable when in proximity to arti-  
ficial light, and whether he would consider the desirability of grant-  
ing powers to local authorities with respect to the storage and sale  
of such articles, Mr. Gladstone replied that this question had been  
under consideration for some time, and that he had communicated  
with the London County Council on the subject of legislation.

**THE ILLINGWORTH ZIGAS COMPETITION.**—The competition for pro-  
fessional work on the lately introduced gaslight paper manufactured  
by Messrs. Thomas Illingworth and Co., of Willesden Junction,  
under the name of "Zigas," was brought to a conclusion at the end  
of last month. The offer of £40 in money prizes for the best work  
on "Zigas" paper had evidently proved an incentive to a great  
many professional photographers of the middle class to take part  
in the competition, but it was a matter for some regret that there  
was not a larger proportion of work which might justly be classed  
with that of the very highest order. In the absence of much com-  
petition of this kind the judge, Mr. G. E. Brown, editor of the  
BRITISH JOURNAL OF PHOTOGRAPHY, did not feel justified in making  
the highest award, but the following are the names of those who  
obtained prizes:—First prize (withheld). Second prize: George  
Henderson, Hebburn-on-Tyne. Third prize: Oscar Owens, South-  
sea. Cash prizes of £1: J. Moffat, Edinburgh; H. Shelton, Not-  
tingham; Sidney Hicks, Dublin; S. H. Greenway, Northampton;  
R. Goodyer, Bognor, Sussex. Many of the prints showed the high  
technical excellence which can be attained by means of the "Zigas"  
brand of paper, whilst many others, on the other hand, demon-  
strated that the users had not paid sufficient attention to the simple  
yet important items in which a paper of the gaslight variety is dis-  
tinguished from a bromide. That the rapidity of working is often  
of the greatest advantage every photographer has reason to know,  
and he should also keep before him the fact that care and observa-  
tion only are required to combine such speed in working with a  
high quality in the finished productions.

**THE "CAMERA HOUSE JOURNAL,"** the business bulletin of Messrs.  
W. Butcher and Sons, Limited, contains in its latest issue special  
particulars relating to their "Cameo" and "Carbine" cameras, and  
also to their "Ralli" series of focal-planes. They are issuing show-  
cards for the use of dealers to advertise the "Clincher" and "Pilot"  
magazine cameras, which are fitted with a revolving price-card to  
allow of the price of the special model exhibited being shown.

Messrs. Butcher also state that their warehouse will be closed on July 20, the day of their annual outing.

**HERIOT HOSPITAL SCHOOL CAMERA CLUB.**—An exhibition of photographs was held on the 10th inst. in connection with the Heriot School Camera Club at the new art rooms of the school, Lauriston Place, Edinburgh. Each section was strongly represented, and the quality of the work was very good indeed. The efforts of some of the boys would compare favourably with many exhibits of more pretentious societies. Mr. T. A. Clark, the president, gave an account of the work and progress of the club, and Dr. Lowe, headmaster, proposed a hearty vote of thanks to Mr. Clark. The prize-winners were Eric Allan Rendall, the club bowl for former pupils; Stirling Baird, the MacGregor bowl; J. Whitehead, J. C. Brown, J. H. Donaldson, J. Underwood, F. J. Walls, and W. H. Ferney.

A SOMEWHAT serious fire occurred at the premises of Mr. W. Illingworth, photographer, of Abingdon Street, Northampton, on the 8th inst. It began in the enlargement-room, and though the alarm was quickly given and prompt assistance obtained, some hundreds of pounds' damage was done. It is stated that Mr. Illingworth has lost about a thousand specimen photographs and a case of plates.

AT THE MEETING of the London and Provincial Photographic Association on the 11th inst. Mr. T. E. Freshwater (chairman) moved a vote of condolence with the family of the late Mr. A. L. Henderson, father of the association. Mr. R. Child Bayley then read a paper, and showed examples of the Autochrome plates of Lumière, which were much admired for the purity of the blacks and whites and the truth of the greens and greys. Mr. Sinclair thought the association fortunate in being the first to see these results, the first in this country; the ease of working was quite sufficient to make one want to use it. Mr. Haddon made comparisons with the Joly process, that being in lines, this in grains, that having a separate screen, this being coated under the emulsion, and then being exposed through the back. He also suggested the use of glass, powdered instead of stained starch grains, as being more permanent. Several members doubted the possibility of getting suitable glass.

**THE KODAK £400 COMPETITION.**—At the Kodak Gallery, 40, Strand, a collection of about 60 enlargements, selected from more than 28,000 sent into the above competition, are now on view. In every case with the enlargement is shown a print from the original negative, and this forms a striking lesson in the capabilities of the cameras, of the paper, and of enlarging. Amongst the prize-winners are Steichen, Stieglitz, Harold Baker, Dan Dunlop, Mrs. Barton, and other well-known names. The show is well worth a visit.

**CANVASSING FRAUDS.**—At North London Police Court on Monday, William Jones, 44, canvasser, with no fixed abode, was charged, on remand, with being a suspected person found upon enclosed premises with the supposed object of committing a felony. He went to the house (at Aberdeen Park) of Mr. James W. Sharp, a prominent member of the old School Board for London, and walked uninvited into the kitchen. When one of the maidservants (Annie Deamer) found him there she asked him, "Who are you, and what do you want?" He uttered something and she fled. But Mrs. Sharp sent for the police, and the prisoner was found in a public-house near by. He then said he was canvassing for a photographer, and had on him some specimens. He added that he knocked at the door of the kitchen, and then turned the handle and walked in, expecting to find the servants there; and he ran away because he did not want to get into any bother. Detective Hall now proved three previous convictions against the prisoner—three months, one month, and 21 days—for stealing money entrusted to him by servants and others for photographs. Mr. Biron sent the prisoner to gaol for three months' hard labour.

**SAFE FLASHLIGHT.**—The "Photographische Rundschau" states that a perfectly safe and non-explosive flashlight mixture can be obtained by mixing equal parts of magnesium powder and anhydrous chrome alum. This burns rapidly, and gives a good light, whilst a slower burning mixture is obtained by mixing the above with one-fifth its weight of infusorial earth or powdered glass. As flashlight mixtures can be obtained at very reasonable prices now, it is hardly worth while mixing them, as a great deal of their efficacy depends upon intimate mixing and freedom of the magnesium from oxidation, to which, when it is kept in the ordinary way, it is very liable.

## Correspondence.

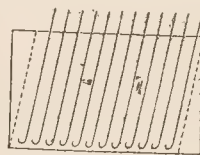
- \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### STAND DEVELOPMENT.

To the Editors.

Gentlemen,—I have read with great interest the very instructive articles in the last two numbers of the "B.J." on "tank" and "stand" development. I have recently entirely changed my tactics in this direction, with results which have led me to decide that henceforth, except occasionally, I am not likely to use any other method. I have used glycin, as recommended, for the purpose, but I see no reason why one should not be very successful with other developers, each photographer, perhaps, with his own favourite developer selected for its suitability to the kind of plate he may be using.

My greatest difficulty has been in selecting a suitable tank. There seem to be only very few on the market, and those only for one or at most two sizes, of plate. It is largely with this practical object that I am writing, and should be much obliged to Mr. Harris if he would kindly indicate more nearly the kind of dipping-bath which he has used. I have dipping-baths for the nitrate of silver which I used when I practised the wet collodion process. These, of course, will only take one plate at a time. It would almost seem that those of Mr. Harris must take more to enable him to develop such a large number of plates in so short a time. It seems to be in other respects a very convenient form of tank. I obtained my own tank from Germany, made to take two sizes of plate, and means of an adapter I am able to develop two other of my size of it, but plates of one size only at a time. I work with several different sizes from 9cm. by 12cm., continued up to 7½ in. by 6



this latter and one other being sizes not in the market. Mr. Harris' article has led me to think of an arrangement by which any one of all of these may be worked at the same time; otherwise it is necessary to procure several tanks of different sizes.

As I should think now, judging from its merits and the way in which these are being made known, that this method of development will begin to be largely used, it might be worth the while for some one of the many enterprising firms to take up the matter thoroughly and produce at moderate cost a tank more independent of the size of plate which photographers might find more generally useful. I will show one idea that has come into my mind which might be superseded by something better or improved upon, taking the old nitrate dipping-bath as the germ of the idea:—

The bath should be made not to take one dipper only, but several, say a dozen, one beyond the other, as I have represented them in the accompanying figure. It should be made with grooves like a plate box. The grooves should not be upright, but sloping downwards with the angle of the dipper in the nitrate dipping-bath. The dippers should be made as broad as the tank and so as to fit into the grooves like plates. The dippers might be in one solid piece forming a kind of framework, as in my sketch. That might allow free circulation of the developer. The plates, whether large or small, would lie comfortably on the flat dippers, and any one of them could be conveniently withdrawn, examined, and replaced without disturbing the others. With such an arrangement up to my largest size plate I could use any of my sizes, whether



ental or English, or my more special sizes—7½ by 6 and 5½ by 4 have seen lately, perhaps in the "B.J.," something of this kind noticed, but on inquiry I found it to be for the English plate size only. It should be more generally useful, and to many photographers to buy should be moderate in price. At the same time I am wishing to find a tank of this kind for my fixing.—  
etc.,  
anne.  
W. WASHAM.

## Answers to Correspondents.

*matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

*respondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

*communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., Wellington Street, Strand, London, W.C.*

*for the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 7d. each photograph, to cover cost of registration fee, form, etc. No unmounted copies of each photograph must be sent with the application.*

### PHOTOGRAPHS REGISTERED:—

Ball, 10, Bridge Street, Blaydon-on-Tyne. *Photograph of the Blaydon Hall Schools Boys' Football Club.*

Bloss, Gainsborough House, Cirencester. *Photograph of Right Hon. Austin Chamberlain.*

Haigh, 293, Eccles New Road, Weaste, Manchester. *Photograph of the grave of the Lady of Lourdes in the Grotto at the Monastery, Pantasaph.*

Stock, 7, Castle Street, Thetford, Norfolk. *Photograph of Stone Coffin unearthed at Thetford Gas Works.*

**EUSTACE.**—We think you have been hardly treated, and would advise you to pay 7s. 6d. into court and dispute the matter sum.

**HER.**—Probably the negative was too thin to give density. You should have used a chloro-bromide or gaslight plate, and developed early, then intensified. Your formula is about correct, though we should reduce the bromide to one-fourth of the quantity.

**PHOSPHORESCENT PAPER.**—Will you please tell me (1) where I can purchase phosphorescent paper, or (2) the mixture for sensitising the same?—**COPYIST.**

So far as we are aware, phosphorescent paper is not a commercial article. 2. Phosphorescent paint is either calcium or strontium sulphides suspended in gum-water.

**ON COLLODION PRINTS.**—I have used a certain brand of C.C. paper for some months, and have been very pleased with it, but some prints that have only been done a fortnight, and shown in the shop window, have gone kind of black bronze in shadows, almost like a bloom, dull, and which can be wiped off; but, of course, I do not like prints to go like that. I daresay you will know what I mean, as I have seen C.C. prints go like it before, but never any of our own, as we are so very careful, and we have had large experience in C.C. printing. Do you think using a little saturated solution of washing-soda in first washing-water prevent stains might cause it, by softening the film or coating of paper? I find that has been done lately. Also, do you think using a salt bath before toning advisable? I have used this thinking to harden prints. I may mention that only those prints that have been in platinum bath show any sign of the "bloom"; those that are sepia and that have been toned in

gold only are all right. Do you think that the platinum bath has caused it in any way?—**WYNNE.**

Had you enclosed one or two examples of the trouble we might the better, perhaps, have been able to advise you, as we have never met with such a thing in our own practice. The only suggestion we can offer is that the whole of the hypo has not been washed out of the prints, and, as a consequence, when they become abnormally dry, as they probably do with exposure in the shop window, the hypo crystallises out—thus the "bloom." Some collodion papers are very thick, and absorb a good deal of hypo solution, the last trace of which can only be got rid of by very thorough washing. You might try the effect of rubbing the surface of the prints over with a pledget of cotton wool while in the last washing-water, and then rinse them well under the tap.

**PUZZLED.**—Notwithstanding your statement about extra thorough washing, we can only say that insufficient washing is, so far as we know, the only cause.

**HYDROQUINONE STAIN.**—Can you tell me if lantern slide makers are troubled with yellow slides, the yellowness being caused by insufficient washing before fixing? Will you please tell me if there is a method to remove this yellow stain? Hydroquinone is the developer.—**E. A. M.**

As a rule, those who use hydroquinone wash well, and therefore do not meet with the trouble. It can be removed by applying a weak hypo and ferricyanide reducer, with a tuft of cotton wool to the dry negative, and rinsing frequently, or the slides may be bleached in:

Potassium bichromate .....	15 grs.
Hydrochloric acid .....	5 minims.
Potassium bromide .....	5 grs.
Water .....	1 oz.

then well washed and re-developed with metol or other clean developer.

**D. GREENWAY.**—There is no misprint, and the time is as stated. We presume that the author knew what he was about when he wrote it. The information given is that this method of development is as efficient as, if not more so than, any other. You are not, of course, obliged to adopt it, nor even try it, unless you like.

**S. S. (Tunbridge Wells).**—We are afraid you can do nothing. You did not comply with the request to wire at once, and therefore can make no claim, as the vacancy was filled because your reply was not received in time, and the other party was quite justified in assuming that, as you did not wire, you would not accept.

**ARCHER CLARK.**—Much obliged, but it is not worth while to take any notice of this scribbler's snarls.

**ACID HARDENER.**—(1) In this week's "B.J.," p. 523, there is a very interesting article on sulphide toning. It is suggested that an acid hardener to hypo bath is necessary to avoid blisters. Can you kindly give me a suitable formula for the same? (2) Also would you kindly give me information on the following: After tinting photographic prints, on either P.O.P., C.C., or bromide, they appear very dead, and anything but brilliant in colour. Can I coat same so as to bring up colours with a simple varnish or medium of some kind? The colours used are Winsor and Newton's. Your information will be esteemed a great favour.—**TWO.**

(1) The best hardener would be:

Hypo .....	3 ozs.
Sodium bisulphite lye .....	150 minims.
Chrome alum .....	50 grs.
Water .....	20 ozs.

Dissolve the hypo in the bulk of the water, the sulphite and alum in the remainder, and mix. (2) We do not know whether the colours would stand a varnish, but, if so, the best would be:

Sandarac .....	1 oz.
Benzole .....	4 ozs.
Acetone .....	4 ozs.
Absolute alcohol .....	2 ozs.

It is quite possible that the makers would sell you a medium to mix with the colours which would give a gloss.

**POSTCARD.**—This is a matter entirely for your solicitor. We should say it was libellous.

**R. ROBINSON.**—So far as we are aware, there is no work on the subject, and the ordinary rules of colouring apply. We presume you do not mean coloured prints with a protecting celluloid surface. If so, Jonathan Fallowfield, 146, Charing Cross Road, issues pamphlets descriptive of the same.

**GREEN STAINS.**—Will you kindly tell me the way to remove greenish stains from negatives developed by pyro-ammonia? The stains show after washing.—W. D. BIRD.

We are not quite clear what these green stains are, but if they are red by transmitted, and green by reflected, light, they are the old green fog, of which we do not hear much now. Abney's remedy is to bleach the plate in:

Ferric chloride .....	50 grs.
Potassium bromide .....	30 grs.
Water .....	4 ozs.

Wash and re-develop with ferrous oxalate, which reduces the green fog to a slight black veil. The best remedy is either a 1:1000 solution of potassium permanganate, which dissolves the fog, followed by a bath of acid bisulphite of soda. Or Lüppo-Cramer's bath:

Potassium cyanide .....	25 grs.
Sodium sulphite .....	100 grs.
Water .....	1 oz.

is very effectual; but as this is so poisonous the permanganate is preferable. If our querist merely refers to a greenish image then possibly the familiar thiocarbamide and chrome alum may remove some of the pyro stain. Obviously the best thing to do would be to give up ammonia, which is more prone to cause fog than the fixed alkali, like soda.

**W. E. DIXON.**—From previous knowledge we should advise your customer to at once put the matter in the hands of the police at the place of the firm.

**SENSITOMETRY.**—Please answer the following in the JOURNAL:—1. What are  $\gamma_{\infty}$  and K of Lumière ortho A: developer being standard  $\text{FeO}$ ? 2. What is the strength of standard  $\text{FeO} : \text{N}_{10}$ ,  $\text{N}_{10}$ , or what? 3. Would a developer of 20 cc.  $\text{N}_{10}$   $\text{C}_6\text{H}_4(\text{OH})_{2p}$  and 20 cc.  $\text{N}_{10}$  NaOH have 1.2 or 2.4 times K of  $\text{FeO}$ , same titre? 4. In your test of Eastman ortho plate you give  $\gamma_{\infty}$  as 1.25, K as 0.225. Please state how you arrive at the  $\tau_{71}$  you do?—K. W. M.

1. We have not yet determined these, but will do so. 2. Strength of standard  $\text{FeO}$  is  $\text{N}_{10}$ , i.e., one-tenth of molecular weight of  $\text{FeSO}_4$  in 1,000 cc. in excess of pot. oxalate. Actually prepared by adding 10 cc. of a solution of  $\text{FeSO}_4$  containing 278 grams per litre to normal pot. oxalate, making up to 100 cc. 3. It is best to reckon the solutions of developing agents in terms of molecular weights. 20 cc.  $\text{N}_{10}$   $\text{C}_6\text{H}_4(\text{OH})_{2p}$  + 20 cc.  $\text{N}_{10}$  NaOH gives a developer  $\text{N}_{20}$  to quinol and to alkali, and would have a K 1.2 that of ferrous oxalate on same basis ( $\text{N}_{20}$ ). (It would be more convenient to use the symbol  $\text{M}_{10}$ ,  $\text{M}_{20}$ , etc., referring to molecular weights.) But in presence of 2 mols. NaOH, the K of the quinol developer would be 2.4 that of an equimolecular solution of ferrous oxalate. (See "Theory of Photographic Process," p. 177.) 4. The value for  $\tau_{71}$  is obtained as follows from  $\gamma_{\infty}$  and K:—The equation to development gives

$$1 - l^{-kt} = \frac{\gamma}{\gamma_{\infty}}, \text{ in this case } \frac{1}{1.25} = 800. \text{ From the tables given}$$

in "Phot. Journ.," November, 1904, the value of Kt corresponding to a value .800 for  $1 - l^{-kt}$  is 1.61. As the value of  $k = .225$ , then  $\tau_{71} = \frac{1.61}{.225} = 7.1$  minutes. We should strongly

advise our correspondent to obtain a copy of "Investigations on the Theory of Photographic Processes," by Drs. Sheppard and Mees (see "B.J.," June 7, p. 431), if he has not already a copy.

**TANK DEVELOPMENT.**—Yes, the grooved porcelain tanks are not suitable. A metal rack is meant, and a galvanised one would not

affect the developer. It is not necessary to alter the developer, all that is required is a shorter or longer stay in the developer. Reynolds and Branson, Leeds, make a special tank. A Standa tank may be had from any dealer.

**JIM.**—The thinnest plate you can possibly get. Hinton and Bedford Street, supply a special thin glass, which if you want would be 1s. 6d.

**H. N. A., PENARTE.**—It gives excellent results, clean, sharp, and in colouring when properly worked.

**REFLEX.**—The method you suggest is by far the most convenient, and, provided you have a first-rate lens, will give you results than taking direct in the large size.

**JEWELLERY LICENCE.**—Will you kindly oblige me by stating the extent a photographer may deal in gold locket, etc., and restrictions there are to his selling them?—QUERY.

No licence is required if the weight of the article is 2dwt. Above this weight a licence is required, and the following: Above 2dwt. and under 2oz. (gold), 46s.; above 2oz. and under 50oz. (silver) in one article, 115s. These are the restrictions.

**GLAZING.**—I should like to know, through your paper, how the high glaze on P.O.P. After mounting with paste it loses to a certain extent the glaze. I have tried putting through heated burnisher, but do not get the finish I should like. Is there any treatment before going through the burnisher? If so, I should be pleased to know.—P. C.

It would be advisable to back the prints whilst on the slab with waterproof paper, allow to dry, and strip in the way. The prints, before passing through the burnisher, be rubbed over with the following and allowed to get dry:—

Castile soap .....	2 ozs.
Water .....	4 ozs.
Methylated spirit .....	16 ozs.

Shave the soap small, heat up with the water, and add spirit slowly, with constant stirring, and allow to stand days, and filter.

**MR. WILLIAM FORD STANLEY, J.P.,** optician and scientific ment-maker, of Norwood, is to receive the hon. freedom borough of Croydon in recognition of the services he has rendered by erecting two public halls and a technical school at a cost of £50,000, and presenting them to the borough.

**WATFORD CAMERA CLUB.**—The fifth annual exhibition of the Watford Camera Club will be held on October 30 and 31 next. It will be seven open and seven members' classes, in all of which medals will be awarded. The award in the "champion" class will consist of a silver plaque, and the president, Lord Hyde, will present a special gold medal for the best exhibit in the members' class. Full particulars and entry forms (which will be ready shortly) may be obtained from the hon. sec., Mr. W. R. Ginton, 139, High Street, Watford.

**\* \* NOTICE TO ADVERTISERS.**—Blocks and copy are received by the publishers, and advertisements are accepted on the understanding that they are absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

**Net Convention.**—We publish this week the conclusion of the report of the Convention proceedings, together with a number of camera photographs of members who were present at the Hereford meeting. Mr. E. J. Humphrey's paper on a method of obtaining broad effects in contact printing appears on page 559. On page 560 will be found the paper by Dr. Mees and Mr. Wratten which are detailed experiments showing the very slight variation in the Watkins factor with the temperature of the developer or variations in the proportion of alkali. A brief report is given of Martin Duncan's lecture on insect life.

**Next year's Convention.**—It is to meet at Brussels, with Sir Cecil Leitch as President. (P. 564.)

**Correspondent raises an interesting point in commercial photography as to the making of a duplicate negative at the same time as the original which is being taken to a customer's order.** (P. 570.)

**Grimsby photographer was charged last week for Sunday trading the full fine of five shillings imposed, and 5s. 6d. costs.** (P. 569.)

**We publish some further explanations of the Workmen's Compensation Act in its particular applications to the professional photographer.** (P. 555.)

**Net Collodion.**—In this week's chapter Mr. E. W. Foxlee discusses the best formulae for development, intensification, and fixing, and some words to say on dark-room apparatus for the process. (P. 556.)

**The balance of advantage as regards depth of definition when using a short focus lens and enlarging as compared with taking a contact negative is mentioned in one or two notes of special interest to hand-camera workers.** (P. 553.)

**The importance of proper attention to the details of framing a photograph is emphasised in a note on page 554.**

## EX CATHEDRA.

### After the Convention.

Another Convention having come and gone, there is once more to be added to its pleasurable experiences the post-Convention satisfaction of having once again met old friends and once again made new ones. In a technical sense the Hereford Convention has not disappointed those who desire to emphasise the more serious side of it, but socially—and we would yield to none regarding the importance of the opportunities which the Convention supplies in this direction—the Hereford meeting has been every bit as successful as those of past years. One fact, we are sure, will be among the pleasantest recollections of the week in Herefordshire—namely, the personality of the President. Mr. Watkins, as a name in photography, has, of course, his place of honour, but many who had not known him personally must be grateful for a week spent in the society of a man, generous of his help and strength, and going about the multifarious duties of his office without one trace of ostentation. Secretary Bridge has done much for the Convention, but it is on him to induce the president for 1907 to desert his beloved Herefordshire for Brussels next year. We hope to see Mr. Watkins a factor in future Conventions.

\* \* \*

### Effect of Enlargement upon Depth.

This is a matter that very few people ever consider carefully, and one that with regard to which many are inclined to jump to erroneous conclusions. If a photograph is produced with a 5 in. lens working at  $f/8$ , and is enlarged up to whole-plate size, the result is the same as that which would have been produced by a 10 in. lens, so far as size of image is concerned; but if the 10 in. lens is to give the same depth, at what aperture must it be used? If this problem is put suddenly to the average photographer, he will in nine cases out of ten say "The same aperture," meaning that the 10 in. lens at  $f/8$  will give the same effect as the enlargement. As a matter of fact, however, the 10 in. lens must be used at  $f/16$ , for the rule governing the matter is that the two lenses must be used with apertures of the same diameter, if the larger print is to correspond in all particulars with an equal-sized enlarged copy of the smaller one. The misconceptions that prevail with regard to this matter are largely due to the very different rule that governs the production of equal depth in two direct images made by lenses of different focal lengths. If we want the same amount of depth in the image produced by the 10 in. lens as exists in the smaller image produced by the 5 in. lens at  $f/8$ , then the former lens must be stopped down to  $f/32$ . The difference between the two rules is, of course, due to the fact that in enlarging an image we increase, not

simply its size, but also in the same ratio the amount of confusion, or of want of definition. If photographs made by different lenses are to show the same depth when all are enlarged or reduced to one common size, then all must have been taken with apertures of the same diameter, as Mr. Debenham explained long ago.

### Long v. Short Focus Lenses.

The advantages of long focus are indisputable. From the pictorial point of view, the ideal focal length for use with quarter-plates is 10 in., but it does not follow that we should therefore equip our hand cameras with 10 in. lenses. If rash enough to do so, it is more than probable that our pictures will be either very few or non-existent. The trouble of want of depth will be too severe a handicap, for, to get as much as we want we must either stop down severely, or retire to an inconvenient distance. The former proceeding renders shutter work impossible, while the latter frequently spoils the perspective, and takes all the vigour out of the subject. As a matter of fact, it is often impossible to get far enough away, and with an extra long focus lens it is sometimes astonishing to note the apparently crowded state of the earth when we are trying to back away from a subject. With a short focus lens and subsequent enlargement, we can obtain just the result that in the majority of cases we want—that is, a narrow-angled moderately near view on a fair-size scale. The most useful function of long focus lenses in outdoor work is securing large-size distant views. For this and for portraiture, and indeed for any work in which great depth is not required, they are invaluable. For hand camera purposes, however, the necessities of exposure and depth can only be met satisfactorily with the aid of short focus lenses, while the advantages of long focus are reaped by subsequent enlargement.

### Advantages of Enlargement.

The facts given in the above note emphasise the most important advantages of using short focus lenses and enlarging the results. It is too commonly assumed that an image enlarged from a small negative is necessarily inferior to one taken direct with a long focus lens. If it is inferior, the deficiencies are due either to the use of indifferent apparatus and materials, or to faulty manipulation. Given proper appliances, and avoiding extreme degrees of enlargement which lead to coarseness of texture, an enlargement can be produced that leaves nothing to be desired in the way of quality, while it is quite possible that no useful result at all could have been produced directly with a long focus lens. Suppose, for example, the subject is one that necessitates a very rapid exposure. If the small negative is made with a 4 in. lens at  $f/5.6$  and enlarged four times, the result is equivalent to one produced with a 16 in. lens at  $f/22$ , but very probably at that small aperture no result at all could be produced. Hence by enlargement we have obtained a result that otherwise could not be secured at all.

### Sulphide Toning.

The results of some recent investigations into the secrets of sulphide toning seem to have aroused suspicions as to the permanency of the results, but we do not see that there is much reason for these apprehensions. The doubts seem to have arisen from the fact that the brown toned result is soluble in hot water. It, however, appears that it is a gelatine compound, and that it is soluble only under the same conditions as gelatine. It does not seem to be affected by cold water, and the inference is that it will last just as long as the gelatine. It is true that the solution shows a change in course of time. Black silver sulphide is precipitated

after long standing, but there is no probability of any such action taking place in the toned print, even if it did, it could only result in a slight darkening of the tone. Whether any such darkening has been noticed we do not know. As regards the effect of gaseous vapours on the result, a sulphide-toned print has the advantage over a plain silver print in that it is necessarily protected against sulphuretted hydrogen, which is the principal source of danger to a silver deposit. It is readily attacked by the halogens in the same way as silver, but these are rather unlikely sources of trouble. In any case, a coat of celluloid varnish offers a good protection without affecting the appearance of the print in any way. A likely cause of deterioration is the very slight wash that the toned prints too often receive. There seems to be an idea that washing is almost a superfluous item in this toning process, but if the chemicals used are perfectly removed, stained whites must appear sooner or later.

### Defective and Effective Framing.

When a framed silver print shows a diagonal line of discoloration straight across the picture, the cause can be immediately diagnosed without any further inspection. There is a split or an open joint in the backing board of the frame. We have seen many old photographs that have been ruined in this way, and an examination of many frames shows that there are numerous other photographs that are bound to go the same way sooner or later. The backing board, as a general rule, is a worthless piece of dead wood full of knot-holes and splits, and of no value whatever for the purpose for which it is used. Generally speaking wood is an unsuitable material unless it happens to be of especially good quality, and in any case it should always be backed with waterproof paper laid over the back of the mount. The usual thing is to cover the whole back of the frame with thin brown paper, but this is of very little use. It is easily torn, and affords very small protection even if untorn. The method of framing that we prefer is the following: Take a piece of Willesden or other strong waterproof paper rather larger than the mount, and lay it right over the back of the frame. Then take a good sound wood backing board, or, preferably, one cut from thick millboard, lay it over the waterproof paper, and press both down into the frame. After tacking in the backing board, the projecting edges of the waterproof paper can be trimmed off. Paper strips can then be pasted over the joins if it is desired to be quite on the safe side, but if the backing board fits tightly this is hardly necessary. Other advisable precautions are the use of well-made frames and good flat glass, so that such a space does exist, it is worth while lining the rebate with velvet strips or thick, soft blotting paper. Further it is never desirable that the print should touch the glass for if any condensation occurs on the inside of the glass the print will be ruined. A slip between the glass and the mount, or a cut-out mount, is therefore a desirable precaution.

"CORRECT EXPOSURE AT A GLANCE" is the title of a booklet compiled by the Rev. F. C. Lambert and Mr. William Tylar, which is designed primarily for the use of hand-camera workers. The length of exposure and stop to be used with various makes of plates, for all ordinary subjects, at different times of the day, in bright or dim light, are arranged in tabular form for each month of the year, and the exposures for rapid and extra-rapid plates being printed side by side in red and black figures respectively make the whole easy of reference. Copies of the booklet, which may be carried in the waistcoat pocket, can be obtained from William Tylar, 41, High Street, Aston, Birmingham, price 6d., post free 7d.



## WORKMEN'S COMPENSATION ACT IN RELATION TO PHOTOGRAPHERS.

the publication of some notes on this new piece of legislation in our columns some months ago the Act has come into operation, and since July 1 last its clauses will apply to all cases in which an employee claims compensation from an employer. It may therefore be of interest if we recapitulate some of the more important provisions of the Act, and particularly such as are of application in the photographic trades. This is all the more so from the fact that subsequent to the publication of the text of the Act several supplementary pamphlets have been issued by the Government in explanation of the somewhat intricate wording of the Act itself. The latter have been obtained for 3d., but the subsequent publications together 11d.

It is, of course, hardly necessary to point out that the Act applies to photographic as well as to all other trades. Photographers, who may perhaps only employ two or three hands in their business, may possibly imagine (for no reason that their places do not come within the scope of the Workshop Act) that they are exempt from the provisions of the Workmen's Compensation Act. Such is, however, a fallacy, and sooner it is dispelled the better. If only a single person is employed the employer is liable to pay compensation for any injury the employee may meet with in the course of his, or her, employment.

The new Act is a somewhat verbose one—some twenty pages—and by no means comprehensive to a layman. It seems to be bristling with technicalities from beginning to end. That being the case there is very little doubt that it will not be long before it will give plenty of work for gentlemen of the "long robe." The explanations already issued are really necessary for understanding how to proceed under the Act.

We shall here mention some of the liabilities that may be incurred by the photographer. For example, an employee, male or female, or an apprentice under the age of twenty-one earning less than twenty shillings a week, in case of injury, is entitled to be paid full wages after the first week of disablement up to ten shillings a week, until able to resume his, or her, duties. In the case of employees earning more than a pound a week the compensation is half regular wages, but such weekly payments are not to exceed twenty shillings per week. Unless the disablement continues for more than two weeks no compensation can be claimed for the first week. After twelve months of disablement the compensation may be increased to fifty per cent. of the weekly sum the employee would probably have received at that time but for the injury. For example, if an employee on an increasing salary the employee would be entitled to half what he would have been receiving at that time if he had been able to work. Where death results from the injury the employer has to pay to the dependants the sum of the employee's earnings "a sum equal to his earnings in the same period of the same employer during the three years preceding the injury, or the sum of one hundred and fifty pounds, whichever of those sums is the larger, but not exceeding in any case three hundred pounds, provided the amount of any weekly payments made under this Act and any lump sum paid in redemption thereof, shall not exceed from such sum, and if the period of the workman's employment by the said employer has been less than three years, then the amount of his earnings during the three years shall be deemed to be one hundred and fifty-six times his average earnings during the period of his actual employment under the said employer." We have quoted this portion of Section 1 of the first Schedule of the Act *in extenso* merely to show what are the liabilities of employers—photographic or otherwise.

It seems, according to the Act (we again quote from it), that "if it is proved that the injury to a workman is attributable to the serious and wilful misconduct of that workman, any compensation claimed in respect of that injury shall, unless the injury results in death or serious and permanent disablement, be disallowed." This appears to be very hard upon the employer, as apparently he is responsible for the employee's wilful misconduct if it results in his death or permanent disablement.

If an employee contracts a disease during his employment, due to the materials used in the business, he is to be compensated as in the case of accident. Amongst the diseases named in the schedule are lead poisoning and mercury poisoning, and since the Act itself was printed an additional Schedule has been added to it, which may have far-reaching consequences to photographers. It may, therefore, be of interest to quote from the "Statutory Rules and Orders, 1907, No. 407." "Now I, the Right Honourable Herbert John Gladstone, one of His Majesty's Principal Secretaries of State, by this Order, made under Sub-section (6) of the said Section, do hereby direct that the provisions of Section 8 of the Workmen's Compensation Act, 1906, shall extend and apply to the diseases, injuries, and processes specified in the first and second columns of the Schedule annexed to this order, as if the said diseases and injuries were included in the first column of the Third Schedule to the Act, and as if the said processes were set opposite in the second column of that Schedule to the diseases or injuries to which they are set opposite in the second column of the Schedule annexed hereto." From this it will be seen that power is given under the Act to add, at any time, other diseases that may be caused by the materials used in any trades. It is not necessary here to enumerate all the diseases mentioned in this new Schedule, but it may be said that in the Schedule of the Act itself only six are included, whereas in the new one eighteen more are added. Here are those that are directly connected with photography:—

### SCHEDULE.

DESCRIPTION OF DISEASE OR INJURY.	DESCRIPTION OF PROCESS.
1. Poisoning by nitro—amido—derivatives of benzene (diamido-benzol, aniline, and others), or its sequelæ.	Any process involving the use of nitro—or amido—derivatives of benzene, or its preparations or compounds.
3. Poisoning by nitrous fumes or its sequelæ.	Any process in which nitrous fumes are evolved.
8. Chrome ulceration or its sequelæ.	Any process involving the use of chromic acid or bichromate of ammonium, potassium, or sodium, or their preparations.

Now it is clear that the first item includes nearly all, if not all, the new developers. Hence, it will be noted that if any employee suffers from using, say, metol, amidol, or any of the other bodies, and is thereby incapacitated from doing his usual work, he will have to be paid half his, or her, usual average earnings up to a pound a week. If the employee is under the age of twenty-one, and his average earnings are less than a pound a week, he must be paid full wages, but that payment is not to exceed ten shillings a week. The third item, "poisoning by nitrous fumes," is of importance to photo-etchers when they employ nitric acid in the etching. If a worker suffers injury from the fumes given off during his work he is entitled to compensation. Therefore process-block makers and the like will do well to see that the work-rooms where this portion of the work is done are well ventilated. The eighth item, "chrome ulceration," is of special importance, seeing that the bichromate salts are now so largely employed in many different processes of photography. If an employee, for instance, working any process in which these salts are employed, suffers ill effects from their use he can, of

course, recover compensation for the injury in the same way as if he had been incapacitated by an accident.

The compensation to be paid for temporary disablement, as just intimated, is half the weekly wages until recovery, but it is not to exceed a pound a week. The liability for permanent total disablement is, perhaps, the most serious of all for the employer, as it is half the weekly wages for life, which in the case of a young person might amount to a very large sum. It should be mentioned that employees who are paid £250, or upward, a year do not come under the new Act.

The generally exacting tone of the Act calls for the most serious attention on the part of photographers, for neglect of their liabilities may mean ruin to a photographer in a small way of business. We cannot too strongly insist on the advice that all photographers who employ assistants will do well to insure every hand, even down to the errand boy. It is not necessary to insure them individually. The offices will insure them *en bloc* in accordance with the gross salaries paid. The premiums are really very small indeed, in consideration of the liabilities thrown on employers, and of the fact that the policy relieves them of all risks.

Those who do insure, and most we assume in their own interests will do so, should read carefully through the policy when received, and make themselves fully acquainted with its conditions, so that they may all be fulfilled, for unless that is done no claim under it can be legally sustained. In one policy we have seen, in which the errand

boy is included, it is mentioned, "without bicycle refer to this as an example of minor conditions that be included in a policy. In this case, if the lad man an accident when riding a cycle while on his master's business, no compensation would be paid by the insurance company. It is the master who would have to compensate himself as laid down in the Act; his insurance would not cover it. We merely mention this to illustrate the necessity there is that all policies be read and digested.

To repeat what we have already said in other issues, the insurance of their employees is a duty which photographers owe to themselves and those dependent on them. In a prospectus of an insurance company now before me we note that photographers are classed amongst chemists, bakers, drapers, florists, jewellers, stationers, and the like, and the premium charged to them is four shillings per cent., the premiums being payable on an estimate of total wages and salaries for twelve months. For other trades the premiums are much higher—amounting in some cases to fifteen shillings per cent. Although we have only consulted the prospectus of one office we surmise that the tariff with all is much the same. In conclusion, we may add that members of the Professional Photographers' Association can obtain a policy at a reduced rate, as the Association has arranged with an insurance company granting policies, as they do those against fire, under the Workmen's Compensation Act, at a considerable reduction on their usual tariff.

## THE WET COLLODION PROCESS IN PRACTICE

[Former articles of this series having dealt with the preparation and care of the silver bath, the following article describes the development of the plates, and succeeding contributions by Mr. Foxlee will deal with further manipulation in sensitising and development.—Eds. "B.J."]

At one period of the collodion process pyrogallie acid was the universal developer for negatives. It has, however, been long superseded by iron, and pyrogallie acid is now only used as an intensifier after the image has been fully brought out by the iron developer. In the text books, the photosulphate of iron is given in all the formulæ, but the ordinary sulphate of iron—the green copperas of the druggists or oilshops—is far preferable, as it yields more density in the negatives.

### The Iron Developer.

The crystals of the pure photosulphate are of a pale green colour and are free from oxidation, and give a pale apple-green solution. Those of the common sulphate are usually oxidised or rusty at the edges, and give a more or less dark sherry coloured solution. In theory, a developer made with this, weight for weight, is not quite so energetic as the other, but this is compensated for by using a little more of the salt. In purchasing the common sulphate it is necessary, however, to see that the crystals are perfectly dry. If they are at all wet or damp, the salt should be rejected. The following is a very good formula for the iron developer:—

Sulphate of iron .....	2 ozs.
Glacial acetic acid .....	3 ozs.
Alcohol .....	1 to 2 ozs.
Water .....	1 quart.

The solution should be filtered. In cold weather the proportion of acetic acid may be reduced to, say, 2½ ozs., and in hot increased to 3½ ozs. or even 4 ozs., with advantage. For the alcohol, methylated spirit, if free from the mineral spirit,

answers quite as well as pure alcohol. The spirit really has no part in the development of the image; its only use is to cause the developer to flow freely over the plate, thus avoiding stains. When the silver bath is new, very little spirit is required for the purpose, but when it gets old and well charged with ether and alcohol, from the collodion, a larger proportion must be used.

In my own practice I make up a good quantity of the developer of four times the strength just given, and then dilute it with one part of water, or one pint or two at a time, for use. The advantage of doing this is that what sediment there may be in the solution has time to subside in the stock bottle, and the clear portion can be decanted as required for dilution. In this way the trouble of filtration is avoided. If the crystals of sulphate of iron are but slightly rusted, I usually, after they have dissolved, add a few drops of liquor ammonia, so as to precipitate a little of the iron, which is redissolved when the acetic acid is added, but with the commercial sulphate—copperas—this is not required. Some operators add a certain proportion of sulphate of copper to the iron developer, but the practice is less general here than on the Continent. In Germany I have seen as much as twenty-five per cent. of copper used with the iron developer. Personally, I have not found any great advantage in the use of copper, except, perhaps, that it gives a rather more non-actinic character to the image. Certainly it does no harm whatever, even if it does no good.

### Intensification—i.e., Extra Development.

The intensifying solution is very similar to the pyrogallie acid developer that used to be universally employed to



t the developer proper, except that it is usually made somewhat stronger. A formula is:—

Pyrogalllic acid .....	100 grs.
Citric acid .....	$\frac{1}{2}$ oz.
Water .....	20 ozs.

Instead of using citric acid alone, I prefer to employ a smaller quantity of it and supplement it with acetic acid. The intensifying solution I usually employ is:—

Pyrogalllic acid .....	$\frac{1}{2}$ dr.
Citric acid .....	1 dr.
Acetic acid (glacial) .....	1 oz.
Water .....	20 ozs.

Negatives intensified by this formula have a browner and more non-actinic colour than when the larger proportion of citric acid alone is employed. It is not advisable to make up a large stock of this—as with the iron developer—as it does not improve keeping. Sufficient for several days' work may, however, be prepared at a time. When the intensifier is used, it is necessary to add a little solution of nitrate of silver to it. Some operators used to add a drop or two of the silver bath, dropped from the dipper; but this practice is not to be recommended, because the bath silver is sometimes very quickly reduced in the intensifying solution, causing it to become muddy and of no effect. It is much better to make up, and keep at hand, a new solution, such as the following:—

Nitrate of silver .....	2 drs.
Distilled water .....	20 ozs.

This is conveniently kept in a corked bottle, with a notch cut in the cork so that a few drops can be shaken out as required.

### Fixing Bath.

For fixing collodion negatives we have the choice of two agents—cyanide of potassium and hyposulphite of soda. The former, as is well known, is a deadly poison, and should not be allowed to enter cuts or abrasions of the skin; but it is the one I prefer, and although I have fixed some tens of thousands of negatives with it—extending over several decades—I have never offered the slightest inconvenience from its employment. But I have always handled it with moderate care. With regard to the strength of the cyanide solution, nothing very definite can be said, as various samples of cyanide differ materially in quality. But if it be got from a reliable house, as a rough guide 10 grs. to the ounce of water will be about the right proportion. In practice it is very usual to put a few lumps in a wide-mouthed stoppered bottle and add some water; this will give us a more or less saturated solution. Then, having another wide-mouthed bottle handy—say standing in the corner of the sink—a little of the strong solution is poured in and water added. One soon learns the quantity. The strength of the fixing solution should be such that the unaltered iodide of silver is completely removed in from one to two minutes. The solution may be used over and over again—being strengthened from time to time as it loses its fixing property. If the cyanide fixing solution is used too strong, it has a tendency to dissolve some of the more delicate half-tones of the picture, therefore it is best to use it well diluted and allow a longer time for its action. The solution can be used in a dipping bath or in a flat tray, or it may be merely poured on and off the plate, like the intensifier. When the bath is used the solution is generally made weaker than when it is simply poured over the plate.

The hyposulphite of soda is a very general fixing agent for collodion negatives, but its solution is used much stronger than for gelatine plates. A very general solution for collodion negatives is:—

Hyposulphite of soda .....	$\frac{1}{2}$ lbs.
Water .....	1 quart.

This solution, like the cyanide, can be used over and over

again, or until it becomes exhausted. Its becoming discoloured is of little moment in the collodion process. This, like the cyanide, can be used as a bath, and it is best to use it in that way, as it is slower in action than the cyanide. The "hypo" fixer does not give quite such transparent shadows as the cyanide, though there is not much difference. Therefore the latter is the preferable when, as in some of the mechanical processes, absolutely clear glass in the shadows is essential.

### Dark-Room Equipment.

Supposing the chemicals, as already described, are ready for use, we will now proceed with the manipulations. Before doing so, however, it may be as well to say a little about the dark-room. Compared with gelatine the collodion is a slow process, therefore a much more comfortable light to work in is quite permissible. Those familiar with the former process only, when they see a dark-room for working the latter, are usually forcibly impressed with the large amount of light there is in it. A window two to three feet square, covered with a couple of thicknesses of orange-coloured paper, is generally quite a safe light with collodion plates. If the window faces the north, even a single thickness of canary medium will usually suffice, or a single thickness of deep orange glass will also be sufficient.

It is not advisable to have artificial light in the dark-room, unless it be the electric, as the vapour of ether is so highly inflammable, and there would be a risk, in coating large plates, of its taking fire if it came in contact with a flame. If artificial light other than electric has to be used, the lamp should be situated somewhere above the level at which the plates are coated with the collodion, as the vapour of ether, being considerably heavier than air, sinks down. Whatever light be adopted, it is well to test it by sensitising a plate, putting it into a dark slide, partially withdrawing the shutters, and exposing it for a minute or two to the light, at about the distance the plates are developed. If on development there is no fog on the exposed portion, the light may be considered perfectly safe, even though there is so much of it as compared with the dim light imperative with rapid gelatine plates.

With regard to the arrangement of the dark-room, nothing special need be said, as any ordinary room as used for dry plates is suitable. The silver bath, however, should be so placed that the light from the window or other light takes it, so that when the plate is out it can readily be seen whether it is free from the streakiness due to the solvents of the collodion. It should be specially mentioned that the room must be perfectly free from dust, as any particle settling on the film will produce a spot or "comet," which cannot afterwards be got rid of. Dust settling on a dry plate can be wiped off; not so, however, in the wet collodion process—it is certain to cause a blemish of one kind or other in the negative.

The ordinary dark slides, as used for dry plates, are of no use for wet collodion plates. The slides or carriers must be furnished with silver wire corners for the plates to rest against. If they were put into the rabbets of the usual slides the margins of the negatives would be strained from the wood; also the film would be damaged at the edges, and would be liable to wash up in the after operations.

### Receptacles for Collodion.

The collodion in use is best kept in a tall bottle, so that any particles of fluff or dust that happen to be on the plate at the time it is coated and is carried off by the collodion can settle down out of the way before the next plate is coated. Tall bottles with a large lip, and furnished with a cap instead of a stopper, are specially made for the purpose, and can be obtained from all the large dealers. If an ordinary stoppered bottle be used, and the plates to be coated are large, it is well to have a small funnel in its neck into which the collodion can be drained

off as the plate is coated. But with small plates this is not, at all necessary. The coating of a plate with collodion is looked upon by some as a difficult operation, but it is really a very simple one after a little experience is acquired. It is quite as easy as varnishing a dry plate; indeed, easier, perhaps, as the collodion flows over the cleaned glass somewhat more freely than does the varnish over the gelatine film.

#### Plate Holders.

If the plates are small, say 12 by 10 and under, they may be held by the corner between the thumb and forefinger, but the other fingers must not be used to support the plate or the heat from them would warm the plate, especially if the glass were thin, and would cause the solvents of the collodion to evaporate more rapidly were they touched, and with the result of an unequal coating, which would show in the negative. If, however, the plate is too large or heavy to be conveniently held by the thumb and finger without the other fingers' support, the latter may be employed, provided that four or five thicknesses of stout blotting paper, which is a fairly good non-conductor of heat, intervene between the fingers and the glass. If large plates have to be dealt with, they must have some support, and most operators have a contrivance of their own for the purpose. One of the most convenient I have seen was in an establishment in Germany. It was quite a home-made affair. The base was a piece of stout board 10in. or 12in. square. In this was fixed an upright, also of wood, about 12in. or 15in. high, and on the top of this was fixed a stout circular piece of wood 6in. or 7in. in diameter, with the upper side somewhat rounded. The plate supported on this could be most conveniently manipulated. Two of these holders were provided in each dark room, one being kept on a bench and used solely when coating the plates with the collodion; the other stood in the sink, and was used only in the development of the negatives, which were usually of very large size.

Coating is done in the following way: After the plate has been

cleaned in the way described in a former article, it is held with a broad camel-hair brush, or, better still, with a hair brush. It may be incidentally mentioned that it is better to let the plates rest for a short time after polishing, as glass is then in a more or less electrical condition and attracts dust. The neck of the bottle, outside and in, is freed from dried collodion and dust; then, holding the plate horizontally by one corner, a good pool of the collodion is poured at the centre. The plate is then slightly tilted so as to cause the collodion to flow up to the further right-hand corner, and then to the left.

#### How to Coat a Plate.

The plate is then slightly raised so that it flows to the nearest left corner, avoiding the thumb, and then to the remaining corner, where it is drained off into the bottle. While the collodion is draining off the plate is gently rocked from side to side to avoid crapy lines. The coating of the plate should be done slowly and deliberately, and on no account should the collodion be permitted to flow over any portion a second time, as this would be certain to produce an uneven coating. In draining the collodion the plate should only be slightly tilted at the corners particularly if it is of large size, for, as just mentioned, the vapour of ether is heavy; and if the plate is kept nearly horizontal, and is not breathed upon to create a draught, a large pool of it will rest on the plate, and to a great extent retard the action of the collodion until the larger part of the excess has drained off. Then the plate can be gently brought to the vertical position, still rocking the while. When the collodion has drained off roughly set, which will take some seconds, according to the temperature, it is ready for the sensitising bath. It must be kept out too long, neither should it be immersed too quickly. As a guide for the time for immersion, it may be mentioned that when the collodion at the corner from which it was drained takes an impress of the finger the plate is ready for the bath.

E. W. FOXALL

## THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

THE brilliant outburst of summer weather which favoured the Convention for the first three days of last week (the period covered in our issue of the 19th inst.) did not disappoint conventioners during the latter part of the meeting. Thursday, on which day there was an outing to Ludlow, was as hot as was consistent with comfort and photography. The weather also was equally favourable on Friday and Saturday, when Goodrich Castle and Ledbury were visited.

But the most enjoyable event of the week was most certainly the garden party, to which, on the Wednesday afternoon, the President and Mrs. Watkins invited the members to their home—the Vineyard Croft, on the banks of the Wye, about a mile from the city. Naturally picturesque, the garden and shrubbery, sloping abruptly to the river, were rendered still more attractive by sunshine falling on a goodly company of ladies and gentlemen. Many were content to rest within cool shade, while others, more adventurous, put off upon the rapid Wye in boats and punts. All, however, were agreed that no more charming host than Mr. Watkins could be found, and when the afternoon was gone it was with feelings of reluctance that the company returned to the centre of the city, having been entertained in characteristic cordial homely Herefordshire fashion.

The annual dinner took place on the Wednesday evening at the Green Dragon Hotel. Mr. Watkins presided, and was supported by the retiring president (Mr. E. J. Humphery), the Mayor of Hereford (Alderman C. G. Caldwell), Mr. F. A. Bridge, and Mr. W. T. Carless.

After the customary loyal toasts, "The Photographic Convention of the United Kingdom" was proposed by Mr. H. Snowden Ward. Mr. F. A. Bridge, in replying, said he felt sure that the meeting in

Brussels next year would be attended by many who for sentimental or other reasons were in favour of the meetings being confined to the United Kingdom. It was a pleasure for him to work for the Convention, and he looked forward to a most successful meeting in Belgium.

Mr. Bridge then proposed the toast of the Herefordshire Photographic Society, coupled with the name of Mr. W. T. Carless, one of its members, who had acted as hon. local secretary to the Convention, and to whose powers of organisation and capacity for work the success of the Hereford arrangements were largely due.

Mr. Carless suitably responded.

"The City of Hereford" was proposed by Mr. C. H. Botham in response to whose remarks the Mayor of Hereford referred to steady progress of the borough and to the success with which it had undertaken the municipalisation of such public services as lighting and water supply.

Mr. Alfred Ellis proposed the toast of "The President," in response to which Mr. Watkins recalled his life-long connection with the county of Hereford, and expressed his pleasure in introducing members of the Photographic Convention to scenes and places which many years had been the delights of his life.

The toast of "The Press" was proposed by Mr. E. J. Humphery in a pseudo-pessimistic speech of no little humour; response to which was made by Mr. G. E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY) and by Mr. A. Horsley Hinton ("The Amateur Photographer"). The toast of "The Ladies," proposed by Alderman Beddoe, and responded to by Mr. Snowden Ward, brought the proceedings of the evening to an end.



Owing to the unavoidable absence of the authors, the paper by C. E. K. Mees and Mr. S. H. Wratten on "Variations in the Watkins Factor" was read by Mr. G. E. Brown. The text of the paper is given on page 560.

The short abstract of the lecture by Mr. Martin Duncan, which we publish, is not by any means a fair representation of a discourse which proved fascinating in the extreme, and kept a large audience

interested from the beginning to the end on the Friday evening. Mr. Duncan's cinematograph photographs of insect life are of a kind which cannot be adequately described by any verbal method. They must be seen to be appreciated, and the interest with which the lecture was received leads us to hope that so long as Mr. Duncan continues to apply his technical powers in this way a lecture by him ought to be an annual feature at the Convention.

### AN AID TO PICTORIAL PHOTOGRAPHY.

(A paper read by Mr. E. J. Humphrey before the Photographic Convention on July 18.)

Trusting that the few remarks and examples of work which I am about to submit to you may be of service to two very different classes: 1st. To those who are so busy that they find it difficult to obtain a sure.

2nd. To those who have so much leisure that they would like to have some congenial work found for them.

In the first class we find the professional photographer, whose sitters wish to obtain finished pictures almost as soon as the negatives are ready. These customers recognise no speed limit and expect the unfortunate artist to scorch all the time, however heavy his petrol consumption must be to enable him to dry off his negatives.



The President, Mr. S. H. Fry, and Mr. A. Horsley Hinton.

He is then confronted with the delay caused by the retoucher, and not delay only, but the risk that the very charming ladies who do this work have in many cases never seen the sitter and so spoil the likeness, sometimes, alas! giving an old man, with a grand, rugged face, full of character, the complexion of a ruddy cherub in waxwork, or possibly failing to understand the aims of the artist, utterly ruin the gradations of light and shade, which are the very soul of the picture.

The examples I now submit to you show how these risks may be avoided.

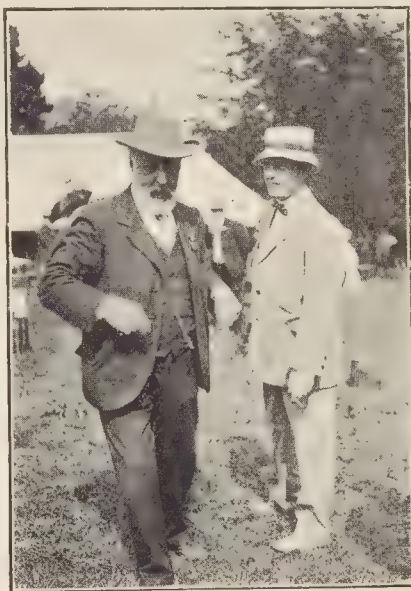
The method is quite simple and inexpensive, and can be varied to suit the taste of the artist to any extent.

To obtain the results shown in the first examples I stretched on the wall a piece of common packing canvas, took a negative of this, the size of the picture to be treated, developed it lightly so as to obtain a clean transparent negative, which I now submit to you.

This negative and that of the portrait are put together in the printing frame, the paper placed in contact with the portrait negative, and exposed to the light of an arc lamp or direct sunlight, the rapidity of printing being very slightly affected.

The result, as you will see, entirely does away with the necessity of retouching, preserves the character of the face, and gives the appearance of a picture on linen.

The coarseness or fineness of the canvas effect can be obtained from the same piece of material by altering the distance of the lens from the fabric to be photographed. This is the simplest method which I have to show, but various other effects can be obtained by a modification of the process. First, we will suppose a negative of very hard contrast, in which it is desired to tone down the harshness of the



Convention Makers—Secretaries F. A. Bridge and W. T. Carless.

high-lights. In this case it is advisable to print the portrait negative alone, and then replace it with the fabric negative, and expose for a minute, or as much longer as may be desired. This not only softens the high-lights, but gives great transparency and luminosity to the shadows.

The two pictures of the monk knitting, which I will now hand round, show a variation of this method. That on the left was printed under both negatives at once, but the background was so dense that the fabric negative was quite blocked in that part. To get over this fault, in the right-hand picture after the first exposure under the two negatives, the portrait negative was removed, the fabric one left, and a short exposure was given, softening down the harsh white of the background, and giving a soft and more pleasing effect.

The next picture I have to show you is perhaps rather too broad in treatment to suit most tastes, but possibly it may appeal to some of the Salon artists—it must not be viewed at too short a range.

In this case, instead of using canvas, I have taken common rough

Russian bass matting, usually used by gardeners to cover cucumber frames, photographed it in just the same way as the canvas, and substituted the negative for the fabric negative shown before. This, however suitable for broad effects, should not be used for pictures of young girls, as it would probably be considered by their mammas too bold.

However, if you do not like it for the picture you can use it for the margin, as in the picture of Mr. Smith, which I will show you.

I have here a table and some trays decorated in this way which will exhibit first, and then describe the method of working.

It will probably be found best, first, to prepare the various of mounting board to which the prints are to be affixed.

These should be cut in rectangular form, so that they may be tailed one into the other.

When a sufficient number of these have been prepared, the prints should be mounted thereon, being just a shade larger than the



"Honest Tom" (T. Scotton) sets up his "Sanderson."



Dr. W. Scheffer "enlarges" to Mr. S. H. Fry.



A momentary respite from narrative fiction.



The Editors of the "Photographic Monthly."

#### PERSONÆ OF THE CONVENTION.

In this the portrait and fabric negative are printed together, again without any retouching, the margin being masked. When the picture is sufficiently printed, it is masked, and the Russian matting negative used with a graduated exposure of from one to six minutes.

This effect can be modified by using both the fabric and matting negatives together, the fabric breaking up the crude pattern of the matting.

We now come to the second class, those who have plenty of leisure, and, I may add, plenty of patience also.

The examples which I am about to show you are the work and invention of Mr. Smith, whom you all know.

The idea is to use photographs for decorative purposes, giving the impression of tile or mosaic work.

the reason for this being that it is then much easier to trim the paper, face up on your work table, and rub down the edges of mounted prints.

To obtain this all that is necessary is to place a piece of fine glass paper, face up on your work table, and rub down the edges of mounted prints.

When your prints are all prepared, arrange them in the form which seems most desirable, and then take the pieces one by one and mount them to the material on which they are to be mounted.

E. J. HUMPHREY.

#### VARIATIONS IN THE WATKINS FACTOR.

[A paper by Dr. C. E. K. Mees and Mr. S. H. Wratten before the Photographic Convention, on July 18, 1907.]

THE name of our president is associated in such a unique way with the relation of the time of development to the time of the first appearance of the image, that it seemed to us that the publication of some measurements which we have recently made in our laboratory upon this subject must almost necessarily be made at the Hereford Convention of 1907.

The system of factorial development designed by Mr. Watkins has obtained a renown and adoption upon which there is no need for us to comment, but it is noteworthy that, during all the years of its use, there has been practically no publication of definite measurements made with a view to confirming the original basis on which it is erected.

In order to get an idea of this basis, let us consider development as taking place in a film which consists of a number of cells of gelatine with fairly continuous solid walls, and separated by a network of open passages, with each cell inhabited by a grain of silver bromide.

The best comparative picture that we can give would be that of a maze with wide open passages, along which the children can run without hindrance, but with a great many little cells surrounded by good stout hedges offering a definite resistance, even to a small boy

desirous of getting at the apple tree which occupies the centre of each cell. Our developer penetrates the passages of the film with great velocity, and then slowly diffuses through the cell walls to attack the silver bromide.

The first thing that happens to the silver bromide grain is necessarily the solution of some portion of it, because only in solution of reaction, of the kind that we are considering, take place. The dissolved silver bromide, representing, of course, only an infinitesimal portion of the grain itself, re-acts with the developer and produces metallic silver in solution, and the first part of the development reaction consists in the saturating up of that metallic silver to a point at which it must either precipitate or stop the reaction and the solution of more silver bromide.

Now the silver cannot precipitate unless it has a nucleus, and it is the function of the much discussed latent image to furnish the nucleus. Whatever the latent image consists of, it may be considered for the purposes of development, as simply the nucleus in each cell for the deposition of silver. If you take a beaker containing a supersaturated solution of hypo which has cooled to the point at which it is ready to deposit its hypo at the slightest incentive, then the introduction of any disturbing medium will determine the precipitation



the best medium of all is, of course, a crystal of hypo itself. And our cell containing a super-saturated solution of silver.

spect of foreign matter of any kind will produce deposition of silver, but the true nucleus is a latent image produced by the exposure of that grain to light. Once silver is deposited, that grain is easily developable, because silver bromide continuously dissolves and takes up for that which has been reduced, the developer flows to replace that which has been used, and the oxidation products out of the cells and through the wide passages of the film. The time of development from that time on is determined, no longer by the rate of reaction of the silver bromide, but by the rate at which the developer can reach the grain, and the oxidation products can be removed—viz., the rate of diffusion through the cell wall.

That we have two stages in development: the first determined at the beginning by the amount of time necessary to produce super-saturation of the silver to the necessary degree, and the second determined by the penetration of the developer into the film. The second stage is much longer duration than the first, and settles the form of the development equation. This form will be of somewhat the same for all developers.

Now let us define the "Watkins factor," which we may term F. We take for a definite exposure a density D, to which we wish to develop that exposure, then we shall reach that density D in time T with any given developer. And if we call the smallest density which

is obtainable with a given developer Da, then this will appear in time Ta, so that  $F = \frac{T}{Ta}$ .

"F" is dependent on the second stage of the development, but Ta is most entirely dependent on the first stage, which will vary with different developers, and probably with such things as concentration and temperature, or the amount of free alkali, in a totally different way from one in which those things will affect the second stage; so

one would expect  $\frac{T}{Ta}$  that is, the Watkins factor, would not

be independent of the developer, nor would it be independent, at least completely, of the temperature and of the concentration. Watkins has already stated that it is generally independent of temperature and of the amount of free alkali, and that for some developers it is generally independent of the concentration, though for others it may vary.

In order to follow out a little more closely the idea which we have put forward as to the basis of the Watkins factor method, we have made in our laboratory a number of measurements of these variations with the greatest accuracy to which we could attain. The method employed was as follows:—

A large number of "ordinary" plates were coated on patent plate with the usual precautions of rejections of edges, etc., and were cut into one-inch strips; these were uniformly exposed in the sector wheel machine, and were developed in a developing thermostat in developers of the concentration and at the temperature given. When not otherwise stated, the temperature may be taken as 20 deg. centigrade. The plates were placed in the developer, and the time of appearance of the first stop-watch; the time of appearance was then multiplied by a guessed factor, and development was carried to the calculated time. After fixing and washing, the plates were measured, and from the measured development factor and the known constant of the plate the time was calculated which would have given a development factor of 8, this was taken as T, and on being divided by the time of appearance gave the Watkins factor.

The following example will make these measurements clear:—

#### VARIATION OF CONCENTRATION WITH HYDROQUINONE.

	$\frac{M}{10}$ (Assumed factor 8 except where 5 was taken).			
Strength .....	M	M	M	M
	10	20	40	80
Time of Development (secs.) .....	36	67	145	300
Time of Development obtained .....	130	536	1160	2400
Time of Development calculated .....	97	124	130	126
Time of Development .....	141	280	565	1220
Time of Development .....	3.9	4.19	3.9	4.08

Note.—The method of calculation for T calculated is as follows:—

Previous measurements of the  $\gamma_{\infty}$  for this plate had shown it to be 2.06.  $K = \frac{1}{t} \log_e \frac{\gamma_{\infty}}{\gamma_{\infty} - \gamma}$  where t is the actual time of development to get a development factor  $\gamma$ . Thus for the  $\frac{M}{10}$  Hydro-

quinone above  $K = \frac{1}{180} \log_e \frac{2.06}{2.06 - .97} = .00351$ .

T calc. =  $\frac{1}{K} \log_e \frac{\gamma_{\infty}}{\gamma_{\infty} - .8} = \frac{1}{.00351} \log_e \frac{2.06}{2.06 - .8} = 141$ .

This method assumes the truth of the equation used, but care was taken that the  $\gamma$  obtained was not far from .8.

#### DEVELOPERS USED

The developers were made by taking as unit a proportion of the molecular weight in grams of the reducer dissolved in 1 litre of water, containing the same proportion of the molecular weight in grams of sodium sulphite, and adding an equal quantity of a solution containing a proportion of sodium carbonate.

Thus the Molecular weight of Hydroquinone is 110  
 " " " Sodium Sulphite is 252  
 " " " Sodium Carbonate is 236

The standard developer of Hydroquinone contained:—

$\frac{M}{10}$ Hydroquinone .....	11 grams per litre.	$\frac{M}{10}$ being the molecular weight.
$\frac{M}{10}$ Sulphite .....	25.2 " " " "	
$\frac{M}{10}$ Carbonate .....	114.4 " " " "	
2.5		

This is termed in the Tables  $\frac{M}{10}$  Hydroquinone;  $\frac{M}{20}$  Hydroquinone contains half of the above constituents.

Metol standard was:—

$\frac{M}{20}$ Metol .....	17.2 grams per litre.	
$\frac{M}{20}$ Sulphite .....	12.6 " " "	
$\frac{M}{5}$ Carbonate .....	57.2 " " "	
Ortol. Same as Metol .....	$\frac{M}{20}$ Ortol	= 11.7 grams per litre
Pyro. Same as Hydroquinone .....	$\frac{M}{10}$ Pyro	= 12.6 " "
Amidol. ....	$\frac{M}{10}$ Amidol	= 14.5 " "
	$\frac{M}{10}$ Sulphite	= 25.2 " "
	$\frac{M}{5}$ Carbonate	= 57.2 " "
Pyrocatechin. ....	$\frac{M}{5}$ Pyrocatechin	= 22 " "
	$\frac{M}{5}$ Sulphite	= 50.4 " "
	$\frac{M}{2.5}$ Carbonate	= 114.4 " "

The results obtained were as follows:—

#### 1.—CONCENTRATION VARIATION.

(a) Hydroquinone.	M	M	M	M
Strength	10	20	40	80
Factor	3.8	4.19	3.9	4.09

Conclusion:—The variation with concentration is very slight.

(b) Pyro.	M	M	M	M	M
Strength	10	20	40	80	160
Factor	7.3	8.0	10.3	12.1	20.9
Conclusion:—Variation very small at ordinary dilutions, considerable at great dilutions (possibly owing to progressive oxidation).					

(c) Metol.	M	M	M	M	M
Strength	—	—	—	—	—
Factor	33.5	39	48.5	58	72.5
Conclusion:—Steady decrease in the Factor with increasing dilution. Ta for — and — too short to be trustworthy.					

(d) Ortol.	M	M	M	M	M
Strength	20	40	80	160	320
Factor	8.6	13	22.5	28.8	38.2
Conclusion:—As Metol.					

(e) Amidol	M	M	M	M	M
Strength	20	40	80	160	320
Factor	57	61.5	87	128	180

Conclusion:—As Metol. Ta for  $\frac{M}{20}$  untrustworthy. Oxidation very marked, due to use of Carbonate with Amidol.

(f) Pyrocatechin	M	M	M	M	M
Strength	5	10	20	40	80
Factor	3.36	3.67	7.6	11.9	15.0
Conclusion:—As Metol.					

(g) Rodinal Ready-made solution used.	1	1	1	1	1
Strength	10	20	40	80	160
Factor	14.5	17.3	20.4	30.6	46.9
Conclusion:—As Metol.					

General Conclusion:—The factor is variable with most developers when the concentration differs, increasing with decreasing concentration.

## 2.—TEMPERATURE VARIATION.

(a) Hydroquinone Temp. C.	10°	15°	20°	25°	30°
Factor	3.48	3.36	3.8	4.4	4.46
Conclusion:—The factor is practically independent of the temperature.					

(b) Rodinal Temp. C.	15°	20°	25°	30°
Factor	16	17.5	19.7	22
Conclusion:—Factor slightly variable with temperature.				

## ALKALI VARIATION.

(a) $\frac{M}{10}$ with respect to Hydroquinone.	M	M	M	M
Alkali	5	10	20	40
Factor (means)	5.4	5.7	4.9	6.3

Note.—These alkali variations gave very variable and inaccurate results.

(b) $\frac{M}{10}$ with respect to Pyro	M	M	M	M	M
Alkali	2.5	5	10	20	40
Factor (means)	6.59	5.89	8.16	8.8	6.8

Conclusion.—The factor is independent of alkali variation. It can be shown by mathematical reasoning that the factor is independent of the velocity of development, and very nearly independent of the ultimate density-giving power of the plate, so that the factor will not be dependent on the plate used.

In conclusion, our experiments confirm the practical results which are well known by users of our President's renowned method of development, and may be of some slight interest in their bearing on the nature of development.

The necessary measurements were made in our laboratory by E. F.

Witthaus; we have also to thank Dr. S. E. Sheppard for on the theoretical aspects of the matter.

Research Laboratory, C. E. KENNETH  
Wratten and Wainwright, Ltd., S. H. WRATTEN.  
Croydon.

The paper by Dr. Mees and Mr. Wratten was followed by discussion.

Mr. Alfred Watkins said that the results which had been were of course very satisfactory to himself. The work of the factorial system was based had been done some fifteen years when the need of accurate measurements was not recognised as it was at present. The important part of the paper, he considered was that relating to the effect of temperature. In practice a grapher need not and naturally would not vary his develop-



Colour Photography.—Mr. Henry J. Comley *in medias res*.

he was compelled to put up with variations in the temperature of his developer, simply because the means of keeping a developer at constant temperature were beyond the powers of most photographers in practical work. Therefore it was important that the use of a given factor in summer would give the same degree of density in winter. In his own work he had obtained some similar variations of the factor for the pyro developer; but, remembered right, he did not perhaps in his earlier experiments take all the precautions which he took now to ensure freedom from stain in the negatives. While it was broadly true that the factor did not vary with the plate, it was his experience that an orthochromatic plate required a shorter factor for the same degree of density. He thought that some of the variations in the factors due to the presence of soluble bromide in commercial plates, supposed that plate-makers had a useful purpose in view in including plates containing such soluble constituents, but he thought that the long run it would be found best to avoid anything in a which upset methods of development which assumed the use of a plate free from such disturbing component.

Dr. W. Scheffer said that he had made experiments similar to those of the authors, and he therefore felt very satisfied that they had arrived at the same conclusions as those to which he had come.



## THE ROMANCE OF INSECT LIFE.

[An abstract of a lecture delivered by Mr. Martin Duncan before the Photographic Convention, July 19, 1907.]

VERY early in the earth's history insect life made its appearance, for beautifully preserved insect remains are to be found in those old forests and swamps that have been formed into coal. So in those past geological ages the beetle droned at eventide, and the shrill chirp of the cricket rang through the silent night. In the gloom of those vast primeval forests the spider spread its web from bough to bough. Insects came from out the egg, lived as gormandising grubs, changed to pupæ, and finally burst forth as perfect winged creatures, probably falling victims at various stages of their existence to strange insectivorous reptiles. The battle of life had long begun, and adaptation to environment was fast becoming, if not already, a fixed law in the struggle for existence. During the successive changes which have

insect life has of late years become one of the most important branches of biological investigation, and the results already obtained are of a most startling character, fully demonstrating that these at first sight insignificant creatures are important factors in the life of man. Man is Nature's rebel son, he has set at defiance her authority, and formed for himself a perilous position, which it is impossible for him to maintain, unless he is prepared to seek true knowledge of all those countless forms of animal and vegetable life which swarm around him, and are of vital importance to his well-being, to the survival of his race. The fundamental laws of Nature cannot be lightly set aside or neglected; certain destruction awaits their disregard. It is only by exact knowledge of their life history and environment that man can hope to successfully fight those organisms which have become his foes.



Raising the Status of the Professional.—Messrs. A. Sesman and Alfred Ellis.



The Honorary Lanternist and Mrs. Beard.

passed over the world's surface, insect life has held its own in the battle of life, and to-day insects embody the very principles of vitality, activity, and destruction.

In forest and woodland, and marsh and fen, the insects swarm, fighting, courting, devouring, propagating their species. Away in the lonely North thousands dance in airy winged flight over the frozen sea. They worry the herds of reindeer, driving them ever northward towards the regions of bitter frost. In the tropics they fly far out to sea, where great companies of them will settle upon the rigging and sails of ships.

The study of insect life is full of romance. I do not mean the wearisome examination of endless dead and dried specimens, but the study of the living insect in its natural environment, and of how that environment reacts upon the insect itself. Then, indeed, do we enter a new world, full of wonders, from which we may glean some insight into the laws of Nature which govern life. The study of

This evening I propose that we shall glance at the life of some of those insects with whose general appearance most of us are more or less familiar. We will watch the early life of the dragon-fly, which is passed at the bottom of ponds and lakes. Out in the garden we will follow the bees as they visit the flowers, and gain some insight into their lives, and we will watch the ceaseless labours and wars of the ants and other familiar insects.

The study of insect life is a subject full of interest, and can be made a life-long hobby. If to such labour we can call in the aid of photography, then our observations will increase both in value and interest, for we shall be able to record for all time those characteristics of form and habit which attracted our attention, and which may give us a clearer insight into the true life of these insects. If to-night I can prove to you the value of the application of photography to the study of insect life I shall feel that the many hours and days spent in observation and in obtaining the results I have to show you, have not been spent in vain.

F. MARTIN DUNCAN.

## THE ANNUAL MEETING.

THE annual meeting of the Convention, the decisions of which were briefly reported in our last issue, was held on Wednesday, July 17, in the Town Hall, Hereford, Mr. Alfred Watkins in the chair. The minutes having been read and confirmed, it was proposed by Mr. E. J. Humphrey, and seconded by Mr. F. A. Bridge, that the

invitation of the Association Belge de Photographie for the 1908 meeting to be held in Brussels should be accepted.

Mr. C. H. Bothamley referred to the minutes of the last general meeting, in which it was decided that the Council present a report as to the meeting place for the following year.

The secretary read an extract from the minutes of the Council recommending Brussels as the meeting place, which amounted to a formal report.

Mr. Bothamley thought a formal report should have been presented, but waived his further objection. In reference to the selection of a Continental meeting place, he appreciated as much as anyone the cordiality which prompted the invitation of the Association Belge, but he was of opinion that the holding of a meeting abroad was not in the interests of the Convention. There were many parts of Great Britain in which as yet no meeting had been held. That was the case in the north-west, south-east, in Essex, and in other parts of the United Kingdom. The sea voyage, he also thought, was an obstacle to the holding of a Continental meeting. He also called to mind an invitation which the Convention had received from Paris some years ago. It had been declined, and he thought that the acceptance of an invitation to Belgium was on this latter account also undesirable. He proposed as an amendment that the 1908 meeting of the Convention be held in the United Kingdom.

Mr. A. Horsley Hinton seconded this amendment. At the Council meeting, he said, he had withdrawn his objections in order that the acceptance of the Belgian invitation might be unanimous; but he felt that it was inimical to the future prosperity of the Convention to select a place of meeting outside the United Kingdom.

The Honorary Secretary, in reference to the Paris "invitation," said that it was one of three or four, and, further, was not an official invitation. It amounted to a general suggestion that should the Convention select the year of the Paris Exhibition to meet in the French capital the visit would be welcomed.

Mr. Godfrey Bingley believed that a verbal formal invitation had been presented at a previous Convention.

Mr. S. H. Fry said that the greatest objection to meeting outside

the British Isles was that members who were unable to put in a week at the Convention would be kept away altogether.

Mr. H. Snowden Ward urged that a Continental meeting did not bring the Convention in contact with photographers afterwards became regular Conventioners. He thought, also, the meeting place in a country where a foreign language was spoken tended to create distinctions between members, which it was one of the great objects of the Convention to diminish.

Dr. Thomsen, of Brussels, on being asked to contribute to discussion, said he could say nothing, because, although a member of the Association Belge, he was present in Hereford without the knowledge of that body.

Mr. Harold Baker supported Mr. Bothamley's amendment, which on being put to the meeting, was lost by 22 votes to 25.

On the first resolution being put the voting in favour of Brussels was 35 in favour against 29.

On the proposition of Mr. Snowden Ward, seconded by Tompkins, the thanks of the Convention was accorded to the Municipality of Hereford for the hospitality shown by the municipality. A vote of thanks to the local committee and its secretary, Mr. W. T. Lucas, was proposed by Mr. F. A. Bridge, and seconded by Phipps Lucas.

The auditors (Messrs. Sanger-Shepherd and Schumann) were elected, and votes of condolence were passed in reference to the deaths of Mr. A. L. Henderson and Mr. John Stuart.

#### NEXT YEAR'S PRESIDENT.

At the subsequent Council meeting, Sir E. Cecil Hertslet, Majesty's Consul at Antwerp, was elected to the presidency for the year of the 1908 meeting. It was understood that in the event of his being asked to become President Sir Cecil Hertslet signified his readiness to accept office.

#### THE CONVENTION GROUP AND CONVENTION SNAP-SHOTS.

As promised last week, we give with this issue the key to the group of members of the Convention, which last week we were able to publish in Hereford within little more than twenty-four hours of the exposure being made, through the expedition of the official photographer, Mr. H. J. Unwin, and of the London Studio, by whom the half-tone plate was made. It may perhaps be of interest if we

also reproduce here the photograph by means of which the names of those in the group were obtained. The method needs scarcely a word of explanation. Each of the cards distributed to the sitters bore on the reverse side the request to write the name and address and to hold the card before the face for the special exposure. The photograph is the result of this exposure, and it will be at once



Key Photograph to the Convention Group



understood that the method is not upset by any re-arrangements, but that of exchange of cards after the names have been filled up before exposure. In order to avoid the smaller figures, which had been used if the numbers ran above 99, two series of 99, one with, and one without, stars, were employed, the size of the card being six inches square. In making a key it is almost always necessary to re-number the heads, owing to the unavoidable changing of sitters before exposure, but the infallibility of the key is not affected thereby.

The drawback to the occasional use of the plan is its expense. The making up of the different numbers is not a cheap process, and it is not worth while for one of our trade houses who cater specially to the professional to issue a set of cards, blank on one side and numbered on the other. The cost on an edition of 1,000 only ought to be trifling, and many professionals who have a fair proportion of sitters to photograph would be ready to purchase, not only on account of the labour saved, but for the reason that cards give sitters something to do, and, further, that they imply smartness on the part of the photographer.

A few outdoor hand-camera portraits of the Convention persons which we publish in this issue were nearly all obtained at the President's garden party on the Wednesday afternoon. Light and surroundings were favourable to snap-shot photography, and whatever it survives in the printed reproductions may be ascribed to these factors, for the negatives were exposed by a mere journalist, masquerading as a photographer among a distinguished company of professionals and amateurs. It may be of interest to add that all were obtained in a reflex camera.

#### THE LATE MR. JOHN STUART, OF HELENSBURGH.

At the publication of the few lines last week announcing the death of Mr. John Stuart, of Helensburgh, we have received a portrait of the deceased gentleman, which we reproduce with the melancholy



The late Mr. John Stuart, of Helensburgh.

on that it is the last occasion on which the features of a departed friend are to appear in our pages as a reminder of his active personality. For the short account of the career of Mr. Stuart we are indebted to the "Helensburgh Times."

Born in the city of Glasgow in the year 1831, Mr. Stuart was seventy-six years of age. He served his apprenticeship to the carpentry trade, and married Miss Renfrew, of Glasgow, at an early age. In the year 1851 when photography was little practised in Scotland, an unconquerable desire seized him to acquire this wonderful art. While attending Dr. Taylor's natural philosophy classes in the Andersonian University he became possessed of a rudimentary knowledge of photography, which was subsequently developed during his attendance at the chemistry classes in the same seat of learning. Having gained considerable information on the scientific side of the subject, he proceeded to put it into practice, and with his own hands erected a glass house, made a camera and other apparatus, and set to work as an amateur photographic artist. His first sun pictures of roofs and spires in his native city gave him fresh inspiration, and he pursued his studies with an enthusiasm which speedily achieved success. He retired gradually from his ordinary occupation, and devoted himself exclusively to photography. From a humble beginning he fought his way forward, and by sheer merit and good work his studio in Buchanan Street, Glasgow, came to be regarded as one of the foremost in Scotland. In 1858 Mr. Stuart took up his permanent residence in Helensburgh, where shortly afterwards he opened a branch establishment, and from which, in the course of well-nigh half-a-century, there has emanated such beautiful work. From its origin up till within recent years it was under the management of the late Mr. William Stewart, Giffnock Cottage. Of a singularly active disposition Mr. Stuart throughout his lifetime has taken a keen interest in public affairs, and has proved himself a useful citizen. He was first returned to the Town Council in 1865, and was a member for seventeen years. In 1869 he was created Junior Bailie, and in 1870 Senior Bailie, reaching the top of the municipal tree in 1877, when he was chosen Provost. He held that office for seven years, and during his term was instrumental in introducing many important public improvements.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made between July 8 and July 13:—

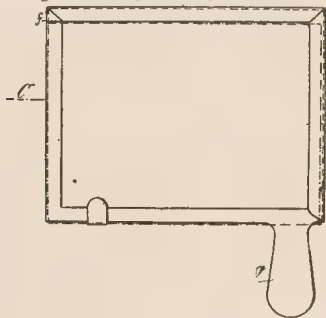
- PROJECTION APPARATUS.—No. 15,726. Improvements in apparatus for projecting two or three photographic records or colour records. Otto Pfenninger, 105, Hythe Road, Brighton, Sussex.
- REFLEX CAMERAS.—No. 15,774. Improvements in photographic cameras of the reflecting type. Harold Frederick Smith, 33, George Street, Peterborough.
- REFLEX CAMERAS.—No. 15,889. Improvements in folding reflector cameras. William Barton Wood, 322, High Holborn, London.
- CINEMATOGRAPHS.—No. 15,902. Improvements relating to cinematographs and like apparatus. Arcade Mallet, 7, Southampton Buildings, London.
- SHUTTERS.—No. 15,934. Light graduating shutters for use with photographic lenses. Albert Henry Church, 35, Sydney Street, Chelsea, London.
- LENSES.—No. 15,958. Improvements in lenses. Joseph Cook Angus, Birkbeck Bank Chambers, Southampton Buildings, London.
- PANORAMIC CAMERAS.—No. 15,977. Improvements in or relating to means or apparatus suitable for use in observing or photographing objects embraced within the complete horizon. Horace Frederick Denston, 46, Lincoln's Inn Fields, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

PLATE HOLDER.—No. 17,179. 1906. The holders are for exposed plates, consisting of a frame furnished with a handle and having one side open and three sides provided with grooves or hooks, so that the plate can only slide out when the frame is inclined towards the hook or handle side and the open side. In manipulating the plate it is only necessary to hold the side of the frame

with the closed groove lower in order to prevent the plate from falling out unintentionally when the open side is placed obliquely. The device serves for holding the plate during all the operations, such as developing, fixing, intensifying, or reducing of the plate. In order to distinguish the holders for placing the plates in the developer from those employed for putting them into the fixing bath, the holders are coloured differently or provided with tangible distinguishing marks. In the figure *C* is the open end of frame, and it must be depressed as regards *g*, the holder, and *C*, so that the plate can slide out. By placing the open ends of two frames together the plate may be made to slide from one



frame to another, if it is thought desirable to use separate frames for separate operations. Carl von Unruh, 18, Moltkestr., Detmold, Germany.

**DARK SLIDES AND CASE.**—No. 24,227. 1906. Fig. 1 shows how the slides are numbered, together with a blank of any suitable material and colour, which acts as a check, arranged consecutively within the case. The slides and the blank which are supported by one

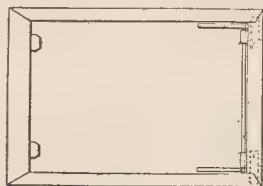


Fig. 1.

or more blocks positioned on the bottom of the case and inclined forward rest between the ribs at the front of the case and one or more springs arranged at the back thereof. When a slide is removed the remaining slides are all given a forward motion, until

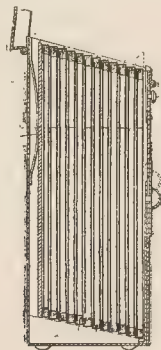


Fig. 2.

the slide containing the plate next to be used is automatically placed in position, leaving the space at the back for the slide containing the plate which has been exposed.

Fig. 2 illustrates the construction of the improved slide, which may be of any required dimensions, and constructed of aluminium

having grooves formed by wooden edging, and furnished one end with guide or stop pieces, and at the entrance springs secured to a transverse pin working in bearings set to the base of the slide. At the entrance end of the slide conveniently secured thereto is a lining of cloth or other suitable material, having an outward tendency or springiness. A corner positioned beneath the beaver mole is a flat spring provided, in order that when the slide is loaded with the which rests beneath the guide or stop pieces, and is held firmly in position by the hinged springs which bear on the edges thereof and on the back of the shutter, all possible light entering the slide with its consequent disadvantages while the shutter is removed or replaced is obviated. The of this shutter is bent to protect the outside edges of the slide and any suitable means as a finger piece or a ring may be provided to readily remove and replace the shutter. T. Frederick Caldwell, 81, Neptune Street, Burnley, Melb. Victoria, Australia.

**ROLLABLE FILMS.**—No. 25,188. 1906. This invention relates to rollable films, which are perforated so as to enable the negative to be separated without cutting the roll, and to a means for holding the roll films when one or more negatives have been taken therefrom. Hitherto perforated roll films have been made with perforations in single lines or rows, between each picture space such are difficult to fasten to the backing, owing to the fact that the means for fastening projects over the film and is likely to interfere with the picture.

According to this invention the film is perforated in double rows in such a way that the pictures can be torn off or removed, and when so removed they leave a strip of material which can be utilised for fastening the next following picture to the backing, without interfering with the space required for the picture. By preference a piece of sticking paper or other material is provided, which can be employed to hold the strip to the backing, or the same may be held by clips which hold the narrow strip of material between the two rows of perforations. George Goodchild Stevens and Thomas James Smith, 8, Oswald Street, Rushmore Road, Clapton, London, N.E.

**DAYLIGHT DEVELOPING APPARATUS.**—No. 27,484. 1906. This invention consists of a developing apparatus, formed of two box-like parts jointed together. One of these parts constitutes a dark

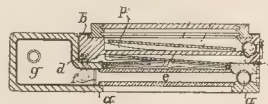


Fig. 1.

ing chamber, whereas the other serves as a means for transferring the plate from the dark slide to the developing chamber and back therefrom to a fixing receptacle. Fig. 1 is a cross-section of the apparatus with dark slide applied thereto. Fig. 2 is a longitudinal section through the apparatus opened out

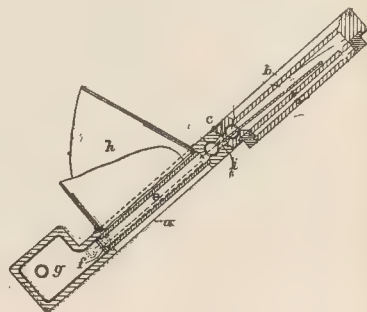


Fig. 2.

the position for transferring the plate from the one part to the other.

The apparatus consists of the two box-like parts, *a* and *b*,



are jointed together at *e* by means of hinges, so that the structure can be doubled up for convenience in carrying. The other ends are not connected to each other. The part *a* constitutes the developing chamber *c*, and comprises also the receptacle *g* for receiving the developing fluid, and contains the ribs *f*, which form stops for the plate.

The developing fluid can, as usual, be let into its receptacle by means of a funnel, and out of the same by an opening provided with a stopper. The bottom and the cover of the chamber *c* consist of ruby-red glass, through which the progress of the development may be observed. Above the ruby-red glass forming the cover of the chamber can be arranged a folding shading device *h*, as shown in Fig. 1, is held folded by the bottom of the part *b*. Beneath the ruby-red glass bottom of the chamber also a protecting slide or the like can be arranged. Carl Friedrich Aurich, Ostra-Allee 17, Dresden, Germany.

## New Trade Names.

**CHROME.**—No. 293,412. Colour-sensitive plates for photographic use. Wratten and Wainwright, Ltd., 76, Canterbury Road, Croydon, Surrey; photographic material manufacturers. June 1, 1907.

**CHROME.**—No. 293,413. Colour-sensitive plates for photographic use. Wratten and Wainwright, Ltd., 76, Canterbury Road, Croydon, Surrey; photographic material manufacturers. June 1, 1907.

**AGLOSS.**—No. 293,812. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. The firm of Nobles and Hoare, 3, Cornwall Road, Stamford Street, London, S.E.; varnish and japan manufacturers. June 14, 1907.

**AMATTE.**—No. 293,813. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. The firm of Nobles and Hoare, 3, Cornwall Road, Stamford Street, London, S.E.; varnish and japan manufacturers. June 14, 1907.

**TYPE.**—No. 293,063. Photographic paper. Rheinische Emulsions-Papier Fabrik Actiengesellschaft (a corporation organised under German law), 3, Gasanstaltstrasse, Dresden-Reick, Germany; photographic paper makers. May 16, 1907. Address for service in the United Kingdom is, c/o Herbert Haddan and Co., 31 and 32, Bedford Street, Strand, London, W.C.

**LO.**—No. 293,068. Photographic printing papers. Otto Fulton, Fellow of the Royal Photographic Society, African House, High Road, Chiswick, Middlesex, W.; manufacturer. May 17, 1907.

## Analecta.

Extracts from our English weekly and monthly contemporaries.

### Press Users of Reflex Cameras

While on the subject of reflector cameras (says "Photography") might refer to a discussion which has been taking place lately whether this type is the most suitable for advanced work or those who hold that it is not have referred in support of their to prominent medal winners, who are not users of reflector cameras. Unfortunately for the force of the contention, "advanced" camera work is not defined. Medal winning at exhibitions has nothing whatever to do with it. The exhibitors named would be very first to disclaim the fact that their successes were technical triumphs, or that their work imposed any great demand upon their cameras. The most advanced—that is to say, the most difficult technology—hand-camera work that is done at the present time does figure in exhibitions at all, which are almost exclusively devoted to pictorial photography, a branch which makes fewer technical demands than any. It is the press photographer who wants the most perfect apparatus, and who tries its capabilities to the utmost; and it is no exaggeration, but bare fact, to say that the press photographer who does not use a reflex camera does not.

At a big race meeting a few weeks back we noticed over a press photographers busy in recording scenes on the course in the stands and paddock, and every one, without exception, a reflex camera.

## The Oil Printing Process.

To shorten the bristles of a brush (writes Mr. Stanley Saunders in "The Amateur Photographer") or to shape them like a deer's foot, as recommended by M. Demachy, soak the bristles in strong glue or size, and then set aside to dry, taking care that all the bristles are straight. When hard, cut nearly to the length or shape required, and then grind the rest down on a grindstone, first wiping the loose dust off the stone. If the hairs tend to fray out whilst grinding, bind them round tightly with string. When finished, soak well in water to remove the glue. The brush will be slightly softened by this dodge.

## New Books.

"Theoretisch-praktisches Handbuch der Photographischen Chemie." By Professor R. Namias. Pp. 406. 8½ x 5½. (Halle: Wilhelm Knapp 8s.)

This is a German translation, by A. Valerio and Dr. C. Sturenburg, of the third Italian edition of Dr. Namias' well-known work. It is a clearly written exposition of the various chemical processes which occur in photography from the standpoint of the older chemistry, that is to say, the old school which was content to give everything its chemical equation, no matter how complex the reaction might be. The newer physical chemistry is not touched at all. It is an extremely readable work, sketching in with somewhat light touch every process, and throughout the information will be found to be generally satisfactory. We note, however, that when dealing with the sensitometry of plates there is no mention of the Hurter and Driffield system. The chapter devoted to orthochromatic work has been brought up to date by the inclusion of the newer isocyanine dyes, but with no mention of the filter yellow K.

"Annuaire Général et International de la Photographie." 500 pp. and 225 supplement. Paris: Plon, Nourrit et Cie. Five francs.

The sixteenth yearly issue of the "Annuaire" again appears, under the editorship of M. Roger Aubry, in whose hands the volume preserves its accustomed features. Intended for the amateur and student of photography, its pages are chiefly devoted to a review of progress in the optics, chemistry, and technics of photography during the past year, in which section we find also a chapter on "The Scientific Applications of the Camera to Stereoscopy, etc.," one on "Colour Photography," and still another on "New Items of Apparatus." Among the other literary contents is a fully illustrated article on "The Methods of the Maker of Trick Cinematograph Films." The volume includes the indispensable tables and formulæ, and contains also a directory of French amateur photographers, classified under the societies of which they are members.

"THE PHOTO-MINIATURE."—No. 79 of our excellent New York contemporary (London: Dawbarn and Ward, 6d.) deals with the choice and use of photographic lenses, and contrives, even on this well-worn topic, to say some things in a different way, and to make still clearer some of the points which are difficult of comprehension by the beginner. It is, in fact, a book of lens small talk—without equations, without even a single diagram to bear an aberration company. Editor Tennant is greatly to be congratulated no less than his readers.

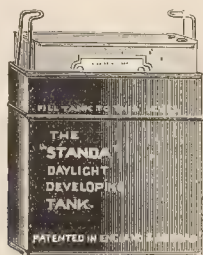
"FINISHING THE NEGATIVE."—Messrs. Dawbarn and Ward, in issuing a new edition of this handbook of the after processes which a negative may require, have made it uniform with their popular shilling series of books, of which the excellent "Figures, Facts, and Formulæ" is a fairly representative volume. Brought down from the lordly price of half-a-crown (nett), the new issue suffers only in the matter of cover and paper. The latter is a minor matter, as the half-tone illustrations are placed on art paper. The book is very much more than a collection of formulæ; it contains a good deal on manipulation and principles, and in its shilling form, revised by Mr. Snowden Ward, it should prove a most useful shelf companion to any practical photographer.

THE ANNUAL EXHIBITION of the Hackney Photographic Society will be held on November 6, 7, 8, and 9.

## New Apparatus, &c.

The "Standa" Daylight Time-Development Tank. Made by The Standard Patents Co., Ltd., 11, Bond Court, Walbrook, London, E.C.

A new and improved model of this tank, which has now been before the public for several years, has been introduced by the makers. The original pattern of the tank embodied a number of conveniences in a surprisingly small space, a feature of the apparatus which has been very generally appreciated, we think, and has, in fact, done much to dispose photographers in favour of the stand method, inasmuch as the "Standa" is very economical of developer. The tank still consists of an inner and outer vessel, the latter holding the developer, and the former, loaded with plates, being lowered into it and admitting the developer at the bottom. In the tank before us the inner vessel holds six quarter-plates. The outer one is charged with seventeen ounces of developer, which, when made up from the powders supplied by the firm, will develop to good density in five minutes, or a developer to act completely in a longer period can easily be prepared by making a weaker solution. Whichever be the solution adopted, the "Standa" tank, as we have found in an experience of it which commenced on its first appearance, is a most handy apparatus in use. If one is not content, as we confess we are not, to develop invariably by time, the plates are very easily removed by raising the inner tank and withdrawing any particular one from its grooves. Others will prefer to adopt the daylight method and secure the comfort of working in daylight (and fresh air), and in this respect we have found the tank quite efficient.



Still it is none the worse, but in our opinion, all the better for its ready application to dark-room use. From its compact size and ease of cleansing, the tank is just as well suited to tourist purposes as to regular work in a professional establishment, in which latter respect a good word must be said for the way in which the metal of which it is composed resists corrosion if washed after use. The Standard Patents Co. have recently brought out tanks for two exposures only to meet the wants of those taking their photography in small doses. Particulars of these, as of all the sizes in which the apparatus is made, can be obtained from any dealer, or from the firm at the address given above.

MESSRS. J. H. DALLMEYER, LTD., who have recently removed their factory to larger premises at Neasden, held their annual beanfeast on Saturday, the 19th inst. Fine weather favoured the occasion, enabling some of the party to make the trip by steamer down the Thames. After dining at Murray's Hoy Hotel excursions were made by tram and boat, the return journey being effected by a late train.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY. — The multitude who take an interest in photography will find a capital exhibition now in progress in the East Gallery of the Alexandra Palace. It is made up of photographs by members of the North Middlesex Photographic Society, which has been in existence for nineteen years, its object being to extend the study of the art. In all there are 176 exhibits, embracing a variety of subjects, the rural being particularly prominent. Much-prized landmarks, castles, ancient gateways, etc., provide some very interesting specimens, whilst woodland stretches, visions of picturesque hill and dale, and the glories of life by lake and river add welcome contributions to the list.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK

SATURDAY, JULY 27.

Hackney Photographic Society. Outing to Winchmore Hill Woods.  
Rugby Photographic Society. Outing to Althorpe.  
Devonport Camera Club. Outing to Mount Edgcumbe.  
Edmonton and District Photographic Society. Outing to Waltham.  
Borough Polytechnic Photographic Society. Outing on River Thames.  
Coventry Photographic Club. Outing to Astley and Arbury.  
Aberdeen Photo Art Club. Outing to Loch of Park.  
Manchester Amateur Photographic Society. Outing to Prestwich.

SUNDAY, JULY 28.

North London Photographic Society. Outing to Denham.

TUESDAY, JULY 30.

Hackney Photographic Society. Members' Open Night.

WEDNESDAY, JULY 31.

Leeds Camera Club. "The Dark Room, its Arrangement, &c." John Le  
United Stereoscopic Society. "Micro-Stereoscopy Without a Micro-  
G. W. Stannard.

## Commercial & Legal Intelligence

PHOTOGRAPHING PLANS.—The London Stereoscopic and graphic Company, Ltd., of Cheapside, sued Charles Wall, Ltd. way contractors, of Lloyd's Avenue, at the Lord Mayor's Court July 15, for £65 14s. for work done. Mr. B. Lailey (instructed by Mr. Cox) was counsel for the plaintiffs and Mr. W. G. Glynn (instructed by Messrs. W. Carpenter and Sons) for the defence. Mr. J. L. Mitchell, general manager and secretary to the company, said that on January 11, 1906, the order was given for the name of the defendant firm being entered in the books. Miles, manager of the plaintiffs' Cheapside branch, stated that fortnight after the invoice was sent defendants asked that it be made out to the British Contract Corporation. That, he said, the plaintiffs declined to do, as the order had been placed with in the name of the defendants. For the defence Mr. H. W. Waite, who said that the defendants had never given any authority to the person whose instructions were followed to act for them. The parties to them on being opened was delivered to the adjoining office of occupation of the gentleman in question. The jury stopped at the close of the evidence, and returned a verdict for the plaintiffs for the amount claimed.

"FOR CASH ONLY."—The Rotary Photographic Company, 1 Union Street, Moorfields, sued Messrs. Daniel Bros., of Morley, Leeds, at the Greenwich County Court last week, for £21 10s. sold. To satisfy the action, which had been remitted to the High Court, defendants had paid £14 6s. 11d. into court. H. B. Sewell was for the plaintiff, and Mr. C. H. Dodd for the defendants.—The cause of the dispute between the two parties was to whether the defendants were entitled to a certain discount which plaintiffs refused to allow, on the ground that it was a cash discount only.—His Honour took this view, and found for the plaintiff, with costs.

EARLY MORNING PHOTOGRAPHERS.—Walter Knight, 18, of Albert Street, Portland Town, and George Hurrell, 18, of Little Street, Camden Town, were charged at Marylebone Police Court last week, with breaking and entering 256, Finchley Road, stealing 15s., two syringes, a camera, rubber stamp, six keys, and other things, worth £2 2s., the property of J. H. Lewis, chemist. Police-constable Young, 256 S, said he was in Marylebone Gardens about half-past one o'clock that morning, and saw the defendants loitering about suspiciously. Knight was carrying a camera in his hand, and when questioned about it he said it belonged to him. He had been up to Hampstead Heath taking photographs, being satisfied with the explanation, the witness arrested the pair. At the station a number of keys were found on the men, and the prosecutor's address was on one of them inquiries were made of Detective-sergeant Loder, and it was found that the premises had been broken into, the glass of a window being broken, thus giving access to the shop. All the missing property was found on the prisoners. Mr. Paul Taylor sent the case for trial.



**PHOTOGRAPHIC FRAUDS.**—At the Liverpool Assizes, last week, Thomas and William M'Hugh, father and son respectively, were found guilty of what the Judge termed a cruel swindle, and sentenced Thomas M'Hugh to twelve and William to nine months' imprisonment. The men induced persons to part with considerable sums as premiums to learn the photographic business, the younger man having a studio.

**SUNDAY TRADING.**—At the Grimsby Police Court, on July 19, John Hawkey, photographer, was charged with trading on June 23, 30, and July 7. According to the police evidence, Hawkey was standing outside his studio inviting people inside, and he several times went into the studio. Hawkey was called by Mr. Wainwright, who defended. During the week, he said, he carried on business as a photographer, but on Sundays he had nothing to do with the business except standing outside and telling people the price. His wife did all the photographing, and all the money taken was hers absolutely. Mr. Wainwright submitted that the Act could not have contemplated photography, as it had not been invented when the Act was passed—and he mentioned that the Act was so ancient that if the fine was not paid a man could be placed in the stocks for two hours. He contended that Hawkey was not a tradesman. The King's Bench had decided that a tradesman was one who bought and sold goods. When a photographer charged for the photographs he did not charge for the materials, but films, time, and skill in taking the photograph, in the same way as a barber charged for shaves, and a barber had been expressly held to be exempted under the Act. Another point was that the business on a Sunday was not carried on by the defendant, but by his wife. The defendant did this, he did not mind admitting, with a view to getting out of the Act, and it had therefore been done completely, the business being absolutely transferred to the wife. The defendant did not take part in the business, and did not receive a penny of the money taken on Sundays. He mentioned that other Benches had taken different views of this question. At Blackpool the Bench refused to convict photographers. Another Bench also refused because they said Sunday was the only day in which a working man could get photographed in his best clothes. The Bench found that the defendant took part in the business, and that his wife carried on the business for her husband. On those grounds they convicted him. A fine of 5s. and 5s. 6d. costs was imposed in each case.

#### NEW COMPANIES.

**EDWARD WATSON AND CO., LTD.**—Registered July 15. Capital 1,000, in £1 shares. Objects: To take over the business of chemists, druggists, drug and patent medicine vendors, dealers in pharmaceutical, medical, chemical, optical, surgical, photographic, and other reparations and apparatus carried on by E. Watson, at 100, Mitcham Road, Tooting, as Watson and Co. No initial public issue. Registered without articles of association.

**PARKER AND KNIGHT.**—July 12. £500 (£1). To acquire the business carried on by J. W. Parker, and to carry on the business of photographers, etc. No initial public issue. Registered without articles. 108, Clarendon Road, Southsea. (94,159.)

## News and Notes.

**MR. CHARLES E. SPEIGHT**, the well-known photographer, of London Road, Kettering, was married on the 16th inst. to Miss Florence L. Collings, eldest daughter of Mr. Edward Collings, of the Royal Hotel, Kettering.

**NORTHAMPTON NATURAL HISTORY SOCIETY** (Photographic Section).—On July 13 some dozen members of the photographic section of the Northamptonshire Natural History Society went to Rugby with Mr. R. G. Scriven, J.P., as their leader. At Rugby they were met by Mr. R. H. Myers, the honorary secretary of the Rugby society, and after a short stroll round the town, were met at the schools by the president of the society, Mr. B. B. Dickinson, M.A., who conducted them over the buildings, and through the chapel, gymnasium, workshops, library, and museum. The party also visited the churches of St. Andrew and Holy Trinity, and partook of tea in the St. Matthew's parish buildings. After the meal Mr. Myers expressed, on behalf of Mr. Dickinson, the Rugby society's welcome to the Northamptonians. A vote of thanks to the Rugby friends was proposed by Councillor J. J. Wetherell (vice-president of the section), and seconded by Mr. C. H. Dorman (hon. secretary).

**"FINGER-PRINT PHOTOGRAPHY."**—Mr. Oliver Cromwell, a detective and photographer in the Bradford City Police, has published, with Mr. Elliott Stock, an intelligent little book on the above subject, a branch of photography which would appear to be of considerable value in the detection of crime. It is believed that the markings on anyone's fingers never change, and that no two persons have ever been found to have the same markings, and it is therefore claimed that this finger-print science should give irrefutable proof as to the guilt or innocence of a suspected person. With this end in view it is to be hoped that Mr. Cromwell's little book will be largely studied by members of the police force, and stimulate many of them to take an interest in the subject with which it deals.

**"TOURIST GUIDE TO THE CONTINENT."**—A new edition of this popular guide has just been issued by the Great Eastern Railway, and includes among its special features particulars of a number of new tours in various districts, including the Hartz and Thuringian mountains, the lesser known valleys of the Rhine, some of the old Flemish cities, etc. The book is well illustrated, and contains a practical feature in the form of a series of Continental maps. Copies may be obtained from the publishers, 30, Fleet Street, E.C., and 12a, Regent Street, W.; from the Continental Department at Liverpool Street Station; or may be ordered from all booksellers and railway stations. The price is 6d.

**ANNUAL OUTING OF HOUGHTONS, LTD.**—On July 13 the warehouse and office staffs of Houghtons, Ltd., had their annual outing. Starting from Waterloo at 10 o'clock they travelled to Staines by train and then embarked on the launch "England," and as the weather was fine a really enjoyable day was spent. Lunch and tea were served on board in the saloon of the boat, Mr. George Houghton, senior, presiding at the first lunch, and Mr. Edgar Houghton at the second. The boat went as far as Bray Lock, and on the return journey stopped at Windsor for an hour, thus affording an opportunity for a visit to the castle. The homeward trip was particularly enjoyable, and the party landed at Staines at 8 o'clock. About 200 members of the staff were on board. The "Ensign" Works outing took place on the week previous.

**THE "TICKA" BOOKLET.**—A booklet, giving full particulars and price list of the "Ticka" camera and accessories, has been issued by the makers, Messrs. Houghtons, Ltd., of 88 and 89, High Holborn, London, W.C. It contains numerous illustrations showing the kind of work that may be done with this little instrument, and the results obtainable, both when printed from the film in direct contact in the ordinary way and also when enlarged in the "Ticka" printing-box. A series of specimen prints, taken by an amateur, is also included in the booklet, and Messrs. Houghtons will be pleased to send a copy of both to any of our readers who have not already purchased a "Ticka," or applied for particulars, on their mentioning the "British Journal" in their application.

**VELOX COMPETITION.**—The following are prize-winners in Messrs. Griffin's monthly "Velox" competition:—First prize (2 guineas), H. Beetham (Nelson, Lancs.); second prize (1 guinea), David Bain (Glasgow). Twelve prizes of 5s. each were also awarded to Thomas Marshall (London), J. H. Williams (Kettering), H. W. Hillier (Maidstone), E. J. Brooking (Wisbech), W. Muff (Hipperholme), E. P. Grigg (West Bromwich), A. Vernon Wilkinson (Birmingham), Mrs. Helen Mackinnan (Aberdeen), Miss N. Mercer Adam (Bath), William Duff (Glasgow), Mrs. Myles (Clifton, Bristol), and W. E. Cork (Nelson, Lancs.). As this competition is strictly for those who have never won a prize before, the above prize-winners are debarred from again competing, and the opportunities for beginners thereby increased.

**THE ROYAL PHOTOGRAPHIC SOCIETY'S** annual dinner is announced to take place as soon as possible after the close of the exhibition. Messrs. A. W. W. Bartlett and Leslie E. Clift have been appointed joint honorary secretaries, and members of the Council will act as stewards, whilst it is hoped that all members of the society will assist in making the function a success. Tickets, which will be issued later, will be 7s. 6d. each.

**ROYAL PHOTOGRAPHIC SOCIETY.**—On Tuesday, October 8, at the New Gallery, 121, Regent Street, W., Mr. J. C. S. Mummery, A.R.I.B.A., F.R.P.S., will deliver the annual presidential address on "The Position of Pictorial Photography."

**MR. DRINKWATER BUTT**, F.R.P.S., has removed from his late address in St. Stephen's Avenue to No. 24, Queen Street, Hammer-smith, where he will have greater facilities in carrying on the various

branches of his work, among which he is at present giving much attention to the designing and fitting up of studios, both artistic and photographic, work now in hand including a painting studio, to be erected at Cropthorne, Worcestershire, for the well-known landscape artist, Mr. T. Hodgson Liddell, R.B.A.

**PHOSPHORESCENT PAPER.**—Relative to an inquiry in our columns last week respecting phosphorescent paper, a correspondent informs us that this is manufactured by, and may be obtained from, Messrs. Horne and Sons, Ltd., City Road, E.C.

**MICROSCOPY OF THE PLATE GRAIN.**—In reproducing the photomicrographs of Dr. Scheffer last week the inversion of one photograph showing the grain of the plate before and after mercurial intensification disguised the fact that both photomicrographs showed precisely the same portion of the subject. We insert again these two blocks,

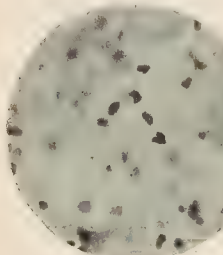


Fig. 19.—Before mercurial intensification.

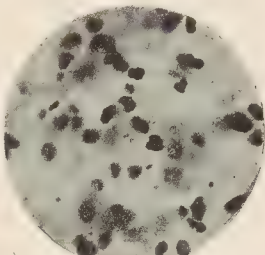


Fig. 20.—After mercurial intensification.

with Fig. 20 inverted, in order to show, from the right-angled formation near the centre of the circle that the same portion of the subject is included in each case. If with the blocks in this position the description on page 543 of our last issue be re-read, the points indicated by Dr. Scheffer can be more easily followed.

## Correspondence.

- \**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \**We do not undertake responsibility for the opinions expressed by our correspondents.*

### STAND DEVELOPMENT, AND A CORRECTION.

To the Editors.

Gentlemen,—Mr. Washam's tank, as he describes it in your issue of the 19th inst., would appear to be a very convenient form, especially as he requires the simultaneous development of various sizes. Personally, I use porcelain dipping-baths, as made for wet-plate work. For instance, I have three or four 10 x 8 baths (i.e., taking 10 x 8 plates), these take two half-plates each on the one dipper, or eight half-plates for the four; larger sizes are developed singly. Glass dippers I eschew, as sooner or later, and generally the former, the bend at the bottom of the dipper becomes broken off by striking against the bottom of the bath, when the dipper is rendered useless. I make my own dippers out of stout copper wire, having a width between the legs of about four inches. Before the feet are turned up to rest the plate upon a piece of hard wood or vulcanite, with holes four inches apart, is slid on to the dipper, and being of about  $\frac{1}{4}$  in. to  $\frac{3}{8}$  in. in width, it forms a rest for the second plate. When the dipper is wanted for, say, 9 x 6 plate, the ledge is pushed up to top of dipper out of the way. I usually silver my dippers before taking them into use, but possibly this is an unnecessary refinement.

I find an error was allowed to pass when correcting proof of the article. "The bath of bisulphite recommended for clearing between development and fixation is given in my paper as 1 per cent., this should be 10 per cent. (ten per cent.).—I am, Gentlemen, yours faithfully,

Sidmouth, S. Devon.

G. T. HARRIS.

### STAND DEVELOPMENT.

To the Editors.

Gentlemen,—In the correspondence section in the "B.J." current issue, we notice a letter upon "Stand Development" from Mr. W. Washam, Lausanne, wherein he refers to tanks for this method of

developing, and states: "I have seen lately, perhaps in the "B.J." something of this kind noticed, but on inquiry I found it to be for the English  $\frac{1}{4}$ -plate size only." We surmise he refers to our "Mérito" developing tank, and beg to advise you if he had only made the inquiry direct to ourselves, as the patentees, we should have been able to tell him that we have other sizes—namely,  $\frac{1}{4}$ -plate 5 x 4, P.C.,  $\frac{1}{4}$ -plate, and 1-1-plate, and, in addition, we can make any size to order. We can only surmise he has applied to some other firm in the trade, who have evidently considered it too much trouble to ascertain. Therefore, we shall be much obliged if you will inform your readers that we have the sizes in general use now upon the market, to take both twelve and six plates at the following prices:—Tanks to hold twelve  $\frac{1}{4}$ -plates, 5s.; 5 x 4 and P.C., 6s. 6d.  $\frac{1}{4}$ -plate, 7s. 6d. Tanks to hold six,  $\frac{1}{4}$ -plate, 3s.; 5 x 4 and P.C. 4s. 6d.;  $\frac{1}{4}$ -plate, 5s. 6d. In addition, loose carriers can be supplied with any of the tanks to take smaller-size plates than the size mentioned, so that one tank can be used for various sizes, but we only supply these carriers to order.—Yours truly (for W. L. Parkinson, Ltd.),

W. L. PARKINSON.

5, Commutation Row, Liverpool.

### THE SULPHOCYANIDE-PERSULPHATE REDUCER.

To the Editors.

Gentlemen,—I see by the report in this week's "B.J." (page 544) that Dr. Scheffer, in his address to the Convention, said:—"Late Mr. Dr. Lüppo-Cramer has found that if we add sulphocyanide of ammonia, or a similar acting substance, to the persulphate of ammonia, this works exactly like Farmer's reducer." I thought I would drop you a line to mention that I found out this fact and published it in "Photography" over seven years ago ("Photography," February 8, 1900, pages 86 and 99). The combination referred to makes an excellent reducer, and has the advantage over ferricyanide and hypo in that it does not cause stains. Mr. W. H. Alexander, in an article on "Reducers" in "Photography" for April 2 last, page 289, after referring to several other reducers which act similarly to ferricyanide and hypo, says:—"But the one which has succeeded best in the writer's hands is one due to Mr. S. C. Puddy, and consists of a mixture of ammonium persulphate and ammonium sulphocyanide," etc.—Yours faithfully,

S. C. PUDDY.

Arrington House, 87, Crouch Hill, N., July 22, 1907.

### HYDROQUINONE AND GLASS.

To the Editors.

Gentlemen,—The group of diacidphenols, of which hydroquinone is a member, are all more or less affected by the action of light. In the case of hydroquinone this action results in a perceptible darkening of the reagent and some loss of developing power. Consequently manufacturers and wholesalers usually stock this chemical in the dark, either by putting it in a stone jar, or, if in a glass bottle, by enclosing it in a carton or some similar device.

My own experience tends to show that with the very pure hydroquinones now on the market this action goes on very slowly, and although I usually keep the chemical in a jar as a safeguard against breakage, I should have no hesitation about putting it in a bottle. In fact, I have done so upon several occasions; but I have always taken care to keep the bottle away from anything like strong sunlight. Possibly the manufacturer who sent out the packages mentioned in your note last week was under the impression that although a pound of hydroquinone might darken before it was used, an ounce would be more likely to be used before the light affected it. If this was not his idea (and perhaps if it was) he should have either sent out the bottle in a carton; or put the chemical in a dark non-actinic bottle. Wrapping in paper is a poor way out of the difficulty, and rather savours of slovenliness. At any rate, I think photographers or dealers need fear no trouble arising from the storage of hydroquinone in bottles and under ordinary indoor conditions, providing it is not kept in stock more than a few months, and also, as I said before, that the chemical is fairly pure.—Yours very sincerely,

ANTHONY J. PRESTON.

37, Grove Lane, Camberwell, S.E.

### A POINT IN COMMERCIAL PHOTOGRAPHY.

To the Editors.

Gentlemen,—The article in this week's "B.J." on "The Ownership of Negatives" brought to my recollection a curious condition made by a customer who asked me to supply negatives of a number of local views. His stipulations were:—That the views must be



original, and (here is the point) that I must on no account make a negative for my own use should I make more than one of any of the subjects. I came to an arrangement with but since then I have often wondered if such a restriction be enforced.

When I am asked to make a negative of a particular street and after making an exposure for my customer I then make myself am I, in so doing, guilty of breach of good faith? continual movement and changes in the grouping of figures make the negatives distinct from one another. Yet, by reason of having been taken during a period of time for which the photographer would be charged, would I, on that account, be justified in other than giving my undivided attention to his order? In words, to take views for myself while engaged in executing a customer's order would appear almost the same as for a printer to print during the hours for which he is paid by his customer. I should be glad if you would kindly express your views, and I am, yours faithfully,

D. A. GRANT (Manager).

The point raised by our correspondent is an interesting one, and it is comment on it would, of course, be a case in the courts. However, of none, however, which applies in the precise circumstances above referred to. In our judgment, a photographer who, in executing for a customer a commission which is supposed to give the customer the sole right in a photograph of a particular scene, is not within his right in there and then making negatives of the scene which differ only in such minor matters as focus, etc. It is perfectly true that the terms of the Copyright Act prevent his creating several copyrights, yet there can be no doubt as to the light in which a judge would regard his action, such a case come before him. We shall be glad to hear the views of other photographers on the subject.—Eds. "B.J."]

## Answers to Correspondents.

Matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given. Communications relating to Advertisements and general business should be addressed to MESSRS. HENRY GREENWOOD & Co., Wellington Street, Strand, London, W.C. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 7d. each photograph, to cover cost of registration fee, form, etc. An unmounted copy of each photograph must be sent with the registration.

### PHOTOGRAPHS REGISTERED:—

Portrait, 12, Albany Road, Cardiff. Photograph of the Lord Mayor of London, 1907. Race: Finish with Leander Boat Club and Belgium Crew, 5, Bold Street, Liverpool. Photograph of the George's Basin, London, 7, Castle Street, Thetford, Norfolk. Photograph of Stone Coffin found at Thetford Gas Works. Three Photographs:—Henley Regatta, 31, Hart Street, Henley-on-Thames. Race: Finish with Leander Boat Club and Belgium Crew, 5, Bold Street, Liverpool. Photograph of the George's Basin, London, 7, Castle Street, Thetford, Norfolk. Photograph of Stone Coffin found at Thetford Gas Works. Two Photographs (both groups) of Dr. W. G. Grace and Mr. and Mrs. A. B. Crosby. Two Photographs of Geo. Butterfield. Two Photographs of Dr. W. G. Grace. Two Photographs of Dr. W. G. Grace with Mr. A. B. Crosby. Photograph of the Father Bernard Vaughan, S.J., Photograph of the Lord Abbot of Westminster and the Rev. Dr. Graham, Bishop of Plymouth. Photograph of the Wellingborough Volunteer Band.

DEVELOPMENT.—In your issue for July 5 you publish an article "Tank Development," by C. H. Claudy. In giving formulae for the chemicals should be fresh and dry. Are we to understand by that that both the sodium sulphite and sodium carbonate are to be anhydrous?—L. C.

es, we take it that both salts would be of the anhydrous form. We divided the salts are in good condition—that is, pure, and not reduced—there is no necessity to use the anhydrous form, and

you could use 162 grains of ordinary carbonate and 180 grains of ordinary sulphite.

EMBOSSING PHOTOGRAPHS.—I should be under a great obligation to you if you would let me know the easiest and cheapest way of embossing photographs.—H. S. C.

By one of the embossing presses, obtainable from any large house of supplies.

TONING BROMIDES.—Will you kindly let me know the best way of toning bromide postcards to brown colour, in fairly large quantities? I think it is the sulphide process I want, but I am not familiar with the methods. Would the cards be permanent?—K. R.

The sulphide method is described on p. 523 of our issue for July 12. Another method is to use the hypo alum bath, given on p. 988.

VIEW FINDER, ETC.—I have an ordinary field camera, whole-plate, fitted with Busch anastigmat lens,  $f/5.5$ , 10in. focus. I wish occasionally to use same as a hand camera for press work—sporting events, etc. I purpose using a strap round neck to support camera. I should be glad to know what view finder you recommend. Also any hints re focussing scale would be appreciated. I have always been used to focus on ground glass.—NELSON.

If the camera is hung round the neck it would be impossible to use any form of finder but the usual miniature camera or brilliant view finder in which the image is seen on the top. With regard to the focussing scale, this could be made either by setting up the camera on a tripod and focussing objects at known distances and marking the baseboard, and this is the most practical method, or it must be calculated out. The first thing to do is to find the infinity mark, which can be easily done by focussing the clouds or the moon. Then  $x = f^2/d$ , or, in words, the square of the focus divided by the distance will give the necessary extension of the camera beyond the infinity mark. Suppose, in the case in point, it is required to find the extension for an object forty feet away, then  $10 \times 10 \div 480 = .21$  inches, the extra extension required. This does not take into account the depth of focus; this would have to be calculated for each stop.

LENS.—We certainly should not advise the shorter focus lens, but you could obtain one of the same focus by paying a little extra money. It is perfectly immaterial what lens you get, as you cannot obtain more depth of focus with the same focus and same aperture. If you focus for the middle row you probably would not have to stop down so much, as then you use the front and back depth of focus. You would probably find the anastigmat give you a sharper picture at the larger aperture than the other lens, because it is better corrected.

COPYRIGHT.—Would you kindly give me your opinion on the following? If C. gets a photograph from me (copyright mine), without permission to reproduce and without paying me for same, copies it, and forwards to magazine, etc., and they are reproduced under the name of C., who gets the fee for reproduction, as the work is presumed to be his? What remedy have I, and what is the best course to take? Or, presuming that, instead of making a copy of mine, he sends it (the original) along, and it is reproduced under his name, is the infringement against my copyright with him or the paper that reproduces? Trusting the above is clear, as I find one paper last week has reproduced my copyright photograph, and another paper has had a block made, but not yet published same.—CRAYON.

It makes no difference as to the infringement by a newspaper, whether the block was made from a copy or your original photograph. In either case it is an infringement of your copyright, and if you have registered your copyright you can take action through your solicitor. We should advise you, however, to first point out the facts to the newspapers and ask them what they propose doing, to settle the matter amicably. In the event of the photograph not having been registered, you have no remedy, but you can register at once and stop further infringement.

STAND DEVELOPMENT.—(1) A good formula for studio negatives, to be developed by the "stand" method, and printed on platinum. Do you think diamidophenol would be good? Naturally, I want to obtain the best results, but at the same time be economical.

(2) Do you think a wooden tank detrimental? (3) How can I avoid blisters on P.O.P. matte? I work both glossy and matte in one bath. The former does not blister, but the latter is very often covered with them. The usual gold and sulphocyanide bath used.—**EN AVANT.**

(1) See July 5, p. 503, and July 12, p. 521. Diamidophenol can, of course, be used, but we cannot see how this is going to be more economical than any other developer. One of the most satisfactory developers is glycine, according to Von Hübl's formula:—

Boiling water .....	4 ozs.
Sodium sulphite .....	2½ ozs.
When dissolved add—	
Glycine .....	1 oz.
and then in small quantities—	
Potass. carbonate .....	5 ozs.

This forms a thick cream, which must be well shaken and diluted with 80 to 90 parts of water, with the addition of 1-10 grain of potass bromide per ounce. This takes some hours, but reduction of the water naturally reduces the total time of development. (2) We should prefer a well-made metal tank, such as the "Standa" or Reynolds and Branson's. (3) Look to the temperature of the solutions, and immerse the prints, after fixing in a 10 per cent. solution of formalin, or, if the blisters appear before fixing, use the formalin before toning.

**COPYRIGHT.**—(1) The procedure to be adopted when it is desired to copyright a photograph or negative, the fee, and address of the office? (2) Does the copyright, if a photograph, cover its negative, and has each print to be marked copyright? (3) In the event of there being no copyright in a photograph or negative, is any person or firm authorised to make use of the same on their obtaining a sample of the same by any means? From the Copyright Act, p. 1074 of the "B.J.P. Almanac" of this year, it would appear this is permissible. (4) Suppose a photographer takes a photograph of a person and receives payment for the same, and in the event of the latter not assigning the copyright to the former in writing at the time, to whom does the copyright belong? From the latter portion of Par. I. of the Act, it would appear to belong to neither of them. Further, from the former, and from the last portion of Par. IV., p. 1075, of the "B.J.P. Almanac," that under these circumstances, which is quite conceivably a common occurrence, it appears that both are at perfect liberty to use and reproduce the photographs in any way or form they wish, provided no copyright is registered at the time or subsequently, and provided the latter has not retained the same at the time of the photograph being taken. I may, of course, be quite wrong in my interpretation of the Act, as I am unversed in legal matters, but this is how it reads to my mind, and would be so read, I think, by anyone not so versed. (5) Suppose the right of reproduction of a photograph in any particular form is sold to a firm of printers or publishers for so producing, and a percentage on the output is to be paid by the latter to the former, what check is there that the amount they credit corresponds to the actual number of productions they print or publish, say, for instance, in the case of a postcard firm? (6) Same as No. 1, but with reference to patenting anything in the photographic line? (7) If you can give the address of any reliable patent agents, etc., who undertake to do this at moderate rates? (8) In a patented article, who looks after, and is responsible for, the patent rights—i.e., that the article is not used by others; or, if so, that the correct royalty or other charge is credited to the patentee?—**QUERIST.**

(1) The full procedure is given in the "Almanac," 1906, p. 665. A print must be deposited at Stationers' Hall, London, E.C., a fee of 1s. paid, and a form filled up, giving a description of the print, the name and address of the proprietor of the copyright, and of the author of the work. This is signed by the proprietor. (2) It does. The prints need not be marked copyright. (3) Certainly, it is permissible. (4) To the sitter, who pays for it. You are mistaken in your reading of the Act. See the article in the 1906 "Almanac." (5) None, except the right to examine their books. (6) Apply to the Patent Office, 25, Southampton Buildings, Chancery Lane, E.C. (7) Rayner and Co., 37, Chancery Lane, London, W.C. (8) The manufacturer usually is interested in detecting infringements, and equally a

patentee, who is collecting royalties. There is no office on the payment of royalties.

**ARC LIGHT PHOTOGRAPHS.**—Will you please be good enough to tell me the cause and preventive, if any? The movements are practically identical, and they all go one way. I wind any effect on them, as it was in that quarter? If I get the arcs without reversal, as I am afraid if less exposure was given it would not be sufficient for the general effect. T. E. D.

There is no absolute preventive and remedy. A well plate (the backing applied liberally at home) will give less light, but in any case you must expose a good deal from screened arc in the foreground. We advise you to try chromatic plate (well backed with a black mixture), with which you can give much shorter exposure.

**REFLEX WORK.**—I enclose two postcards, prints from negatives by reflex camera, exposure 1-420 sec.,  $f/6$ , cloudy day. I am obliged if you would criticise them, and say what would be a fair price per dozen to charge for this class of work.—J.

The photograph with the swimmers in the water we consider satisfactory; the sharpest focus should have been in the foreground, not further back, as it is. The diver is and in both cases exposure and general technique very good, save as above mentioned. We advise you to read "Advanced Hand-Camera Work" (Dawbarn and Ward, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100) to price, such negatives, if taken a dozen at a time, should be the least, be worth from 5s. to 10s. each; in very many cases more.

**LENS QUERRY.**—I have bought a set of lenses, supposed to be plate portrait. The loose negative lens is a double concave, this correct, or should it be a concave convex? Could I lengthen the focus by putting a longer focus crossed concave I may require it about 2in. longer than present focus.—G.

We do not clearly understand what you have bought, it is the loose lenses of a portrait combination. In this case should have expected to find a concave-convex meniscus; course, double concave lenses may be used in some combinations. You could lengthen the focus in the water suggest, but you would probably upset the corrections, and into difficulties.

G. P. and Others.—In our next.

FROM "PUNCH."—"Our illustrated newspapers must be careful. To a photograph, entitled 'Signor —' and the Model which appeared the other day, was appended the insulting caption: 'The well-known tenor is distinguished by a X.'"

"ESTONA" COMPETITION.—In the recent competition instituted by the Birmingham Photographic Company, Ltd., for prints of "Estona" self-toning P.O.P., the successful competitors were: first prize (2 guineas), Miss C. Rivers, 21, Greenhill Park, W. N.W.; second prize (1 guinea), W. H. Miles, Combe-St.-N. Chard; third prize (half a guinea), Miss Ida J. Massey, Priory Hale, Cheshire. The work sent in was of a very high standard, and the winners are to be heartily congratulated on their success.

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## SUMMARY.

scheme of certification of cinematograph operators has been a up, and is expected to come into force next October. (P. 574.)

S. D. Chalmers, M.A., is to deliver the Traill-Taylor memorial in October next. His subject is announced as "The Aberra- of Photographic Lenses." (P. 586.)

ssrs. Staley have brought together an interesting exhibition otographs of Holland at their premises in Thavies Inn. (P. 580.)

eral convictions under the Act of Charles II. have been made in the past week against photographers trading on Sundays. (74.)

neras for colour-photography, cinematographs, and stereoscopes mong the patents of the week. (P. 581.)

R. J. Wallace, of the Yerkes Observatory, replies on page o the recent article of Dr. S. E. Sheppard on Mr. Wallace's tomestic investigations.

interesting case connected with the relation of a commercial ller to a firm with whom he has signed an agreement as to reservation of business trusts was decided in the High Court week. (P. 575.)

. Bartlett, before the Philadelphia Photographic Society, has a formula for bright prints on stale platinum paper. (P. 574.)

this week's article on the "Wet Collodion Process" Mr. Foxlee with the manipulation in sensitising and with certain after-sses. (P. 576.)

e have some comments to make on the obligations upon photo- hic apprentices and their masters. (P. 575.)

## "COLOUR-PHOTOGRAPHY" SUPPLEMENT.

the Lumière "Autochrome" Plates.—Mr. E. J. Wall gives the ts of measurements of the mosaic filters used in the Lumière ess, and photomicrographs of the grain of the plate. (P. 57.)

J. H. Smith, as the result of experiments in the reproduction umière "Autochromes" on "Uto" paper, recommends a special ting accessory for the purpose of shortening the exposure while nsing with direct sunlight. (P. 62.)

the first portion of an important paper on the Lippmann process ars on page 59.

new dye, "rapid filter blue," has been introduced by Messrs. ster Lucius and Brüning. (P. 62.)

## EX CATHEDRA.

### Hand-Camera Lenses.

Considering the great volume of hand-camera photography, it is a matter for some surprise that the advantages from a pictorial stand-point of a lens of greater focal length than the usual five inches in the quarter-plate are not more generally recognised. Actually the truth of this dictum is confirmed by the skilled hand-camera workers in their own practice, for almost all the finished prints which possess any pleasing perspective are generally enlargements from a portion only of the negative. The use of a lens of longer focus in the first instance is all to the good for more reasons than one. The greater scale of the negative permits of a lesser degree of enlargement, and consequently of less graininess in the enlarged print; and the lesser depth of focus of the larger lens usually means a gain in pictorial quality. We are glad to see that the point of narrower angle of view is not neglected by the opticians. Messrs. Voigtländer, in their latest handsome list, which, by-the-by, contains much general advice on the use of lenses, suggest an angle of 45 degrees when circumstances permit of the focussing being done with the necessary certainty. They give the following table of focal lengths for this angle and those of 55 and 60 degrees:—

Size of Plate.	ANGLE OF PICTURE.		
	45° Focus. Inches.	55° Focus. Inches.	60° Focus. Inches.
4½ × 3½ .....	6½	5½	4½
6½ × 4½ .....	9½	8	7½
7 × 5 .....	10½	8½	7½

It need scarcely be pointed out that a camera of the reflex pattern affords the desirable facility of working at the narrower angle.

\* \* \*

### Dr. Scheffer's Sections.

As considerable interest has been aroused by Dr. Scheffer's exceedingly fine sections of photographic films as to how he obtains them, he has been good enough to send two numbers (Nos. 755 and 756), of "Prometheus," in which he details his examination of the various stones used for grinding microtome and other knives. His articles are illustrated with eighteen photo-micrographs of the surfaces of the stones, and the edges of knives ground thereon, and we can commend these descriptions to the notice of all interested in the matter. Some of the illustrations are very instructive and striking, as they show the effects of the correct and incorrect movement of the knife on the stone, and through the imbedding medium. One good idea of Dr. Scheffer's is the use of brass or aluminium plates damped with water, soapy water, or oil, and sprinkled with a mixture of ten parts of emery powder and three parts of Paris red.

### Sunday Photography.

As has been noticed in our "Notes and News" columns during the last few weeks, the police in some districts have of late been putting that ancient law passed in the reign of Charles II. in force against photographers for Sunday trading. This antiquated and practically obsolete law is rarely invoked except in country districts. In London and other large towns it is seldom proceeded under, as witness the large businesses carried on in some marketing districts during a good portion of the Sabbath. In our issue of last week a case was reported in which a novel defence was set up. A photographer was charged, on three summonses, with trading on Sundays, and the defence was that he practised photography all the week, but his wife took the photographs and the money on Sundays; he only stood at the door on that day inviting people in, and therefore was not following his ordinary calling. The defence was certainly novel, but it did not avail, and the defendant was fined five shillings, the maximum penalty, and five-and-sixpence costs on each summons. It was different in the sixties, at which period, in our recollection, a well-known photographer who had a very lucrative "Sunday" studio in the City of London was, for some time, summoned at the Mansion House every week for carrying on his business on the Sabbath, and was regularly fined five shillings and costs, which he paid, but without altering his procedure. The only fine that can be inflicted is one of five shillings, and it cannot be increased, however many times the person may be convicted. Hence there is little danger of Sunday photography being put a stop to by the enforcement of this ancient law. We may add that under a more recent Act, 34 and 35 V., c. 87, no prosecution for offences under the Act of Car. 2 are to be instituted, except with the consent, in writing, of the chief officer of police of the district or two justices of the peace, or a stipendiary magistrate, having jurisdiction in the place where the offence is committed. Further, no prosecution can be heard before the magistrate by whom or with whose consent it has been instituted. This law was probably passed to prevent vexatious prosecutions by private persons.

### Platinum Prints on Stale Paper.

The use of oxidising bodies as a means of overcoming the veil which naturally results on the development of platinum paper which has lost its pristine virtues through storage in a damp place, or even through long keeping (several years) with every precaution, is, of course, well known, and we have had formulæ recommended in which the chlorates, bichromates, and other per-salts have figured. In a recent paper before the Philadelphia Photographic Society, Dr. John Bartlett avows his preference for the normal or neutral chromate of potassium for this purpose. Half a grain of this substance in one ounce of the normal oxalate developer, diluted with one-third its volume of water, had been sufficient to produce passable prints on platinum paper five years of age. In less severe cases half a grain to every two ounces of diluted developer is described as an ample dose. Though we may query the right of any person to be described as a platinum printer who has paper five years old in his possession, yet the prescription may be of occasional service to those of the still surviving class who would rather spend half-a-day in making shift with old deteriorated material, which at the best will give them but a passable result, than throw all the old stuff away and make a good job with fresh.

### Certificates in Cinematograph Operating.

We are advised by Mr. J. Brooke Wilkinson, secretary of the Cinematograph Manufacturers' Association (whose enviable address is Holborn Restaurant, W.C.), that an examination and certification of exhibitors of cinematograph pictures is to be undertaken by that

body in co-operation with the Northampton Institute. The certificate will be based on a practical examination to be held at the Northampton Institute in October, at which the candidate will work his own machine, one provided for him, and will also answer verbal questions as to the use of illuminants, optical principles of his apparatus, the precautions for safety, and the proper matters of an exhibition. For an advanced certificate subjects are wider in their range, and include a knowledge of the properties of celluloid, electrical manipulation measurements, and other constructional details connected with the cinematograph. We gather from the syllabus that the examination is entirely confined to the exhibition of a cinematograph operator's work; the taking of the negatives is not part of the certification scheme, rightly so, as the public has practically nothing to learn from want of knowledge in this direction on the part of the operator. The examiners in both grades are Messrs. A. C. Bromhead, Robert W. Paul, J. D. Walker, Buckney, A. B. Kent, J. H. Polak. It is to be hoped that qualified operators will have enough *esprit de corps* to take up the certification scheme. Its success rests with them, but if we may anticipate their attitude from that of the photographic assistants, it is not likely that the examiners will be over-worked in October. However, the duties of a cinematograph operator lend themselves better to examination, it is to be hoped that the scheme will receive such support as will safeguard the public from incompetent operators.

### Indicators of Acids and Alkalies.

The means of testing a solution for its acidity or alkalinity is a state as to acidity or alkalinity is of great importance as to which probably many photographers even long experience are not completely informed. A difficulty arises from the various properties of the coloring matters which are used in minute doses to indicate the passage of the solution from faint acidity to faint alkalinity, or its adjustment at the point of exact neutrality. It may be useful, therefore, to give one or two extracts summarising a useful paper on this subject which appears in the current issue of the "Chemist and Druggist" under the signature of Mr. W. S. Clarke. After pointing out that the best indicators are litmus, methyl orange, phenolphthalein, the writer mentions the particular one in which one of these reagents is preferable to the other.

Methyl orange (yellow with alkalies, red with acids) may be employed in the presence of carbon dioxide. It must not be used for organic acids, or in the presence of nitrous acid or its salts.

Phenolphthalein (colourless with acids, pink with alkalies) is the best indicator for use with organic acids. It cannot be used in the presence of ammonia or its salts. If carbonates are estimated by this method, the liberated carbon dioxide must be removed by boiling.

Litmus (blue with alkalies, red with acids) is affected by carbon dioxide. Its use with organic acids is limited. It is not affected by ammonia or its salts.

Thus, in preparing a solution of citrate of potash it will be best to use caustic potash and citric acid with phenolphthalein as an indicator, whilst if ammonia were used in making the citrate of ammonia, the latter reagent would be inadmissible. In making a neutral solution of potassium oxalate for platinum development, oxalic acid and potassium carbonate may be employed, and phenolphthalein or litmus used as an indicator, but in this case, owing to the liberated carbonic acid, the solution must be boiled to expel the gas before the last adjustment of the neutrality point is made.

### Preservatives of Gelatine and Albumen.

A suggestion for the use of pharmaceuticals in photography, but of possible application in photography, is made by Mr. F. H. Allen in the current number of the "Pharmaceutical Journal," where it is pointed out that a solution



albumen or gelatine, the presence in which of preservatives, such as acetic acid, may be undesirable, may be kept in albumen by means of benzine. In its pure state benzine is a highly innocuous body photographically. Mr. Alcock however, uses the cheap commercial variety known as wood naphtha, of sp. gr. .8706 at 60 deg. F., and costing 2s. a gallon. One or two per cent. of this liquid in an albumen or gelatine solution was found to be an excellent preserving agent for solutions of these bodies, and, on account of the neutral character of the benzine, may be found of occasional service in photographic techniques.

#### RIGHTS OF COMMERCIAL TRAVELLERS.

One of those cases which is of interest and importance to every business man was heard in the High Courts last week before Mr. Justice Swinfen Eady, and is reported in the "Times" of Saturday last, the 27th inst. It was an action of a firm of mineral water manufacturers against another firm in the same business. The latter had taken into partnership a former traveller of firm No. 1, and had used his memoranda books and particulars of his former employers' net prices, etc., though the agreement with his previous firm had been at "he shall not nor will not at any time hereafter . . . divulge or make known any of the trusts, secrets, accounts, or dealings of or relating thereto." It was proved that the defendant firm had knowledge of certain of these trusts before the traveller left the plaintiff's employment. The memoranda ordered to be restored to the plaintiff firm included a list of 200 names and addresses of customers, in regard to which there was talk between the defendants and the traveller of "bagging the list." We doubt if the behaviour of the defendant fell below the moral standard in such circumstances, and the damages of £200 in all appear slight if it was assumed that the traveller was to preserve the names of all the plaintiff firm's customers as a secret. The lesson of the case, however, appears to be the importance of a clear understanding as to a time limit or some other restriction which a traveller may assent as to the use of information acquired while in the employment of his firm.

#### PHOTOGRAPHIC IMPROVERS, MASTERS, AND THEIR OBLIGATIONS.

We are continually receiving letters from those who have been apprenticed to the photographic profession complaining that, after serving their term, they have been taught little beyond printing and toning, and, perhaps, retouching; also that they know little or nothing of studio work, and, consequently, are quite unable to obtain employment as operators, although they should be fully competent to do so. Some photographers, far too many we fear, take apprentices more with the object of getting a premium; or with the view of getting some one, after a little tuition, to do the work they require of them, for a term of years—usually three or five—for a quite nominal wage, sometimes for practically no wage at all, without giving any really valuable tuition in return which would make the apprentice a thorough craftsman. Some who take apprentices with these objects in view do not seem to realise the responsibilities they incur, or the trouble they may get themselves into in the event of their not being fully carried out. A photographer who takes an apprentice is bound to fully teach him all branches of the business as carried on by him; not merely to teach him, we will say, printing and toning, and, perhaps, retouching, or other work he, the master, wants done. He must also, if it is a portrait business, fully instruct him in lighting and posing, managing

sitters, and studio work generally. Unless the apprentice is fully taught his business throughout the master becomes liable not only to have to return the premium, if one was paid with him, but also lays himself open to an action for damages for the apprentice's loss of time while serving his term.

As misconceptions evidently exist, both with masters and apprentices, as to the rights of each, we shall here give some points with regard to those of both. In the first place, when apprentices are bound, there must be legal indentures, signed by both parties, fully setting forth what the apprentice is to be taught. These should, preferably, be drawn out by a solicitor, and must be stamped with a two-and-sixpenny stamp. Unless the indenture is duly stamped it is not binding on either party, and the apprentice becomes merely a weekly servant, who can leave at any time on giving a week's notice. On the other hand, the master can discharge him on similar terms.

An apprentice cannot be compelled to serve after he attains the age of twenty-one. Supposing, for example, a youth is bound, at the age of seventeen, for five years—a very general term in the photographic profession, though it is often three years, particularly in the case of females—he, or she, is not bound to serve after the age of twenty-one unless he chooses to do so, and the master cannot compel him. Now, a female who is apprenticed, we will say, to learn retouching and reception-room duties should, if she were properly instructed, be fully competent to take an engagement as a retoucher and receptionist, but in very many cases she is not. Hence, when a female has served her term, she frequently has to take an engagement as an improver for a time at quite a nominal salary. The same thing often occurs with male apprentices. After serving three or five years' apprenticeship they are also compelled to accept an engagement as an improver at quite a trivial salary. With the present dry plates and ready sensitised papers, there is nothing in ordinary every-day photography in which any person with ordinary intelligence should not be made thoroughly competent in all respects, during an apprenticeship of five or even three years if properly taught as he ought to be by the master.

An apprentice, we ought to add, is not bound to serve after he has arrived at the age of twenty-one. But it will be as well to say that if any one, after that age, apprentices himself he is bound to serve the full time agreed upon whatever it may be; he, being of full age, is capable of contracting for himself. That is not the case with a minor, as with him it is the parent or guardian who is the contracting party.

In connection with the term "improvers," it is noteworthy that some who advertise for these services stipulate that they must be competent in all branches. We recall to mind an advertisement of a provincial photographer which, some little while back, asked for an improver who must have had at least seven years' practical experience in a first-class London house. One would not, unnaturally, have surmised that any one who had seven years' experience in a high-class London establishment could scarcely be classed as an improver. Some of those who, at times, advertise for assistants as improvers expect them to be really efficient workers, and to be able to do all they require of them, but at a lower salary than they would have to pay if they advertised for an assistant in the ordinary way.

A few of the legal aspects as regards masters and apprentices will now be explained. The law with regard to them is very stringent indeed, and local magistrates and justices of the peace have full power to apply it in all cases; hence there is no necessity for costly legal proceedings. In the case of a dispute between an apprentice and his master the local magistrate, or justices of the peace, can settle the

matter at once on the application of either party. If, for example, the parents or guardians of a youth find that he is not being properly taught his trade according to the terms of the indenture the master can be summoned before the magistrate, who, after hearing the case, and finding it proved, has the power to order the premium paid, or any portion of it, to be refunded, and the indentures cancelled. Not long ago a case was reported in the daily papers where a youth had been apprenticed to the ironmongery business, and the master was proceeded against for not properly teaching him the business. The defence was that as the apprentice had the run of the shop he had full opportunity of learning the business. This, however, was held to be not thoroughly teaching it, and the master had to refund a good portion of the premium he had received.

The indentures may be cancelled by a magistrate on proof of wilful misconduct by either master or apprentice, or of wilful disobedience or misbehaviour of the apprentice. If the master dies the indentures are dissolved—the interest being a mere personal trust—but if the apprentice

is bound to two masters, say partners, then he becomes the apprentice of the survivor. The bankruptcy of the master also dissolves the apprenticeship, and the Court may order the premium paid, or any portion of it, to be refunded out of the estate. Should a master give an apprentice licence to leave him he cannot afterwards recall it. If an apprentice absents himself from his master's service the magistrate is empowered to order him to serve out absent time, or make satisfaction for it, and in default may be committed to prison. If, however, an apprentice has served a full seven years he cannot be compelled to serve longer.

The above are some of the chief legal points that are of interest to those who take apprentices, and to those who are apprenticed. In binding an apprentice to a photographer it should clearly be set out in the indentures what he, she, is to be taught, and it is then the duty of the partner or guardian to see that it is thoroughly done, and, if necessary, that proceedings are taken to enforce the conditions of the indentures.

## THE WET COLLODION PROCESS IN PRACTICE.

[The following article deals with the manipulation of the wet collodion plate when sensitising and developing. In previous articles Mr. Foxlee has dealt with the earlier stages of the process, including the cleaning of the plates and the preparation of collodion and bath. The succeeding chapter will give instruction in the use of the process for glass positives and negatives.—Eds. B.J.]

SOME of my readers may possibly consider that in former articles, and perhaps this, I am somewhat prolix, but, as I said at the commencement of them, success or failure in the collodion process depends upon quite trivial things, and that is the reason for the apparent prolixity. With this remark we will resume our subject, reverting to the last article.

### Manipulation in Sensitising.

The collodion having set to the necessary state, the dipper is withdrawn from the bath and the plate placed upon it, and gently lowered in the solution. This must be done without hesitation, as the slightest stop or check in its immersion will cause a line which is certain to show in the negative. When the plate is completely immersed it is, on the dipper, slightly agitated by moving it laterally in the solution for a few seconds. After being in the bath for a minute or two the plate is quickly withdrawn and replaced a few times; this will facilitate the removal of the solvents of the collodion. The plate is then allowed to rest for a few minutes, according to the temperature. If when the plate is again withdrawn it shows no signs of streakiness it is ready for exposure. If it shows streaks it should be replaced until the solution will drain off perfectly even, and with no signs of streakiness. The plate should then be drained for a minute or two on a pad of blotting-paper, and the back wiped with a piece of blotting-paper. This prevents any superfluous solution draining off into the dark slide. The slide should be carefully dusted before the plate is put into it and the best duster to use for the purpose is a slightly damp skin of chamois leather, as that is quite free from fluff, and takes up the dust readily.

We have here been assuming that the dipping-bath is the one employed. But if the wave bath, described in a previous article, be used—and that is far the preferable for large-size plates—the plate is placed on the ledge or pegs provided for the purpose (the bath being in the upright position). The cover is then closed, and the bath lowered to the horizontal position without any stoppage, when the solution will flow over the plate in an even wave. If any check were made in lowering the bath a mark would be made as in the case of a stoppage with the dipping-bath. If the bath be then slightly tilted

up and down a few times it will aid in the removal of the excess of collodion. When the plate is completely sensitised the bath is again brought to the upright position, when it may be left draining without further trouble. As the atmosphere within the bath is saturated with moisture, the plate may be drained for even half an hour or more without fear of its becoming dry. Indeed, this long draining is a great preventive of what are known as "oyster-shell" markings.

### Sensitising in a Flat Dish.

If an ordinary flat dish or tray is used for the sensitising some little dexterity, or knack, is necessary to avoid lines. The method is usually as follows:—The vessel is tilted so that the upper end is free from the solution. One end of the plate is then rested on the empty space, then it and the tray are lowered simultaneously to the horizontal position, so that the solution flows over the film in an even wave. This vessel is then gently rocked to and fro.

Before the plate is put into the slide, pieces of blotting-paper should be placed on the bottom corners for it to rest upon, and also to absorb any of the bath solution that may drain from the plate. It may be well to state that the sooner the plate is developed after it is sensitised and exposed the better, particularly in hot weather, as then the film quickly dries. If there is a suspicion that it has somewhat dried, it is a good plan to re-immers it in the bath for a few seconds before developing.

With regard to the exposure, nothing that would be of a real service can be said; but the worker who is familiar with the working of gelatine plates will at once recognise whether the negative has been rightly timed or not. The characteristics of under-exposed or over-exposed collodion negatives are precisely the same as those of dry plates.

### Applying the Developer.

When the exposed plate is taken from the slide it is rested upon a pad of blotting-paper for a few seconds to absorb any superfluous solution there may be on the bottom, as that may possibly be charged with impurities. Sufficient of the developer to well cover the plate, and not more, is then put in a glass cup or beaker; if the plate is large an ordinary glass



ble is a convenient vessel for the purpose. The plate is taken by the corner—the one by which it was held while coated with the collodion—and the developer poured gently along one edge, avoiding air-bubbles, which would produce streakings, and caused to flow in one unbroken wave over the face. If any stoppage in the flow be made a mark of uneven development will be produced. The solution is then made to flow to and fro and backward and forward, when the image will fully appear. Care should be taken to spill as little as possible of the developer, as it would carry away with it some of the free silver, and thus lessen the density in the first development. It should be kept in mind that in the collodion process development is physical; the image is formed by the precipitation of silver. It might here be mentioned that if the plate, after exposure, were washed free from silver, the developer would fail to bring out the image unless some silver were added when it was applied. Therefore, it will be seen that the free silver there is on, and in, the film during the development; the less will be the density in the image obtained in the first development. Therefore, the desirability of using only a minimum quantity of the developer, and spilling as little of it as possible, will be easily recognised.

#### Remedying Errors in Exposure.

From the way in which the image appears it is easily judged whether the exposure has been correctly timed or not. If when the high-lights first appear they are quickly followed by half-tones, and then by detail in the shadows when viewed by transmitted light—the developer being momentarily drained back to the cup to permit of the examination—the exposure will be about right. The developer is then returned to the plate and flowed over as before, when the density will go on increasing. When no more can be got with the iron the plate is well washed, and is ready for intensifying. If the image does not prove tardy in making its appearance, and the shadows are wanting in detail, under-exposure is indicated, and the developer with iron should be forced by keeping the solution longer on the plate. When the developer becomes muddy from the precipitation of silver it should be thrown off and a fresh lot, after the addition of a few drops of silver solution has been made, used. This may be poured, locally, on and off the darker portions of the picture. In this way detail in the shadows may be gently but coaxingly brought out, provided the under-exposure has not been too pronounced. Of course, with this continued development the lights have been gaining density the while, and it is quite possible that the negative will require no after-intensification. Should the image come out all over at once it is a clear sign of over-exposure, and the action of the developer should be stopped at an early stage by washing the plate, and after intensification relied on for the ultimate density. In a case of much over-exposure the negative with advantage may be used before it is intensified; that will give clearer shadows, and the intensifier does, to an extent, bring out more detail when it is used before fixation.

When the developer is applied to the plate it does not freely over it, more alcohol must be added. When the developer-bath is old and well charged with the ether and alcohol the collodion the film is somewhat repellent of the developer, but that is quite remedied by the addition to it of a little spirit.

After the image has been fully brought out by the iron developer, the negative is thoroughly washed under the tap. There will probably be some reduced silver on the back of the plate. This should be cleared off with the fingers if it is of small size. If large plates are in use, a piece of sponge should be kept handy for the purpose. When well washed, the negative can be examined at leisure. If it is seen to have the correct exposure it may be intensified, either before or after fixation; but if it is at all under-exposed, it is best to intensify before fixation, because, as already mentioned, some

little detail is brought out by the pyro intensifier. If, however, the negative proves to be much under-exposed, it will be well to intensify it with the iron developer, with a drop or two of the silver solution added, as then, during the operation, a little more detail may possibly be brought out. Should, however, the negative turn out to be over-exposed, it should certainly be fixed before it is intensified. Intensification before fixation tends to softness in the negatives, and after fixation to vigour or hardness, if carried too far. If the negative is fixed before it is intensified, it should be very thoroughly washed, otherwise staining may occur.

#### Intensification.

Whether the negative is fixed or unfixed, the procedure is the same. A little—just sufficient to flood the plate—of the intensifier—the formula for which has already been given—is put into a glass, which, by the way, should be specially kept for the purpose, as it is not advisable to use the one employed for the iron. Two or three drops, according to the quantity taken, of the silver solution are then added, and the whole flowed over the plate in the same way as was the iron developer, and then poured on and off, watching the effect, of course, by transmitted light. By pouring the developer direct on and off, certain portions may be somewhat locally intensified. The intensifier, it is pretty generally known, acts by precipitating more metallic silver on the parts acted upon by light, thus increasing their density. After a few minutes the intensifying solution will become more or less muddy by the reduction of silver in it, and if by the time this occurs the negative is not dense enough—and this may happen in hot weather—it is thrown off, the negative rinsed under the tap, the glass washed out, and fresh intensifier mixed and applied as before. When sufficient density is obtained, the negative is well washed back and front, and is ready for fixing. The iodised collodion film being so much more transparent than a bromide gelatine one, the increasing density of the former is more easily judged. If, after a negative has been intensified and fixed, it is thought that the image is still not quite dense enough, the intensification can be repeated.

As already mentioned, we have the choice of two fixing agents—cyanide of potassium and hyposulphite of soda—and they may each be used over and over again; also, they may be employed by pouring them on and off the plates, or as baths. When the former is used as a bath, it is advisable to employ a dipping-bath rather than a flat tray, as then, by reason of the smaller surface of liquid exposed, less of the objectionable fumes of the cyanide are given off. A collodion negative fixes far more rapidly than does a gelatine one, and two or three minutes are usually sufficient, even with hypo when the solution has been but little used.

#### A Powerful Intensifier.

For all ordinary purposes, ample density will be obtained with the pyro-silver intensifier, but for some purposes, such as the reproduction of line subjects, maps, and the like, other methods are sometimes necessary. In these cases the negatives must always be fixed before they are intensified. The following is a method I have seen employed at the Ordnance Survey Office, Southampton, in the reproduction of maps. The negative is first immersed for a short time in the following solution:

Sulphate of copper .....	4,000 grains
Bromide of potassium .....	2,400 „
Water .....	80 ounces

After washing, the negatives are flowed over with a tolerably strong solution of nitrate of silver—100 grains to the ounce. This gives great density with exceeding clearness to the other portions.

The following is also an excellent method:—The image is first bleached in a saturated solution of bichloride of mercury

and well washed. It is then blackened in the following solution:—

Nitrate of silver .....	200 grains
Water .....	1 pint
Cyanide of potassium .....	20 grains
Water .....	2 ounces

The cyanide solution is added gradually to that of the silver until the precipitated cyanide of silver is nearly, but not quite, dissolved. Should too much be used so that the whole is dissolved, a little more silver must be added, as it is necessary that there should be a little undissolved cyanide of silver left in the solution.

In addition to these there are other methods; indeed, collodion negatives may be intensified by almost any of those used in intensifying gelatine ones. It may be mentioned here that the more silver there is in the negatives to begin with the greater is the ease with which increased density is obtained when required, and fully-exposed negatives intensify much more readily than do under-exposed ones. Therefore, when great density is required the negatives should be fully exposed in the first instance.

After the negative is fixed it is thoroughly washed under the tap; this only requires a few minutes, as the film is so very thin as compared with a gelatine one. But negatives fixed with hypo should receive a little more than is necessary with cyanide. The negative, after drying, is ready for varnishing, and the drying may be done before the fire if time is an object.

#### Varnishing.

The best varnish for collodion negatives is a hard spirit varnish, of which shellac is the base. Formulæ for several are given in the *BRITISH JOURNAL "Almanac,"* but as good negative varnishes are sold by the dealers at such very moderate prices it is a question whether it is not better to purchase ready-made than to make them for oneself. The negative should be warmed before the fire, or over a gas-stove, but only sufficiently to take the chill off the glass and to prevent the varnish from chilling. The varnish is then flowed over as when coating the plate with collodion. If the plate is made too hot the varnish will not flow freely, and will be likely to dry in ridges. After the plate has been coated, and the excess of varnish drained back into the bottle, it is held before the fire and made as hot as the hand can well bear. When cold the negative is ready to be printed from, though it is better to let it rest for an hour or so before the printing. The varnishing with spirit varnish greatly increases the

transparency of the shadows, and if the chemicals were working order the deepest points of shadow will be represented by absolutely bare glass, such as is never seen in gelatine negatives.

#### Transparencies by the Wet Collodion Process

The collodion process is still largely employed commonly for lantern transparencies. It goes without saying that it must be made in the camera, as contact printing would be of the question. The manipulations in producing them differ materially from those in the production of negative points to be kept in view are that the highest lights are represented by absolutely bare glass, as the shadows have to retain transparency, and be not dense and heavy. To secure conditions in the full the silver bath may be made slightly acid than is desirable for negatives. The collodion, if possible, should be iodised three months or more before it is used, newly iodised has to be employed it should have a like strength of iodine in alcohol added to it so as to give it a deep tint; exposure should be a full one; as any approach to under-exposure would lead to hard and inky-looking slides. Development with iron should be arrested as soon as full is obtained in the deep shadows, and the plate washed, and then again well washed under the tap. It is then intensified with the same intensifier as for negatives, which yield black tones. If warmer ones, however, are required it is better to omit the citric acid, as that tends to coldness, and to use it by a larger proportion of acetic acid, which gives a warmer tone. A good formula is:—

Pyrogallie acid .....	25 grains.
Glacial acetic acid .....	1 ounce.
Water .....	10 ounces.

In intensifying lantern slides it is a good plan to first intensify over the plate two or three times before the intensifier is added to it, as then it permeates the film and seems to give a warmer tone than when the silver is added in the first instance. If the exposure has been right sufficient density will be obtained, but as soon as the intensifier shows any signs of excess it should be thrown off, the plate rinsed, and fresh aqua as the solution with the acetic acid alone does not keep so long as when it contains the citric acid, and if it were used in a muddy condition the lights might suffer. Should the transparency when dry show a slight opalescence in the shadow will entirely disappear when it is varnished with a spirit varnish.

E. W. Fox.

## THE DAYLIGHT SENSITOMETRY OF PHOTOGRAPHIC PLATES.

(Reply to "Comments" of Dr. S. E. Sheppard. See "B.J.," June 7, p. 425.)

In a former paper the writer advanced a method for "The Daylight Sensitometry of Photographic Plates, and a Suggested Standard Dispersion Piece," which was reprinted in the "B.J." and courteously commented upon in an article by Dr. S. E. Sheppard (June 7).

While it will be obvious that we cannot enter into a continued discussion at such long range, it appears that on purely scientific grounds a reply is demanded to certain points raised therein, and which may otherwise be delayed in publication by pressure of work from my regular duties.

Primarily these papers are addressed to those who are making use of photography as a means of recording scientific data, hence there are many points which are not expatiated upon at length, because the assumption of the reader's knowledge is definite and assured. For example, it would not be advisable to explain in detail what is meant by prismatic "irrationality,"

or to attempt an exposition of the principles involved in the formation of the diffraction spectrum, because the majority of men capable of the interpretation of investigative work in the photographic plate already have sufficient general chemical, physical, optical, etc., knowledge to render them immune from such an infliction.

Nevertheless, although it is to those individuals primarily that such papers are addressed, yet it must not be lost sight of that the main object of all publication is "the diffusion of knowledge." The method adopted for such "diffusion," unfortunately, does, in the mind of the layman, sometimes rather as confusion, and this is still further accentuated by many disagreements among the authorities themselves. In many cases, however, these same disagreements, when properly analysed, resolve themselves into detail which has no practical bearing upon the everyday sense) bearing upon the



ts at issue. Take, for example, the publication of the spectrum of some dye stuff illustrating its value as a filter in photographic work. It would be altogether the point were some other worker to comment upon the fact that the distilled water in which it was dissolved possessed itself a definite absorption. It would be an incontrovertible fact, but a very unnecessary one, because, as ordinarily used, it would be an impossibility for the absorption spectrum of the water to influence the work in view.

eg, therefore, that this present article may be considered supplementary to my paper on Sensitometry No. 1, and that it may serve to close up some of the gaps existing in the greater number of readers.

Referring first to the Hufner spectrophotometer, I should be deeply regretful did the reading of my paper convey the impression that I "under-rated" the instrument. Such was not my intention. The Hufner instrument was constructed for me by Gaertner, of Chicago, and the optical design by Petitdidier, of the same city, and I am sure that the names are sufficient guarantee of its excellence, for it is safe to say that there is scarcely a scientist of note in the United States (and but few in Europe) who are not indebted to both of those workers for investigative apparatus of the highest order of merit. Special care was taken that the arries on the rhomb should be sharp "knife edges" and of 20 mm. length, so that in the event of accidental damage to them, they would still be present sufficient surface to allow of its being displaced laterally along the slit-plate, and thus admit the use of a new and more perfect edge.

When adjusted to the instrument, separate slow-motion screws conveyed movement to the rhomb or the Nicol independently, and (the spectrometer having been critically adjusted in the usual manner) all possible conditions were experimented with, not only by rhomb movements, but also by alteration of the angle of the light incident upon its faces; at no position did it found possible, however, to eliminate the dividing line separating the spectra. To throw the telescope out of focus was even considered, because in the various lines of work for which the instrument was intended the comparison of spectral lines occupied a large place, and inasmuch as such lines are separated by the slit, the elimination of the rhomb dividing line would mean the elimination of the absorption (or emission) line. Here is, however, a much more serious objection (from the point of view of the scientist) to this "out of focus" method of operation, and one which must, of course, be well known, namely, the fact that such a procedure means the mixing of two beams (the polarised and the absorbed light) to an amount dependent upon the amount of displacement of the rhomb from the point of critical focus.

It is the endeavour of all experienced photometrists to obtain two lights under comparison as close together as is possible, as it is not conducive to good measurement when the observer has to "jump" from one portion of the field to another, in the case of two lights immediately adjoining one another. "Match" is made directly at the point of contact, independent of whether the illumination covers an area of 1 mm. or 20 mm., hence, in the "out of focus" method with the rhomb, use will be made of just the region of greatest contrast, and for purely scientific work it will be obvious that a method would not be advisable if a better could be obtained. That the Brace prism presents such a betterment to the photometric worker who has used both instruments can for the moment deny, for the two lights accurately adjoin—there is no dividing line—and there is one critical point of balance which is so definitely perceptible to the eye, that after much experimental work by several observers of known reputation, the recording of single settings ("above" and "below") now gives the mental mean of three as was formerly used. The "automatic subtraction" of the fog-value by the Hufner

instrument does not appeal to the writer as possessing any advantage over the arithmetical subtraction in so far as accuracy is concerned, although it will undoubtedly save a modicum of time. In high-power work the use of a short-focus eyepiece will obviously enlarge the doubtful zone and render it still more dangerous.

It may be well to state, here and now, that the real practical differences in the results between the two instruments are, generally speaking, non-existent. For photographic measurements the Hufner spectrophotometer or the modified Brace instrument give results which, when use is made of ordinary plates, are really far in advance of that required, and for specially coated plates are equally capable of an extremely high degree of precision. No one of experience would for a moment question the accuracy of measurements made by the Hufner any more than they would by the Brace, the only difference being that the latter instrument is more sensitive, and is suited for a greater variety of work.

Regarding the experiments by Twyman upon the error in polarisation spectrophotometers, it is perhaps sufficient to refer those interested to the detailed plan of the modified Brace instrument. Comparison between curves of the same plates measured in it, and also in the Hartmann microphotometer (two instruments totally different in principle) show an extraordinary exactitude. Again, the measurement of a plate in all four quadrants of the instrument presents a series of curves which lie almost directly one upon another, and following precisely the same mean path. Altogether, a very large amount of experimental work was performed in the arrangement and adjustment, extending over a period of eighteen months, which need hardly, even here, be enumerated in detail; the assumption of sufficient knowledge in the builder of such an instrument might naturally follow, when associated with what one considers a somewhat extended photometric experience with a large number of instruments.

The formation of the image of an intensely blue sky or white cloud upon the slit-plate of the spectrograph is, in the opinion of the writer, certainly an extremely wide range of contrast, and one which it must be admitted embraces very abnormal conditions. It is, however, a fact very easily verified, that the secondary maximum of the Cramer Instantaneous Isochromatic plate increases with a higher ratio to exposure than does the blue-violet, after the inertia of the plate has been overcome, and a slight preliminary action established. I would also point out that in the plates selected for measurement and illustrated the greatest density in the violet at  $\lambda$  4,120—1.2 (H and D), a density of less than half a normally exposed plate, and by no means anywhere near the region of over-exposure. Under these circumstances, therefore, I can see no good reason why it should not be perfectly proper and correct to have made use of another negative, had such been available, more nearly approximating equality in the violet. Incidentally, the fact must not be lost sight of that the introduction of the ground-glass—which is the method proposed—does, on the same sky effect, reduce the difference to a very favourable mean<sup>1</sup>. It may also be remarked that these results are verified by about thirty separate plates on various dates.

He would be bold indeed who should claim absolute exactitude for any suggested method of sensitometry, but the writer does claim that daylight, even with this known variation in spectral intensity, is—at least—as accurate in its results as is any form of artificial light in which the ultra-violet—the region possessed of almost the greatest photographic activity—is sadly deficient, and for which, together with the false intensity distribution, approximate compensation filters have to be prepared by individual workers.

<sup>1</sup> It is unfortunate that in the reprint by the "B.J." these curves (Fig. 7, p. 408) are not individually specified. The central curve is "ground glass," while the upper and lower are "white cloud" and "blue sky" respectively.

Surprise is expressed that the H and D inertia is not accepted in the method proposed by the writer, and in reply to this I would say that by no means have I been satisfied with this value. On the contrary, my experiments point to considerable variability when working with the same plates, even when the constants—developer, time, and temperature—were kept rigorously exact. The writer is well aware of the findings of Messrs. Mees and Sheppard, but it is to be regretted that at present I cannot make results conform to those obtained by these capable and painstaking workers: continued experiments may, of course, modify or even change my present views, but, at present, I regard the inertia, as ordinarily obtained, as being of doubtful value, when we take into consideration that the straight portion of the characteristic curve is, in reality, not straight at all, but possesses a decided point of inflection.

For several years the writer experimented with the use of broad-banded filters, which divided the spectrum first into two portions (Eder), and later, with approximate equality in luminosity, into four, but the method was in my hands found lacking in reliability. Qualitatively they were very good, but, although carefully compounded and their transmission definitely known, readings behind them always must lack the quantitative value which can be obtained from a series of daylight spectra by anyone accustomed to their reading. This appears to the writer so sufficiently obvious as to require neither explanation or exposition.

The plotting of spectral results in terms of density and wavelength, which, it might incidentally be mentioned, is the method adopted by Mees and Sheppard themselves, constitutes, in the writer's opinion, the only valid method of practical use. To make use of either the bolometer or the radio-micrometer and plot "work equivalent" appeals to my mind as being about the most "round-about" method that could possibly be suggested when we consider just what is wanted. The experiments of Abney relating to the alteration of the gradation curve by light of different wave-lengths must not be confounded with the spectral curve obtained in the manner which I have described, and which is checked and supported not only by the exposures preceding and following, but also by the method of development. The action of the spectrum of diffused daylight will always exercise the same mean effect upon the same plate, at any particular wave-length, when these precautionary measures are fulfilled, and, I would add, is a point which has been confirmed by many hundreds of plates. I am sure there is no necessity of repeating or enlarging upon the substance of my fifth paragraph under the sub-title "Colour-sensitiveness"<sup>2</sup> further than to again regret the impossibility of agreement in regard to the quantitative value of broad-banded filter tests by artificial light, against daylight spectrum exposures. Attention has previously been directed to this point in connection with chromatic sensitiveness ratios by another writer<sup>3</sup>, but, unfortunately, the matter was not carried sufficiently far forward.

In conclusion, I would state that it would cause me much chagrin should Messrs. Mees or Sheppard consider that I have failed in appreciation of their most able and excellent work. Experience forbids acceptance of all points contained therein, however, although every scientific investigator knows that results must generally be accepted provisionally. Often that which is at the present so fair and plausible, so encompassed about and supported by apparent facts and well-known "laws," becomes, in the light of continued experiment, untenable; furthermore, it is always well to bear in mind the idea so ably expressed by Mellor,<sup>4</sup> as follows:—

"It must be pointed out that an hypothesis *after* passing through the mathematical mill is neither more nor less entitled

to confidence *them before*. The appearance of accuracy by the mathematical symbols is illusory. . . . The prevailing notion that the agreement between the "calculated" and "observed" results is an infallible crucial test hypothesis. The agreement only shows that the hypothesis *be true*."

ROBERT JAMES WALLA

Instructor in Photophysics,

Yerkes Observatory, June 22, 1907.

## Exhibitions.

### PHOTOGRAPHS OF HOLLAND AT MESSRS. A. STALEY AND CO.'S.

THERE is now on view at the house of Messrs. A. E. Staley & Co., 19, Thavies Inn, Holborn Circus, London, E.C., a collection more than a hundred photographs by Mr. Stanley E. F. which for more than one reason are quite deserving of a visit. The photographs are all of scenes, people, and incidents in Holland reproduced with great fidelity the many picturesque subjects met with in Dutch town and country. The tourist, and especially the busy Londoner, who can spare but a few days from business holiday, will also be interested to know that the whole series of pictures was made within a period of fifteen days, and lastly is the additional fact of interest in connection with the exhibition that the prints are obtained in almost every instance from negatives made with Messrs. Staley's "Euryplan" lens. A few instances of the "Planastigmat" of the same firm was used, but the great majority of the prints owe their existence to the more recent introduction. The visitor to the exhibition obtains a very good idea of the capabilities of these direct lens prints, but by comparison of the latter with the former prints which in a number of cases are included. One or two particularly, in which the rigging of a ship occurs in the corner of the frame, show the great and sharp covering power of the "Euryplan." In no case, we were told, was a smaller aperture than  $f/11$  employed, and most of the outdoor scenes were done with an aperture,  $f/6$ , of the "Euryplan." Many of the interior subjects are of critical definition, and we believe the visitor to the exhibition will agree with us in the admission that they obtain it to a degree from the "Euryplan." On the pictorial side a good deal must be said for several of Mr. Fincham's selections, but his aim is evidently technical, and he, we believe, would be the last to accuse us of misunderstanding it were we to embark on a judgment of his work in comparison with what is commonly understood as "individualistic" or "pictorial" work.

INSTRUCTION IN LIGHTING.—While so much stress is laid rightly—on the importance of a proper study on the part of the photographer of the management of the studio lighting it may be welcome news to many to hear of anyone who is ready to adopt a system which has the testimonial of his own good work, who is also prepared to explain its adaptation to particular subjects. We are therefore glad to draw attention to the course of instruction offered by Mr. Robert A. Higgs, of Glendine, St. Mark's, Chelsea, under the title "The Royal Road to Lighting." From what we have seen of Mr. Higgs' work and his correspondence with those who have attended his lessons, we can say that he is able to explain his system of lighting and that the adoption of his methods have been an obvious benefit to those giving their attention to the matter. Mr. Higgs is evidently both competent and painstaking, and there is good reason for recommending him as a counsellor and guide to those anxious to improve their studio practice.

PHILIP HARRIS, a colour etcher, living at Watford, recently committed suicide by taking cyanide of potassium. He had been in ill-health for a long time, and the jury returned a verdict of "Suicide" whilst temporarily insane."

THE employees of The British Art Co., of Essex Road, N., spent their annual outing to Margate on Saturday, July 27. The outing was served at the Imperial Hotel, over which Mr. B. Seldt presided. A most enjoyable day was spent.

<sup>2</sup> See "B.J."

<sup>3</sup> Ibid. 1905. Pp. 597, 603, 638, 678.

<sup>4</sup> J. W. Mellor. "Chemical Statics and Dynamics," p. 19.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been made between July 15 and 20:—

**CAMERA.**—No. 16,326. Improved pocket camera. F. Matuschek, 116, High Holborn, London.

**DEVELOPING.**—No. 16,411. Improvements in and relating to means for developing photographic plates, films, and the like. Percy Albert Craven, 11, Maiden Lane, London.

**PAPERS.**—No. 16,509. Improvements relating to sensitised papers for photographic purposes. Ernest Howard Farmer, 8, Quality Court, Chancery Lane, London.

**PRINTS.**—No. 16,510. Improvements in photographic prints and printing appliances. Ernest Howard Farmer, 8, Quality Court, Chancery Lane, London.

**FOCUSsing.**—No. 16,569. Improved means for focussing photographic cameras. Herbert Holmes, William Albert Edwards, and Houghtons Ltd., 88, High Holborn, London.

**FOCUSsing SCREENS.**—No. 16,620. Improvements in or additions to the focussing screens of photographic cameras. Percy George Potter, 35, Temple Row, Birmingham.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

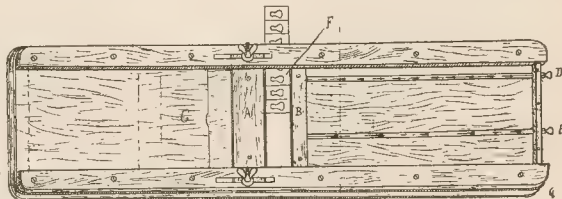
**STEREOSCOPES.**—No. 29,419, 1906. For each stereoscopic slide two glass plates are used, of which the front plate serves as the plate for the reception of the photograph and the rear plate has a surface for receiving the painting in the desired colours. The colour plate has all the atmospheric parts of the picture which are particularly difficult to reproduce by painting, uncoloured, and instead of this a translucent green is placed in front of the source of light upon which the colours required are placed. In this manner it becomes possible to make every separate part of the picture appear in the natural tint. As between the eye of the beholder and the translucent screen the colour plate has been interposed so that the sharp lines of the different tints which appear on the screen are no longer visible (in contradistinction to the process in which the requisite colours are all applied direct to the colour plate) and as in consequence of the diffusion of the light rays and also by reason of the refracting influence of the colour plate, the sharp outlines of the tints on the translucent screen are toned down and mixed, there is produced an extremely harmonious effect, which comes extraordinarily close to nature. August Fuhrmann, 27, Lichterfelder Strasse, Berlin.

**INEMATOPHGRAPHS.**—No. 16,771, 1906. The invention consists essentially in locating on one of the sprocket drum shafts, by which the film is taken through the machine, an improved differential gear apparatus, a portion of which may be adjusted by mechanical means in such a way that the speed of the sprocket drum, and consequently the speed of the film, shall be readily accelerated or retarded. The first claim is:—

1. In a cinematograph apparatus a different gear connected with one of the sprocket drum shafts, consisting of a worm wheel adjustably-operated as required by a worm and shaft and loosely mounted on the sprocket drum shaft, a bevel wheel forming part of or attached to said worm-wheel, a second bevel wheel secured to or forming part of the sprocket wheel for moving the film mounted loosely on the sprocket wheel shaft, a boss secured to or forming part of the shaft, a shaft carried by said boss and a bevel wheel secured to said shaft, gearing with the two bevels previously referred to. Henry William Joy, 80, York Avenue, Manley Park, Manchester.

**PRINTING MACHINE.**—No. 16,507, 1906. The invention consists of a frame for the rapid printing of bromides, etc., from midget and other photographic negatives. Fig. 1 shows the repeating frame. D and E are square rods which run in grooves, they can

be drawn out from the end and are reversible. These rods do not run in the grooves at right angles to the surface of the frame, but are set diagonally. The top corner projects above the surface of the frame, and each of these corners are cut at various distances. The distance of these cuts or notches is exactly the same as the width of the negative to be printed. The negative is placed in position between A and B, the edges of which are rebated to carry it. A is a moving part and can be adjusted to hold negatives of various sizes. The lower part of this strip



travels under C, the object of which is to prevent light from coming through the frame. B is fixed, and forms the abutment of one edge of the negative.

In using this repeating frame the negative is placed in position between A and B, and supposing the width of the negative is  $3\frac{1}{4}$  ins. then one of the rods must be used that has the notches the same width ( $3\frac{1}{4}$  ins. between each notch). One edge of the negative is at B, and the ends of the strip of paper are placed on the negative and brought in close contact by means of a pressure board, which works on double-jointed hinges. The exposure is then made, and the paper moved along to the first notch and again exposed, and this is repeated until the whole sheet is used. Alfred Gabriel Tooth, 67, Miall Road, Sydenham, S.E., John William Riley, photographer, 40, Stockwell Road, Brixton, S.W.

**NON-FILTER ORTHO PLATES.**—No. 25,906, 1906. The invention consists in the use of non-colour-sensitising dyes for the purpose of making the sensitive plate act as a light filter for itself, without affecting its colour-sensitiveness. Dyes mentioned are "yellow picrate," naphthol orange, canary yellow, alizarin yellow, tartrazine, aurantia. Otto Pfenninger, 105, Hythe Road, Brighton.

**ONE-EXPOSURE CAMERAS FOR COLOUR-PHOTOGRAPHY.**—No. 25,907, 1906. The following extracts from the specification describe the invention:—

"Fig. 1, which is really Bennetto's patent, we find that the light rays coming from the optical centre or lens 'O' are partly reflected from the transparent red reflector to the top, marked 'R R' and also marked by lines with dots.

"The transparent reflector 'T' is really a glass plate, which carries the red screening material at the back surface.

"All the inventors mentioned in these specifications supposed

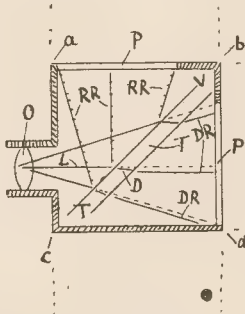


Fig. 1.

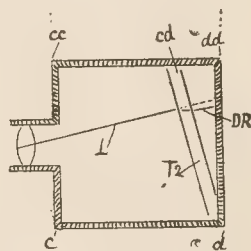


Fig. 2.

that the light rays coming from 'O' would go through the red screen 'T' straight to the back, just as marked by the dotted lines, but as 'only glass' was inserted, the light rays were nevertheless refracted, if not accounted for. This refraction gives

an altered course to the rays, as marked 'D R,' and explains why the picture at the back becomes shorter from top to bottom, from 'b' to 'd,' but not shortened to that extent crossways from 'b' to 'b b.' The difference is about half the glass thickness of the screen.

"We have, however, several ways to correct this shortcoming, and I think the best way would be to sandwich a colour screen between two right angle prisms.

"One way to correct this shortcoming is to shorten the reflected picture also, which can be done by the interposition of a transparent glass 'T 3,' from 'a c' to 'a b,' as shown in 'Fig. 5.' The acuter and sharper the air prism 'c' 'b' 'a c' is formed between the reflector 'T' and the corrector 'T 3'—that is, the more nearly the reflector T and the compensator T 3 are parallel—the nearer will the reflected picture be in size to the transmitted image.

"We are also able to put such a corrector of the shortcoming at the back of the reflector 'T,' when at the same time such a corrector would be less likely to set up reflections that are not wanted.

"If this corrector or compensator (which can also be another colour screen) at the back, marked 'T 2' is similarly inclined as at 'T' or 'T 3,' then we should shorten the picture at the back still more, and thereby aggravate the defect or shortcoming we wish to compensate or counteract.

"But if we place 'T 2' from 'c d' to 'd,' as shown in 'Fig. 2' (representing here the bottom of the reflector box and not the side as in 'Fig. 1') therefore forming an air prism 'd d' 'd' 'c d' with the acute angle at 'd,' then we shall shorten the picture at the side also, and to balance all the pictures we have only to adjust the back focussing plane.

"Now, with these two correctors placed as indicated (jointly or singly in one reflector box), as shown in 'Fig. 2,' we should have fairly balanced pictures. We have in the glass thickness, however, still a further means of balancing the size of the pictures, because the thicker the glass placed at an angle to the conical light rays, the more will the picture be contracted, therefore smaller, as explained in the foregoing. The focus will also be affected by this interposition of glass and will be put further away.

"The refraction defect, the shortcoming, can also be corrected in a third manner. For illustration, suppose we split the reflector 'T' open at the bottom end, that is the end nearest the lens, so as to cause the refracted light rays at that point to travel a little further between the two surfaces of the refracting substance glass; then we would have all pictures alike, if no other complications would set in. We cannot split glass like

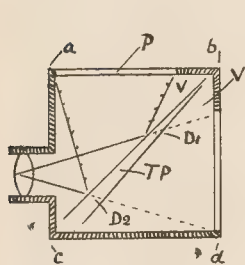


Fig. 6.

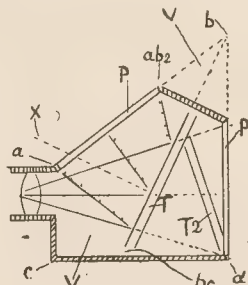


Fig. 10.

wood, so we could content ourself by cementing two thin plates together, in such a way as to keep the lower end about half a glass thickness apart, and having the gap thus formed filled up, with transparent material of the same refracting index as the glass in the plates employed, we should thereby really form a prism or a prismatic plate, a wedge. It is, however, much simpler to have an optically worked prismatic transparent reflector, being at the same time a homogeneous glass-reflector coloured in the body or with a red-screen surface. The idea is shown by 'T P'

in 'Fig. 6,' where also the refractions 'D 1' and 'D 2' are given.

"The special form I favour is a reflector box of the shape 'Fig. 10' and 'Fig. 11,' fixed on a collapsible sliding board and camera front and lens front and bellows in front. The plate holders are reversible backs, and would hold the necessary photo—or plate slides—which latter can be interchanged with the blind slides containing matt glass to facilitate focussing. The slides for the back-plateholder can be single or double slides of any make as sold in the market, the plate has only to be pressed accurately against the reflector box to be in register with the focussing line. The negative slides for the top plateholder can also be double or single slides, but must be rather stouter, say 5 to 8mm, as they have to contain for each exposure first, facing the reflector box, a solid blue sensitive plate (an ordinary film to film, a yellow sensitive flexible plate, then some transparent press material, followed by a slide plate (an ordinary photo plate will do) and a slide partition with strong spring

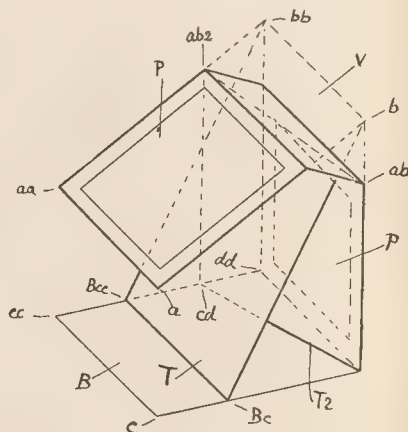


Fig. 11.

to bring the sensitive plates in homogeneous contact when the slide is shut. The here-mentioned flexible plate will be rendered as a reversed negative, and has therefore to be printed through the back.

"There are other systems with two or more reflecting surfaces or reflectors, and as my corrector can be used and is adapted to as many reflecting surfaces as are introduced in a reflector or camera with reflectors, and has then to correct the reflection or transmitted picture or both—that is, has to equalise all pictures to the same size—it follows that I improve the following patents:—Ives 4606<sup>91</sup>, Ives 2305<sup>92</sup>, Ives 3784<sup>93</sup>, Selle 1361<sup>94</sup>, Boulton 15753<sup>95</sup>, Davidson 13468<sup>96</sup>, Shephard 10993<sup>97</sup>, Br 4290<sup>98</sup>, and some others, and not one of these patents points out that a correction is necessary, a correction of a one-sided compressed picture etc, caused through the refraction by the interposition of glass-surfaces at an angle to the light cone. Not a set of colour records obtained from all the above-named patents and which do not compensate the refraction-defect, can, to my mind, be used for the subtractive—that is, the printing method of photography in colours; they can only be used for the additive method that is transparency or chromoscope method, and only if shown again in a similarly constructed instrument." Otto Piennin 105, Hythe Road, Brighton.

COLOUR-PHOTOGRAPHY.—No. 25,908, 1906.—"This invention relates to a box containing mirrors, which divide the light-rays from two centrally placed transparent reflectors, so that two or three photographic colour-records or ordinary photographic negative pictures can be taken simultaneously from one point of view with the aid of two or three lenses, all pictures being of the same size and in the same plane or focussing distance; by reversing the light-rays through the positive colour records and



same instrument a picture in natural colours will be obtained." The claim is:—

"A mirror-box in which one central, transparent, and reflecting screen with two parallel or two prismatically inclined surfaces acts without the aid of a lens as an eyepiece, and transmits the light-rays by reflection, transmission and filtration, through refraction-compensators, so that by the aid of three separate photographic lenses and colour-filters, three negative records in one plane on solid or flexible plate or plates—all from one point of view with one exposure—are obtained, for the additive as well as the subtractive methods of photography in colours and by the aid of the same mirror-box, as explained aforesaid, by reversing the action of the light-rays to render from the colour records a positive, one single picture again, the latter being in natural colours if the necessary colour screens are interposed in the proper places in the path of the light rays." Otto Pienninger, 105, Hythe Road, Brighton.

### New Trade Dames.

CALOR.—No. 293,843. Chemical substances used in photography Johnson and Sons, Manufacturing Chemists, Ltd., 23, Cross Street, Finsbury, London, E.C., wholesale and manufacturing chemists. June 15, 1907.

LAMBEAU.—No. 293,047. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives, but not including fluxes for soldering, and not including any goods of a like kind to fluxes for soldering. Jones and Co., 34, Copperfield Road, Bow, London, E., and Triton Chemical Works, Spring Lane, Upper Clapton, London, N.E., methylated spirit makers. May 16, 1907.

## Analecta.

Extracts from our English weekly and monthly contemporaries.

### Carrying Rodinal.

Rodinal (says a writer in "Photography") is a liquid, and some people do not like carrying bottles of liquid in trunks or suit cases along with clothes; but the dislike comes from not having adopted a suitable vessel for the purpose. That vessel is to be found filled with k for a fountain pen at any stationer's shop. It takes the form of small bottle fitted with a rubber stopper, which is also the teat a pen filler, a glass tube drawn out to a point and projecting into the bottle. In this bottle an ounce of rodinal can be carried, enough develop at least a quarter of a gross of quarter-plates, probably ore. The bottle itself is enclosed in a little wooden case with a new cap, which it just fits, and the bottom of this case inside, having spring underneath it, pushes the bottle up against the cap, as this screwed down, and so both prevents the bottle from shaking about the case, and prevents the stopper from coming out. In this little receptacle—which costs when full of ink 1s., but larger sizes, I lieve, can be obtained—it will be found that the rodinal can be safely carried loose in trunk or portmanteau without the slightest risk of breakage.

KIDDERMINSTER AND DISTRICT PHOTOGRAPHIC SOCIETY.—Mr. W. Weaver Baker, the late secretary of the above society, having removed from the neighbourhood, the secretarial duties will be carried *pro tem.* by Mr. Charles A. Allen, Beulah Villa, Chester Road, Kidderminster, to whom all communications should be addressed till further notice.

PHOSPHORESCENT PAPER.—Referring to the notice *re* above paper page 570 in our issue of July 26, Mr. A. J. Horne, of 97, Bormley Road, Catford, S.E., writes to say that he has now purchased the patent of Messrs. Horne's business devoted to Dr. Balmmain's luminous paint, of which he had charge during his many years' connection with that firm. All orders and inquiries respecting the same could now be sent to Mr. A. J. Horne at the above address.

## Dew Apparatus, &c.

The "Universal" Folding Camera. Made by Louis Gandolfi, of 752, Old Kent Road, London, S.E.

A new camera with very strong claims upon the attention of those who want an instrument of the highest class which they can use for both hand-camera work and on a stand has been submitted to us by Mr. Gandolfi, whose name, long familiar to the trade, is perhaps less so to the retail purchaser, though the firm's reputation for sound, workmanlike instruments of the stand order is one which in times past we have often had occasion to eulogise, and we are therefore favourably impressed beforehand with their new introduction in the form of hand-camera construction. The "Universal" folding camera, we would say at first, is an instrument which permits of lenses from the shortest to the longest focus which in reason would be used upon a plate of a given size. In the quarter-plate camera, which is the size we are now reviewing, the extension is no less than 16in., whilst the camera provides for the focussing of such wide angle lenses as from 2½in. to 3in. The manner in which this short and long extension is obtained is worthy of a separate mention, inasmuch as the facilities provided most certainly conduce to convenient and rapid work. The wide-angle movement of the camera is obtained with a supplementary rack within the rear portion of the instrument, so that nothing further need be done when erecting the camera for use as a wide-angle instrument than the laying down of the projecting baseboard and the raising of the top of the body so as to permit of the movement of the lens panel. This adjustment being made, a supplementary screw on the right of the camera



provides all the focussing which is necessary, and to then adjust the camera for long extension it is merely necessary to bring the baseboard level with the back portion of the instrument, whereupon it clamps itself automatically and forms the runners upon which the camera moves forward. This it does very easily, as the space between the two series of guides is only about ¼in., and the lens front runs from one to the other without any opposition. The full extension is obtained, first, by the rack and pinion, and secondly by a supplementary draw-out extension, which gives the full distance of lens panel to plate of 16in. The triple-extension base is bolted so that, once extended, it cannot slip back by any tension which there may be on the bellows at the longest extension. There is also a catch which automatically clamps the camera at the position of infinity focus on first racking out, which catch can be adjusted for plates or films, or both, as may be desired. A lever, however, is also provided by which the catch is thrown out of action, and when this adjustment is made the front racks forward in the ordinary way without being checked at infinity.

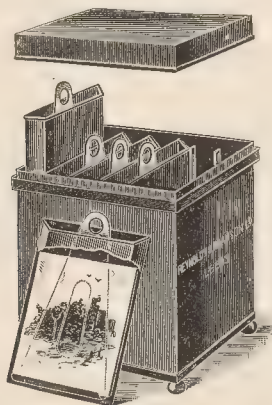
It is in the matter, however, of the rising front that the camera calls for special commendation. By means of two separate movements a total rise of 2½in. in the quarter-plate is obtained. The lens panel rises on the front to the extent of nearly 1in., and the additional rise is then obtained by raising the bellows. The way in which this is done has the very great advantage that the extension of the camera is not affected, nor is either the exact verticality of the front. Swing there is both backwards and forwards, the lens panel being hinged at its base, but the swing can be used as a supplementary motion quite independently of the rising front, and the advantage of having the lens constantly at right angles to the plate and at the same distance from the camera, as the front is raised, is one excellent feature of the camera. In addition to the rising front, there is, as we have first said, a forward and backward swing, with adjustment so that the plate is brought back again at right angles to the base of the camera.

In respect to the other fittings, the camera is provided with level,

reversible finder, and is built square, with a reversing back of unusually solid construction, being faced with brass up to its edges, and thus rendered free from liability to fracture. Throughout the instrument the working parts are metal on metal, a mode of construction which, of course, makes not merely for smooth working in the first instance, but for long resistance to continuous work. The camera submitted to us is intended for use with dark slides, of which three double book-form and of more than the usual depth are supplied. Mr. Gandolfi prefers to make a slide of rather greater thickness than the usual pattern for the sake of the additional safety and light-tightness which are thus afforded, and the same policy of construction for the practical working of the camera is evidenced in many other items of its construction. The whole instrument, we would say, is one to which a critical user of hand cameras can take no exception, and we ourselves have been satisfied that no better instrument of its kind for hand-camera photography and for the most difficult class of subjects for which a stand camera is used could be devised. Its price in the quarter-plate size with three book-form dark slides is £6 10s., including Bausch and Lomb R.R. lens and "Unicum" shutter; without lens and shutter the price of the camera is £5 4s., with three slides.

Sequential Developing Baths. Made by Reynolds and Branson, Ltd., 14, Commercial Street, Leeds.

In this apparatus Messrs. Reynolds and Branson make provision for the requirements of the constantly increasing numbers who for one purpose or another resort to a method of time, stand, tank, or vertical development, as the variants of the system are described by their advocates. The apparatus, which is the result of their study of what is wanted in the way of baths for the plates, has led them to adopt a modification of the old dipping-bath of the wet-plate days. A series of such baths (three or six) they enclose in an outer light-tight case, which, like the separate tanks, is of copper. Each bath accommodates one plate, and is provided with a dipper, also of copper, for raising and lowering the plate. The advantages of such a system in dark-room practice should be obvious enough. The separate tanks permit of one or more plates being undertaken at once as may be necessary, and of alterations being made in the developer of any one if such a course should be necessary. In other words, the vertical-tank method is brought into line with the ordinary methods of the dark-room, whilst, on the other hand, the apparatus is just as amenable to the strict-time, non-inspection method of which there are now many advocates, and which, of course, for the development of panchromatic plates is the most practical method. Chief among the good points of Messrs. Reynolds and Branson's apparatus we regard the safe and rapid



insertion of the plates in the developer. There are no grooves to find, and no possibility of scratching one plate with the corner of another. Apart from the chance of damage which may result in this way, the speed with which plates can be popped into the developer makes for the minimum exposure to the dark-room light, and consequently, as a rule, for the minimum of fog also. This

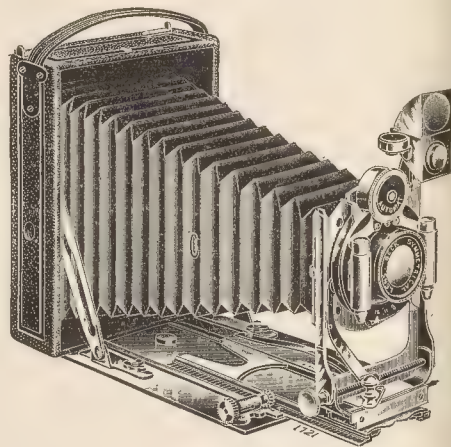
advantage is worth a good deal, in our opinion, and is to be set against the greater quantity of developer which is needed in "sequential" baths. We would add that the workmanship of the tanks and their appurtenances is of a high standard—of a kind, in fact, which sustains the makers' reputation for turning out articles of the best manufacture. The prices and sizes in which tanks are supplied are as follows:—

	Price.
1-plate, 3 copper baths and dippers, and light-tight box with 4 spaces	s. d. 9 0
Ditto, with 6 copper baths and dippers, and light-tight box with 8 spaces	14 6
5in. by 4in., 3 copper baths and dippers, and light-tight box with 4 spaces	10 6
Ditto, 6 copper baths and dippers, and light-tight box with 8 spaces	18 0
1-plate, 3 copper baths and dippers, and light-tight box with 4 spaces	14 6
Ditto, 6 copper baths and dippers, and light-tight box with 8 spaces	25 0
Other sizes or sets with different number of baths to order at proportionate prices.	

Folding Klito Cameras. Made by Houghtons, Ltd., 88-89, Holborn, London, W.C.

Messrs. Houghtons send us several of a new series of folding pocket cameras which they are at present issuing at popular prices, and for which it is safe to predict a widespread patronage. The cameras of the "Ariel" and other types which owe their origin to the powers of High Holborn, the new Klito series are all characterised by highly compact form and size, yet possess a range of movements which fits them for all the ordinary purposes of hand-camera work. We can say, in addition, that they are soundly and substantially made, and fitted to withstand a good deal of rough usage. We doubt if we can say more in general terms of the merits of the cameras and the prices at which Messrs. Houghton supply them, but it may be well for us to refer to, say, two examples.

The No. 7 folding Klito is a double-extension camera, with extension of 10½ in. from lens to plate, rise of front actuated by a pinion shown on the left in the figure. The infinity catch and



ing scale are made to shift *en bloc* so as to provide for the adjustment of plates and films in the camera, without the confusion caused by an extra scale. There is a square brilliant finder (reversible) as well as bushes for attachment to the tripod. The camera is made to take single-metal dark slides of the very convenient type which is now largely used, but Messrs. Houghton also make a special line of fitting the Houghton envelope adapter, which encloses a focussing screen and hood, and provides at the same time for daylight changing (on the envelope system) of cut films.



ter is certainly the attachment par excellence for a camera to trust from time to time into the pocket, but it is nevertheless instantly interchangeable with a dark slide or other form of plate-holder. The price of the No. 7 Klito, with Busch or Beck R.R. lens, Bausch and Lomb "Auto" shutter, with time, bulb, and instantaneous adjustments, and with two slides, is £3 5s.; with Houghton & Mifflin adapter in place of the slides the price is £3 13s. The No. 2 folding Klito is a single-extension camera which, with single dark slides, sells at £1 17s. 6d., or £2 10s. with the Houghton adapter. In other respects its fittings are on a par with No. 7 instrument, and the bulk is even smaller than that of the latter.

### CATALOGUES AND TRADE NOTICES.

**SECOND-HAND APPARATUS.**—The City Sale and Exchange, of 26 and King's Road, Sloane Square, London, W., send us their latest catalogue of the second-hand apparatus which can now be seen at the West-End branch only. The list includes a large selection of the leading makes of hand, stand, studio, and press cameras, lenses, enlargers, etc., all of which are guaranteed to be in perfect working condition, and are offered at greatly reduced prices. A month's trial of all second-hand apparatus is allowed, and should any article purchased prove unsuitable for the particular purpose required, during that period, the firm will exchange same to the value. The list is worth a careful study by all intending purchasers of any kind of photographic apparatus, and a postcard to the above address will bring a copy by return of post.

**H. CALMELS**, of 150, Boulevard du Montparnasse, Paris, sends its general list of photo-mechanical apparatus and materials, in which it is evident that every description of process work is fully catered for by this Paris firm. M. Calmels also issues a separate list of "Cooke" lenses for process work and of line and screen. Apparatus for colour-photography, plate-sensitization, and other scientific purposes are among his specialties, and a complete set of the various lists issued by him can hardly be of interest to any worker in photo-engraving or allied processes.

**GEKA'S SPECIALTIES.**—The 1907 catalogue issued by the Gekas of Dr. G. Krebs, Offenbach-on-Main, Germany, contains, in addition to its previously well-known goods, several new introductions, chief amongst which we may mention the green, yellow, orange toning baths for use with bromide and chloro-bromide salts, a "Panchromatic" flashlight powder, and the "Hussa" light stand. The last-named, being of simple and practical construction, will no doubt meet a decided want in this direction. Other items contained in the list are too numerous to mention, but our readers can obtain all information by sending an application to the above address, when a catalogue will be sent free and post-free by return of post.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, AUGUST 3.

London Photographic Society. Outing to Kew Gardens.  
High Polytechnic Photographic Society. Outing to Lincoln.

MONDAY, AUGUST 5.

Middlesex Photographic Society. Outing to Fulbourn.  
Living Camera Club. Outing to Amberley, Parham Park, and Wiggonholt Common.

THE "ISOLATION" OF THE MARBLE ARCH, which forms the main object of Mr. F. W. Speaight's traffic improvement scheme, has been decided by the Westminster City Council. The final decision, however, rests with the Borough Councils of Paddington and Marylebone; whilst Mr. Lewis Harcourt, as First Commissioner of Works, has the right of giving the final word of approval or the reverse. Mr. Harcourt has already expressed his sympathy with the scheme of Mr. Speaight.

## Commercial & Legal Intelligence.

**ALLEGED BREACH OF AGREEMENT.**—On July 24, in the Dublin Court of Appeal, before the Lord Chancellor and Lord Justice Fitz-Gibbon, the case of Glover v. McNeill was heard. The appeal was from an order of Mr. Justice Boyd remitting the action to the Recorder of Dublin. The plaintiff claimed to have delivered up a written agreement to let certain premises for a term of five years at the yearly rent of £30. It was alleged that the defendant refused to complete the agreement, stating that he had been induced to enter into it by misrepresentation. The plaintiff also claimed damages for the alleged breach. The premises had formerly been in the possession of a Mr. Bradshaw, who used them as a photographic studio, and it was stated that the agreement was that the premises should be taken over by the plaintiff as tenant to the defendant, and that the plaintiff had purchased Mr. Bradshaw's stock-in-trade, good-will, etc. The defendant alleged that the plaintiff had represented himself as carrying on business as a photographer in St. Stephen's Green and at Upper Ormond Quay, whereas in fact he carried on no such business. The Court reversed the order.

**COPYRIGHT INFRINGEMENT.**—An action was heard at Liverpool Assizes last week, in which Joseph H. Mumford, photographer, of New Brighton, claimed damages against Harrops, Ltd., wholesale stationers, Cable Street, Liverpool, in respect of an alleged infringement of picture postcard copyright. Judgment for plaintiff for £20 and costs on the High Court scale.

**CANVASSING FRAUD.**—At the St. Helen's Police Court last week Edley Des Forges, 61, described as a canvasser, of Fenton Street, was charged with obtaining 2s. 6d. by false pretences from Bridget Burley. It was stated that for some time prisoner had been employed as a canvasser by Messrs. Taylor, photographers, but he was not authorised to collect any moneys. On June 10 he called on Mrs. Burley, who lives in Raglan Street, who was paying instalments towards the cost of an enlarged photograph. He asked for her card, and collected from her sums amounting to 2s. 6d., which he marked in the book with initials other than his own. On the last occasion that he called he promised to let her have the enlargement by the following Monday. Subsequently from what she heard she went to see Messrs. Taylor, and information was given to the police. When prisoner was arrested he remarked, "I have been a fool." Before he was apprehended prisoner returned the 2s. 6d. to Mrs. Burley, and asked her not to say anything about it. Prisoner admitted that he got the half-crown, but said the money would have been deducted from his wages at the week-end. He was sorry for what he did. He was fined £1, or fourteen days' imprisonment.

**A TORQUAY BANKRUPTCY.**—The first meeting of the creditors of William John Wilkinson, photographer and picture-frame maker, 101, Union Street, Torquay, was held at the offices of the Official Receiver for the Exeter District on the 25th ult., before the Official Receiver. The summary of accounts showed liabilities expected to rank at £84 6s. 10d., and the assets £40 9s. 2d., leaving a deficiency of £43 17s. 8d. Causes of failure alleged by debtor:—Bad trade caused by bad season, competition, and pressure by creditors. The Official Receiver observed that debtor commenced business about two and a quarter years ago with a capital of £14 of his own and £25 borrowed from his mother. He purchased a business for £50, on which a balance of £15 was still owing. The takings were estimated at about £4 per week, the business expenses 30s. a week, and household expenses 35s. a week. Debtor, who was represented by Mr. Greenfield, of Torquay, subsequently underwent his public examination at the Castle of Exeter, before the Registrar (Mr. John E. Daw). The debtor was allowed to pass.

**NOTICE OF REMOVAL.**—The Lumière N.A. Co., of 4, Bloomsbury Street, W.C., announce that on August 1 next they will remove their offices to larger and more commodious premises at 89, Great Russell Street, London, W.C. (next the British Museum), to which address all letters and communications should be addressed on and after the above date.

## News and Notes.

MR. W. H. HOLLIDAY, photographer, of Jewry Street, Winchester, died last week after a long illness. Mr. Holliday went to Winchester from Southampton twenty-six years ago, was assistant to Mr. Rider for three years, and then started a business on his own account, which he continued up to the time of his death.

**OIL PRINTING DEMONSTRATIONS.**—Owing to the keen interest taken in the Rawlins oil printing process, Messrs. J. J. Griffin and Sons, Ltd., have increased the number of weekly demonstrations, which are now given on Tuesday afternoons at 3.30 and Thursday mornings at 11.30, at their rendezvous, Kingsway, London, W.C.

**PAGET CASH PRIZE COMPETITION.**—We would again draw our readers' attention to the above competition, as, although the closing date is not until January 31, 1908, it is by no means too early to begin to secure their negatives, and the holiday season brings to many practically the only opportunities they have during the year to obtain suitable subjects. There are a number of prizes to be awarded in each of nine classes, and "Paget" materials must, in all cases, be used. Full particulars and rules may be obtained on application to the Paget Prize Plate Co., Ltd., Watford, Herts.

**LUMIERE COLOUR PLATES.**—Mr. Jonathan Fallowfield writes that, although his stock order for the above plates was placed at the first intimation of their being on the market, Messrs. Lumière and Co. now advise him that, owing to the great demand, it will still be two or three weeks before they can execute English orders, and it is anticipated that even then the demand will be considerably in excess of the supply. Mr. Fallowfield therefore wishes to assure those customers who have placed orders for these plates with him that all orders will be executed in strict rotation as soon as the first consignment is on the English market.

**FOUND IN St. James' Park** on Sunday, July 21, a parcel of photographs containing one specimen of "Ozobrome," one specimen of "Metalotype," three specimens of "Argo" paper, one bromide enlargement 12 x 10, and four photogravures of a wedding group. The owner can obtain same by applying to Messrs. Ozobrome, Ltd., 96, Prince of Wales Road, Kentish Town, N.W.

**THE West of England Manufacturers' and Industrial Exhibition, 1907,** which includes a section for photography, will be held at Plymouth from November 5 to 27. In the photographic section there are eleven classes, all open to the United Kingdom, in each of which a silver shield, bronze shield, and diploma will be awarded, with the addition of a gold shield in the "champion" class. A number of special prizes, to which various conditions are attached, are also offered for competition. The judges will be Messrs. F. J. Mortimer (Editor of "The Photographic News") and Walter Finch. Entries close October 5. Full particulars and entry forms may be obtained from the secretary, Mr. A. D. Breeze, Great Western Chambers, 41, Union Street, Plymouth.

**THE WET COLLODION PROCESS.**—We are in receipt of a pamphlet from the School of Photo-Engraving and Lithography, Bolt Court, giving the instructions to students at this institution for the working of the wet-collodion process. The pamphlet includes all the necessary formulae, with a number of half-tone reproductions explaining the manipulation and illustrating also the most common defects and markings which are liable to occur in practice. We presume that the pamphlet is not issued to the public, but is for the instruction only of the students in the school.

**INCANDESCENT ILLUMINANTS.**—In the course of a lecture on the above subject at the Royal Institution, Mr. James Swinburne said that the electric incandescent light is undergoing a great change. Carbon is being replaced by metal wires. It has been found possible to make wires of high enough resistance of tungsten, osmium, tantalum, and a few other metals and compounds. The osmium lamp was the first of these, but there was difficulty in making it of high enough resistance. The tantalum lamp is now in great demand. It is made for 100 to 130 volts, and is much more efficient than the carbon lamp. It will not last long on alternating currents, however. The wires of a lamp that have been run for some time on a direct current show a curious notched or crinkled appearance under the microscope.

But a wire that has been run on an alternating circuit looks like the metal had been melted into short cylinders with round ends. These cylinders had stuck together end to end without their being in a line. Sometimes the little cylinders are nearly separated, merely touching at a corner. This action is very extraordinary, has never been explained. In addition to this, when a lamp is down on an alternating circuit, the wire sometimes goes all over and sometimes it breaks in several places, and tangles itself up in an extraordinary way; at other times it breaks up into numerous pieces, which will be found lying on the inside of the globe. One of the other lamps showed a change under the action of the current, but it is not so marked as in the case of tantalum. One of the interesting of the new lamps is the Zircon. It is said to be made of zirconium and tungsten, and lamps of this material have been made for 200 volts, a matter of the greatest importance from a distribution point of view. It is possible that the conductor is really a zirconium of tungsten, and this opens up a new series of compounds. A Zircon lamp for 100 volts has really six separate loops of wire mounted in series inside a bulb. A recent improvement is to provide a tremendously light spring for each loop, so as to keep it taut. The lamp can then be used in any position. Tungsten seems to be the favoured metal, as it gives a very high efficiency. It is probable that the future will have an efficiency of nearly a candle per watt. This is promised by the use of tungsten. At the same time it must be admitted that to make a wire with a resistance of 500 ohms enough to give 20 candles with 20 watts is a triumph of invention.

**"PHOTOGRAPHY AND THE PRINTING PRESS."**—A reprint of lectures delivered by Mr. Charles W. Gamble to the School of Photography, Manchester, for the Royal Scottish Society of Arts, has been reprinted by this body, which has its headquarters at 117, Colinton Street, Edinburgh. Mr. Gamble's lectures supply an interesting and readable review of the modern methods of photo-mechanical printing, and on that account are quite of general interest; the latter part dealing with some of the more recent innovations in process will be sufficiently technical to supply information to the practical photographer.

**THE TRAILL-TAYLOR LECTURE.**—On Tuesday, October 22, at the New Gallery, Regent Street, W., the tenth Traill-Taylor Memorial Lecture is to be delivered by Mr. S. D. Chalmers, M.A. The subject will be "The Aberrations of Photographic Lenses."

**THE PLAYERTYPE PROCESS.**—In reference to an answer to a correspondent, on page 512 of a recent issue, Mr. S. C. Puddy writes, enclosing a number of altogether excellent copies of black and white line drawings, woodcuts, etc., made by the Playertype process. These specimens, he tells us, were made by daylight, artificial light having proved not quite so satisfactory. The negatives were made on Ilford gaslight paper, and the positives are on the same. On Paget Gravura and self-toning P.O.P., and on Ilford P.O.P. results in these different materials being fairly equal in quality. The process is evidently of occasional service in the hands of a competent worker, and we may refer those interested to the account of the Playertype process in the 1906 "Almanac," p. 801.

**WHAT IS GELATINE?**—According to the "Chemist and Druggist" in its issue of July 27, a good deal of the lower grades of gelatin on the market is badly contaminated with either arsenic or copper. The former is derived from the pyrites used for the preparation of the sulphuric acid used in manufacturing gelatine, while the latter is derived from copper utensils. The following details from samples recently examined by a London analyst are of interest.

Three samples contained 3 to 5 parts of arsenious oxide per million.

Two samples contained 5 to 10 parts of arsenious oxide per million.

One sample contained 13 parts of arsenious oxide per million.

Three samples contained 0.3-0.5 grain of Cu per lb.

One sample contained 1.25 grain of Cu per lb.

"THE BULLETIN OF PHOTOGRAPHY" is to appear as a weekly journal of professional photography from the offices in 606-608, 8th Street, Philadelphia, of our contemporary, "The Camera." Frank T. Chambers is to be the managing editor. The first issue is announced to appear this week.



THE PORTRAITS IN EDINBURGH.—The old story of an enlargement being told to the Edinburgh householders, as we hear from a letter in the "Evening Despatch" of that city, which is as follows:—

The writer wishes to warn all householders of several men who are coming to the city requesting photographs to be copied, and that they will give an enlargement or coloured copy free of charge. The only stipulation they make is that the photograph is hung up in the drawing-room, or parlour, as an advertisement so that it may be seen by any friends who come to the house. They return with the enlargement, or coloured photograph, in any case may be, they demand a certain price to cover the cost of the frame, and if this is not paid to them they refuse to return original photographs.

The writer hereby warns the public that practically all these photographers live by misrepresenting the actual conditions under which they are working, and by refusing to return the original until they extort the money for a frame, the price of which is many times more than its value. The simplest way to put a stop to this is to refuse to have anything to do with such people, and to give their orders to people who have established businesses in the

city. We are glad to see the provincial Press still assisting in the work of enlightening the public as to the real character of this business.

THE HOLIDAYS: WHERE TO STAY AND WHAT TO SEE," is the title of a bulky volume published by Walter Hill, 67 and 69, Southampton Row, London, W.C. It contains copious lists of seaside, farm- and country lodgings, hotels, boarding-houses, etc., in the districts served by the Midland, London and North-Western, Great Central, Great Eastern, Great Western, and Great Central Railways, together with a quantity of useful and interesting information for the holiday-maker regarding the chief places of interest in the various districts, illustrations, maps, etc. The first part is entitled "Where to Stay in London," and this should be of interest to visitors from the provinces or from the colonies abroad. The book is obtainable from the railway bookstalls or from the publishers, price 1s., or 1s. 6d. post free from the publisher.

VELOX COMPETITION.—The fourteen prints which won prizes in the "Velox" competition are now on view in the Exhibition at Messrs. J. J. Griffin and Sons, Ltd., Kingsway, W.C., and are well worth a visit to see. The exhibition is a most successful and a most interesting one, and a most successful one.

THE FIRE BROKE OUT ON JUNE 23 ON THE PREMISES OF MESSRS. DENNISTON AND ALLAN'S PHOTOGRAPHIC AND STATIONERY STORE AT NANKING ROAD, LONDON, E.C. The fire broke out on the energy of the fire brigade the blaze was put out on the floor on which it originated, and serious loss thus resulted.

RESPONDENT ASKS FOR THE NAME OF PUBLISHERS OF FIGURE STUDIES WITH THE TRADE MARKS OF B.N.K. (enclosed in a triangle) and asks for those able to supply the information will address "The Editors," care of the Editors.

SENSITISERS.—Mr. Arthur Payne, in his new book, "The Collodion Process," says:—"It may be of interest to mention that we have found pinaverdol, orthochrome T, pinachrome ethyl purple 6B, cyanine, pinacyanol, and dicyanin, to be the best sensitisers when applied to collodion bromide films. A weak solution of 1 in 50,000 parts alcohol is flowed over the plate for about two minutes, and after washing the plate under the water for two to three minutes it is drained and exposed in the sun. Plates prepared with any of these dyes may be safely developed in a fairly powerful green safelight, as they appear to be very insensitive to green when used with a collodion film. The plates work very clean, and may easily be developed with a pinone developer, or probably any alkaline developer, which is best suited to suit these plates. My experiments lead me to think that pinacyanol will prove to be the best red sensitiser for collodion bromide plates, as the plate is more sensitive to the red than to the yellow, when both are of equal luminosity, and exposed to the yellow enclosed arc light. I am somewhat disappointed with the use of dicyanin, when used with a collodion plate, as I expected a very high red sensitiveness; while, as a matter of fact, it does not appear to be such a good red sensitiser as the previous dye, and the red and blue are of equal sensitiveness when exposed under the same conditions, and the general sensitiveness of the plate is not so good as what is obtained with pinacyanol. Dicyanin is

closely followed by ethyl violet and ethyl purple 6B, both of which give excellent results under favourable conditions." In connection with the above, it would be as well to draw attention to the fact that Mr. Payne describes in the above-mentioned book an easy dry collodion process which should be of considerable value in colour work.

## Answers to Correspondents.

\* \* All matters intended for the text portion of THE JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\* \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

W. Ralston, 259, Sauchiehall Street, Glasgow. Photograph of South African Cricket Team and an Eleven of Scotland.

J. Yeoman, Photographer, Bedale, Yorks. Photograph of the Wesleyan Choir, Bedale.

Albert William Sargent, 12, Albany Road, Cardiff. Photograph of the King accepting an Illuminated Address from the Lord Mayor of Cardiff. Photograph of the King reading a Reply to Address at City Hall, Cardiff.

G. L. McKeggie, 513, Union Street, Aberdeen. Wash Drawing of Marischal College, Aberdeen.

J. F. Duthie, 13, South St. David Street, Edinburgh. Photograph of Group at Edinburgh Motoring Club Hill Climbing Competition.

Henry George Summers, 33, Church Street, Calne, Wilts. Two Photographs of King Edward's visit to Calne, Wilts. on July 22nd, 1907.

Elisha Porigo, 44, Prince Albert Street, Oldham. Photograph of 6 score 5 lbs. Wrestling Championship of the World, between W. Collins (Oldham) and J. Fahy (America).

William Muntz, 8, Leyland Arcade, Southport. Photograph of Miss Ethel Carnie, three-quarter length.

PHOTOGRAPHIC RIGHTS.—Would you be kind enough to let me know, through your columns in the "B.J.," whether the vicar or churchwardens have power to stop me from printing on postcards and selling a photograph of the interior of the parish church that I have taken?—POSTCARD.

They have none at all; you are at liberty to issue the photograph.

W. W. WALL.—We can only advise you to be guided by your solicitor.

STEREOSCOPIC NEGATIVES.—I have a new stereo camera, fitted with Zeiss Tessar lenses, and have just developed my first two dozen plates. In every instance one picture on the same plate comes up in the developer before the opposite picture, and also shows more contrast. Also, when I come to print from the negative one side of the transparency print is much more brilliant than the other. I have had the camera back to Messrs. —, and they returned it as all right, and also sent me four negatives of street scenes, which seemed to be evenly developed. Could this fault, mentioned above, be due to causes outside the lenses, and if so, what are the causes?—P. C. SMITH.

Many things other than the lenses may be the causes, though it is rather improbable that anything but the lenses should give the greater density so uniformly, as has been your experience. However, we have so often found an almost incredible explanation to be the right one after all that we suggest a tilted developing dish or the unequal access of the dark-room light to the plate (causing slight fog on one part only), as possible causes. We ought to see the negatives to say positively.

PANORAMIC CAMERA.—Can you inform me if there is a panoramic camera on the market, with a lens fitted to work on a pivot automatically on exposure being made, thereby making a picture covering nearly 180 degrees? The arrangement causes the lens

to move from side to side, the centre being pivoted, the front and back move in opposite directions, so that picture is taken as by one sweep of a brush. If so, who are the makers, and what is the lowest price?—T. E. (Sierra Leone).

The Panorama Kodak (Kodak, Ltd.) is sold in two sizes—7 x 2½ and 12 x 3½ inches—at £2 10s. and £3 10s. The Al Vista (Houghtons Ltd.) is sold in four sizes—3½ x 9, 4 x 11, 8 x 12, and 5 x 16, these being the maximum size of picture, though short lengths may be taken. Prices from £4 4s. to £10 10s.

**DUFFER.**—(1) If the negative be of a suitable soft character there is no difficulty at all in obtaining all the gradation even in an enlargement on a much larger scale than you suggest. (2) There are none. The lens you name used, say, at f/8, for the projection of the negative will give fine definition to the corners of the latter.

**A. BUNKER.**—Better apply to the Tress Company, 42, Oxford Street, London, W.

**EYE TROUBLE IN RETOUCHING.**—When retouching I am very much troubled with my eyes. I cannot see clear. I have been told that I am troubled with astigmatism. I have had my eyes tested by a good local eye-tester, but the test applied I do not think is the right test for retouching. It might be all right for reading and seeing in general, as the spectacles I have got benefit me in that way; but yet they seem to be wanting in correcting a defect. When retouching a kind of glare comes over the eye then, and I can see nothing, and my eyes water a little. I feel sure, if glasses could be made to get over that, and slightly magnify, it would not hurt my eyes at all, I feel sure. I can read the test of large and small letters almost at any reasonable distance; I can also distinguish colours; straight lines drawn at various angles puzzle me slightly more. I can see things better farther away than near to. This is where the mistake comes in the test, I think. They test for ordinary everyday matter, instead of in a retoucher's case, for close small effects to stop the glare. (1) Can I get a pair of glasses that will get me over the difficulty? (2) Where? (3) Price?—J. COOK.

You ought to go to the eye hospital at Liverpool or Manchester and have your eyes properly tested by an ophthalmic surgeon, and get a prescription for the glasses. The hospital price of the astigmatic glasses is 7s. 6d.

**PRISMATIC DISPERSION COLOUR PROCESS.**—Will you tell me whether the process of colour photography by prismatic dispersion, outlined in your supplement of March 1, has reached a practical stage? There is something attractive in the idea of dispensing altogether with dyes, etc., and letting the prism form the colour. I submitted the article in the "B.J." for March 1 to Messrs. Penrose and Co., but they did not seem inclined to take up the matter seriously; nor, I think, could Messrs. Sanger-Shepherd and Co. If any results are to be done, or if any firm is prepared to produce the apparently simple apparatus required to adapt an ordinary camera in the process, I should be glad to know.—(REV.) J. M. JEAKES.

So far as we are aware, no one has yet placed on the market the necessary apparatus, but there should be no difficulty in setting up the arrangement. A single line screen is required, with the opaque lines wider than the transparent; this could probably be obtained from Griffin and Sons, Ltd., Kingsway, as they are agents for the Schulze screen, which is of this character. A low angle prism can be obtained from Penrose and Co., 109, Farringdon Road. These are supplied for cementing to the face of Lippmann heliostrophes. This would probably give quite enough dispersion, as the length of the spectrum could be adjusted by variation of the distance between prism, screen, and plate.

**E. FOX.** Amidol is the hydrochloride of diamidophenol. Its formula is:— $C_6H_3(OH)NH_2NH_2$ .

**STUDIO.**—Can you advise as to the best way to glaze a new studio—what glass, putty, paint, etc.? North light, wooden astricals.—B. J. P.

For the sides there is nothing better than ordinary plain glass. If the studio is overlooked by neighbours, fluted glass would, however, be better, as that cannot be seen through. For the roof, what is known as "rolled plate" (white) is good, as, by reason of its thickness, there is no risk of its being broken by

hailstones. Putty made with good linseed oil is best for purpose. For the paint, any quiet unobtrusive colour would suit.

**REGISTRATION OF NAME.**—Would you kindly let me know how to register a name for trading under—i.e., The ——— Photo Company?—E. F. TOBIN.

The registration must be effected at the Patent Office. Write to the Comptroller, Patent Office (Trade Marks Branch), 25, Southampton Row, W.C., enclosing a penny stamp, you will be forwarded full instructions as to the procedure for the registration of trade marks, names, etc. No charge is made for instructions.

**COPYRIGHT.**—I shall esteem it a favour if you will kindly let me know whether a photographer has the right to exhibit a reproduction of my work in his case or shop window in any shape or form. The law as it stands gives a client the right (on payment of a fee) to have them reproduced by anyone, but if it is the right to another to show as his work the law certainly need of some amendment as regards copyright. Thanking you in anticipation for a reply in this week's journal.—W. M.

The photographer has no right to make or exhibit a reproduction from a negative made to the order of his customer, unless the latter's permission. The fact is constantly disregarded, but it nevertheless can be enforced by a sitter.

W. E. M., and others.—In our next.

**STIFFENED PRINTS.**—I have an order for some 12 x 10 unmounted photographs, which have to be enamelled and stiffened to the thickness of a postcard. I think I once came across instructions for doing this kind of thing in one of the "Almanacs," but have not been able to find them. I should be greatly obliged if you will inform me how to go about it.—ARISTO.

The usual plan is to squeeze paper to glass or ground glass when half-dry attach a backing paper of the necessary thickness and strip the whole off when dry. In short, the usual method for glossy prints.

**PLATINUM TONING.**—I should be much obliged if you could give me by answering the following:—1. Is the tone obtained by acid-platinite bath used for matt P.O.P. permanent? 2. Can you give me a formula suitable for most brands of paper? 3. What is the order of mixing and its keeping properties when mixed? How much washing is necessary between toning and fixing?—CHLOROPLATINITE.

1. The prints have great permanence, though not quite so good as those toned with gold and platinum—that is, general experience, and the two baths are usually recommended for this reason, as well as for the blacker tones. 2. Chloroplatinite, 4 grs.; phosphoric acid (sp. gr. 1.12), 2 oz.; water to 20 oz. The makers' formula may usually be used to be the best. See the "Almanac." 3. The bath will almost indefinitely before use, but not well afterwards. 4. At least half an hour before use as soon as made. 4. At least half an hour before use as soon as made. A bath of bicarbonate of soda (1 oz. in 10 oz. of water) is advisable half-way through the washing to destroy all traces of acid.

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## SUMMARY.

Photographers' Association of Canada, at a recent Convention, shown its interest in current business problems. (P. 591.)

correspondent draws our attention to a convenient method of ing a studio. (P. 606.)

ome descriptions of studio premises installed by the Eastman ak Company are given on page 599.

we suggest for discussion the liability of the canvassing photo- her to come under the Pedlars Act, under which a licence is ired, and must be renewed when the licensee removes to a fresh ict. (P. 590.)

the advantages of gum arabic as a mountant are the subject of e notes on page 590.

three-colour carbon prints, screen plates for one-exposure colour yography, and a new type of magazine camera, are among the nts of the week. (P. 603.)

r. Harry E. Smith, in a recent paper, discusses the composition e bromide print after toning by the sulphide process. (P. 594.)

the practice of a clever exponent of night photography, Mr. Robert es, as communicated to the Edinburgh Photographic Society, ars on page 596.

photography as an art cannot by any possibility be expected to ft from a new work on the subject reviewed on page 605.

major-General Waterhouse draws attention to the early reference 2) to the focal centre of a thick lens. (P. 602.)

the last of Mr. Foxlee's articles on the wet collodion process s with collodion positives and with possible causes of failure t wet collodion. (P. 592.)

## EX CATHEDRA.

### Spurious Old Pictures.

There is very little doubt that at the present time a good number of spurious "Old Masters" are being produced, many of which find their way, at high prices, to America—so it is said. One day last week the "Evening News" gravely informed its readers that there is a studio in the West End of London where "Old Masters, and pictures by eighteenth-century masters," are made to order, and professes to explain how the work is done. The method, we are told, is as follows:—Old canvases or panels are procured, the paints are made from old receipts, and the subject is painted in the style of the selected master. After the painting is finished, it is allowed to stand for some days exposed to the dust of the studio. It is then given a thin coating of Vandyke brown varnish and dusted over with a sprinkling of floor-dust. After this another coating of varnish is put on and allowed to dry. Finally the picture is put into an oven and well baked. This is to strain the canvas, and so give the necessary cracks to the paint. Here, then, is, according to our contemporary, the whole secret of the method of manufacturing spurious Old Masters; but there is nothing said as to the painting being done by skilled painters, who are quite familiar with the style of the particular master, and who are fully capable of doing the work. As a rule, people do not pay a large price for an Old Master without having the opinion of an expert as to its genuineness; and we very much doubt if one would be deceived by a picture faked by this method. Still, the fact remains that there are many spurious old pictures in existence, whether done by this method or any other.

\* \* \*

### The Photographers' Association of Canada.

For the first time during the past few years the annual Conventions of the Photographers' Association of Canada were revived, and during the latter part of last month two days were devoted at Toronto to meetings of professional photographers interested in the progress of their craft in Canada. There is no intention, we are told, to allow the annual function to fall again into abeyance, and evidently from the prospectus of the Convention the Association contains within itself all the elements necessary for such an annual occasion. As our report shows, the meetings were devoted strictly to the business and technical topics of the professional photographer, and if the Convention devoted some part of its brief two days' session to the social side of its activities it cannot be blamed for doing so, inasmuch as its plan of campaign involves the first principle "that the other fellow is a decent chap when you get to know him!" We wish the Association and its members all renewed prosperity.

### Gum Arabic as a Mountant.

If the photographic world were canvassed as to the mountant used for mounting pictures, one might fairly speculate that something like ninety per cent. of the replies would refer to starch. There is no gainsaying the fact that no better material exists for the purpose, as it has no deleterious action on photographic prints. In saying this, we are not considering the different commercial mountants that have, during the past few years, been put upon the market. They are very convenient in use and keep well, but as they are all, more or less, secret preparations, we can say nothing further about them. Starch paste, however, must be used the day it is made, or the day after, otherwise it becomes watery and loses its adhesiveness. Many correspondents have, from time to time, written us complaining that to make a fresh paste of starch each time that a few pictures have to be mounted is troublesome, and asking how that can be avoided, etc. But the small amount of trouble involved in making a little starch paste as required is quite trivial, yet is evidently a consideration with some. Hence we may recommend as a very convenient mountant the simple solution of gum arabic, much used in times past. Of late years, however, it has obtained a bad reputation, but we doubt if there is any actual foundation for suspicion. We are led to this consideration by being shown, within the last few days, a portrait print, mounted in the year 1857 with gum. The print was toned in the old combined bath universally employed in those days. The picture showed no signs of fading: all the delicate tones were perfect: the high-lights, it is true, had a slight yellow tinge, but it is quite conceivable that they were not actually white in the first instance. This fifty-year-old picture is a conclusive proof against the prevailing idea that prints mounted with gum must necessarily fade, and, indeed, such a conclusion is not warranted by the properties of gum arabic, which is a neutral substance, and not an absorbent of moisture, like gelatine and some other bodies. When a solution of it is evaporated—as when the mounted print is dry—the gum remains in its original condition, and has no affinity for moisture. As to why gum is now in such bad repute, the cause is not far to seek.

\* \* \*

### Gum Mountant to Keep.

A solution of gum, if kept for long—a week or two, particularly in hot weather—is more or less decomposed, becomes mouldy on the surface, acquires a sour smell, and becomes acid. If used in this condition there need be little surprise that photographs mounted with it do eventually show signs of change. This decomposition, however, may be entirely avoided by the addition, after the gum has been dissolved and strained, of an antiseptic—say six or eight drops of carbolic acid, or a similar quantity of oil of cloves, to half a pint of the solution. With this addition the solution will keep good for many weeks, and is always ready for use. It is not necessary that an expensive gum be used; a fair sample of Senegal gum, which at the present time is sold at the oilshops and by drysalters at about a shilling, or a trifle more, per pound, is quite suitable for the purpose. One thing that has probably brought gum into bad repute is the use of what is termed “office gum,” as sold by stationers. This in many cases contains but little gum, and that of the commonest kind. It is almost always acid, and we are told that the antiseptic sometimes used is the bichloride of mercury. If such stuff as this is used for mounting photographs ill effects must be anticipated. But with a fresh solution of gum arabic no ill results need be feared. The conveniences of a solution of gum are that it is always ready for use, and if a print is required to be taken off the mount, it is readily done by soaking it for a short time in cold

water. This is not the case with starch or most other mountants. With some it is very difficult to remove the print at all without injury.

### ITINERANT PHOTOGRAPHERS AND THE PEDLARS ACT.

SEVERAL times of late we have had cases come before us in which the question has arisen as to whether a photographer who goes about taking views and portraits which he very shortly supplies to his customers, comes under the Pedlars Act, whereby a licence is required. One correspondent writes us that he went about taking photographs of residences, and afterwards submitted the photographs to the owners, and solicited orders for them. For doing this the police had threatened him with proceedings because he was not possessed of a pedlar's licence. In our issue of the 12th ult. a brief report was given of a case where two persons were brought before the Blackpool Police Court, charged with peddling without a licence. It appears they were going from door to door with a camera asking if the occupants would have their portraits taken. As the Chief Constable did not press the charge, the defendants were dismissed on their paying the costs. In the same issue we reproduced a copy of a circular that a correspondent had sent us that had been left at his house, the purport of which was that the firm—a very important one according to its own showing, though no address was given—had received instructions to photograph certain houses and premises in the district. To give pictorial and artistic effect to the photographs the occupants and their children were invited to stand outside at the time the people would be at work. Proofs, it was stated, would be shown in a day or two. Of course, when the latter were shown, an order was solicited.

A point of some importance is: Do these people come within the Pedlars Act? By 22 and 23 V., c. 36, a hawk's licence was not required by the maker or worker of goods who carried them abroad or exposed them for sale. This Act, however, was repealed by the Act of 1871—the one now in force. By this Act a pedlar is not allowed to hawk goods of his own make without a certificate. We here quote from the Act the definition of pedlar. “The term ‘pedlar’ means any hawker, pedlar, petty chapman, tinkler, caster of metals, mender of chairs, or other person who, without any horse or other beast bearing or drawing burden, travels or trades on foot and goes from town to town or to other men's houses, carrying to sell or exposing for sale any goods, wares, or merchandise, or procuring orders for goods, wares, or merchandise immediately to be delivered, or selling or offering for sale his skill in handicraft.” Although no reference is made to photography or photographs, it would seem that the last line would include them, and apparently this was the view taken in the case cited above, at the Blackpool Police Court. It may be mentioned also that under the Act certain classes of vendors are exempt from the need of a licence, viz.: “(1) Commercial travellers or other persons selling or seeking orders for goods, wares, or merchandise to or from persons who are dealers therein and who buy to sell again, or selling or seeking orders for books as agents authorised in writing by the publishers of such books; (2) sellers of vegetables, fish, fruit, or victuals; (3) persons selling or exposing for sale goods, wares, or merchandise in any public mart, market, or fair legally established.” In the exemptions, again, there is no reference to photography or canvassing for photographers. Up to the present we have heard of no photographer's canvasser being prosecuted for not possessing a pedlar's certificate, though, perhaps, according to the strict reading of the Act, he requires one.



one point is one which may certainly arise again in connection to the cheap class of travelling canvasser-photographer, and it may be found that in the restriction of the Pedlars Act may be found some means of handicapping gentry whose methods of business must be both disful and harmful to photographers established in a not large way in provincial towns. In our reading of the words "selling or offering for sale his skill or handicraft" are clear enough, and with them before us cannot see any distinction between the photographer the tinker or chair-mender, except that the two latter usually better craftsmen than the travelling photographer, and frequently carry on their business in a manner open to suspicion. We should be interested in hearing of any police-court cases which may come up in this connection, and perhaps any reader in whose town one is interested will send us the newspaper report of it. In the meantime, it will be of interest if we mention one or two regulations of the Pedlars Act, from which it will be seen that the obligation on a travelling photographer to obtain a licence before he can ply his trade, would have a very salutary effect in limiting the operations of the travelling canvasser with his camera.

A pedlar's certificate may be obtained from the Chief Officer of Police of the district in which the pedlar is at work, provided he, or she, has resided in that district for one month, and the applicant is a person of good character, in good faith intends to carry on the trade of a pedlar. A certificate is, however, not granted to any person under fifteen years of age. The charge for a certificate is 5s., and it is only available for the district for which it is issued. However, the holder of a certificate can have it

endorsed by the officer of another district in which he desires to trade on the payment of sixpence. The duration of a certificate is for one year from the time it was granted. A pedlar at any time must produce and show on demand his certificate to any constable, or to any person to whom he offers his goods for sale, or any person in whose private grounds or premises he is found. He is also to show the contents of his pack to any constable on demand. In the case of a conviction for any offence, the magistrate can endorse a pedlar's certificate, or deprive him of it altogether. From the above it will be seen that the law is very stringent with regard to pedlars. But, as a rule, magistrates usually take a lenient view in the matter if they are convinced that the pedlar has no dishonest intent.

Since the above was written we have been interested in noting, in the report of the Convention of the Photographic Association of Canada, the headline: "Death to the Coupon Pedlars." This form of cheap competition is evidently just as harmful to reputable business in the Dominion as it is here, and though we are not acquainted with the terms of the Pedlars Act which is in force in Canada, we are glad to find corroboration of our suggestion from a remark by the treasurer of the Association: "These men are undoubtedly pedlars, and if we could compel them to get a licence costing twenty-five dollars we could soon freeze them out." The status of the travelling photographer in reference to the Pedlars Act appears to be worth the attention of a body such as the Professional Photographers' Association, which has consistently shown its readiness to advance the interests of the profession.

## THE CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF CANADA.

After being in a state of coma for about ten years, the Photographers' Association of Canada revived last year, and this year held their annual convention, meeting in Toronto July 24 and 25.

The gathering in numbers, enthusiasm, and interest was very successful, repaying those who had worked hard to make it so. The establishment of an employment bureau, whereby members could secure helpers and helpers situations without fee, was the first of the report of a special committee dealing with the situation.

The matter of copyright on photographs in Canada was referred on by another committee, and their report adopted. It was recommended that representations be made to the Dominion Government to revise the Copyright Act in such a way that no mark or lettering would be necessary on a copyrighted photograph, or, failing that, to have the least possible amount of marking or mark thereon necessary to indicate its registration. The present lengthy formula in many cases seriously detracts from the pictorial value of the photograph. Also to have the present fee of one dollar reduced to fifty cents for each subject. A practical talk on lenses was given with illustrations by Mr.

S. Lawrence, of the Bausch and Lomb Company of Rochester, New York.

Mr. W. S. Lively, president of the Tennessee School of Photography, graphically demonstrated how he had made some very successful pictures in a variety of lightings by the "Aristo lamp."

There were demonstrations in lighting and posing by some of the most successful operators in a number of the city studios, and demonstrations in the convention building by different plate and paper manufacturers.

The visitors were entertained by the local manufacturers and dealers in the evening with a trolley ride around the city, ending with a dance and supper at Sunnyside.

The officers for the ensuing year are:—A. M. Cunningham, Hamilton, President; J. Frank Jackson, Barrie, First Vice-President; John Kennedy, Toronto, Second Vice-President; Frederick Roy, Peterborough, Third Vice-President; E. Poole, St. Catharines, Secretary; Charles L. Rosevear, Toronto, Treasurer.

Toronto was unanimously decided on as the place of meeting for 1908.

**HOUGHTONS' QUARTERLY.**—The current or summer number is devoted to the consideration of apparatus specially suited for holiday work, including the new series of folding "Klito" cameras, which, being compact in form and easily carried in the pocket, should prove considerable value to tourist photographers and others to whom bulk and weight are serious considerations. Messrs. Houghtons

also make a special offer to all readers of the "Quarterly" who are not yet users of "Ensign" roll films, whereby a sample spool may be obtained at a considerably reduced price. The special sample coupon issued for the purpose must be correctly filled in and sent, together with the necessary stamps, to Messrs. Houghtons Ltd., 88 and 89, High Holborn, London, W.C.

## THE WET COLLODION PROCESS IN PRACTICE.

[The following article, which concludes the course of instruction in wet collodion which has appeared in our columns some weeks past, deals with the application of the process to positives on glass or to ferrotype. The whole series of chapters has aimed at giving concise practical directions in the practice of a process which for certain purposes is unsurpassed.—Eds., "B.J."]

MANY at the present time who are only familiar with the glass positives taken by the itinerant photographers of the sea-beach and holiday resorts, have but little conception of the beauty and delicacy of a really good collodion positive. The productions just alluded to are little short of libels on the process. Moreover, a collodion positive, if varnished, is one of the most, if not the most, permanent of all silver pictures. For some few years—1851 to 1855—the practice of the collodion process was practically confined to the production of positive pictures, inasmuch as the making of negatives, or, rather, the printing from them, was claimed by Fox-Talbot as being an infringement of his calotype patent. Hence the advancement of photography, so far as the production of collodion negatives was concerned, was retarded for about four years; or until the famous suit of "Talbot v. Laroche" was tried at the end of 1854, when it was decided that this claim could not be sustained. Up to that period only glass positives, to any extent, were made commercially, and they—when made by first-class photographers—competed very keenly with Daguerreotypes in quality, while, of course, they could be produced at a much cheaper rate. For delicacy and fineness of detail they were but little inferior to Daguerreotypes, and some of them closely resembled them in appearance, while they possessed the advantage that they could be viewed in any light.

### Collodion Positives

It may be as well here to say a few words on the difference between a collodion positive and a collodion negative, for they are both, to an extent, the same. For example, if a collodion negative is looked down upon with something dark beneath, it shows as a positive, though not as a good one, and if a positive is looked through it shows as a negative, though an exceedingly thin one. In a word, a glass positive may well be described as an under-exposed and under-developed negative, so closely are the two allied. The difference between glass positives and ferrotypes is simply that the former are taken on glass plates and afterwards backed with a dark material, and the latter are taken direct on an opaque material—the now well known ferrotype plates. The manipulations with the two are precisely the same whichever is used, and they do not differ materially from those in the production of negatives, but the conditions to be observed differ. In making a negative the object is to get density in the image as well as detail. In a positive it is to obtain detail with great thinness. Also as the blacks are formed by the backing material, whatever that may be, it is imperative that the deepest shadows of the picture must be free from any trace of veiling, or the picture will be lacking in brilliancy.

### Manipulation in Making Positives.

The practical working of the process will now be described. The plates, whether glass or ferrotype, should be cleaned in the same way as for negatives, and the same scrupulous cleanliness must be observed throughout all the manipulations. The collodion for positives may be a little thinner than is desirable for negatives—say a drachm of a mixture of equal parts of ether and alcohol added to each ounce of it. The novice will probably get on best by purchasing collodion specially made for positives—say, such as that supplied by Mawson and Swan. The collodion is best used two or three months after iodising, so that it is highly coloured. If it has to be used soon after iodising a little solution of iodine in alcohol should be added to give

it almost the colour of port wine. The silver bath, too, should not be quite so strong as for negatives, and it may be made a little more acid. A good formula for a positive bath is:—

Nitrate of silver .....	2 ozs.
Distilled water .....	30 ozs.
Nitric acid (pure) .....	4 minims

The bath must be saturated with iodide of silver in the manner described for negatives (see previous articles) and filtered. It is then tested with a trial plate in like manner, and, if found defective, corrected in the same way as then directed.

### A Developer for Positives.

For the developer for negatives the common sulphate of iron (copperas) was recommended, as that conducted to density in the image. But density is to be avoided in the present instance; the pure proto-sulphate of iron should be employed, according to a formula such as:—

Proto-sulphate of iron .....	$\frac{1}{2}$ oz.
Glacial acetic acid .....	1 oz.
Nitric acid .....	10 minims
Water .....	20 ozs.
Alcohol .....	q.s.

The larger the proportion of nitric acid the more metallic-looking will be the image. If the acetic acid be omitted entirely and its place taken by a larger proportion of nitric acid, the picture will partake somewhat of the character of a Daguerreotype, but there may be a lack of half-tone if too much is employed.

Another formula for a developer that yields very white and clear images, even better than the one just given, is as follows; but it is a little more trouble to prepare:—

Proto-sulphate of iron .....	$\frac{1}{2}$ ozs.
Nitrate of baryta .....	1 oz.
Nitric acid .....	2 drachms
Water .....	20 ozs.
Alcohol .....	q.s.

The iron should be dissolved in half the water and the baryta in the other half and the two mixed together. Then the precipitated sulphate of baryta is filtered out and the nitric acid and alcohol added.

### Some Minor Precautions.

The exposure required for positives is not more than half that necessary for negatives, therefore it is really a more rapid process. The developer is applied in the same way as for negatives, but it may be used a little more lavishly, as it is not desirable to have too much silver solution on the plate, since a dense deposit has to be avoided. The development must be carefully watched—looking down on the plate and not through it; as soon as detail appears in the deepest shadows, indeed, almost before that, the plate is quickly washed under the tap. It is then fixed with a solution of cyanide of potassium—about 10 grains to the ounce of water. This may be used by flowing over the plate or in a bath. Hypo is not good for fixing positives, as it does not leave such a white and brilliant image as does the cyanide. The washing after development should be very complete, or blue stains may result from the formation of Prussian blue in the film when the cyanide is applied. After fixing the picture is well washed and dried. The drying may be hastened by heat, if desired, without fear of its being injured. The plate is then varnished with a colourless varnish to prevent the atmosphere from tarnishing the silver.



the most suitable varnish for collodion positives is dammar, as follows:—

Batavian dammar .....	2 ozs.
Benzole (pure) .....	1 pint

Dissolve, allow to settle, and then decant the clear portion, the varnish may be filtered through paper or cotton-wool as the resin is all dissolved. This is applied to the picture, in the same way as the collodion, and it dries in a few minutes. It goes without saying that the film must be thoroughly dry before the varnish is applied, otherwise it will dry bright or transparent. If our picture has been taken on a ferrotype plate it is finished and ready for framing. But if it is on glass it will require backing with black varnish, or a piece of black velvet. If the black varnish, such as 'Black', be used it may be applied with a brush, and a thin coating, which dries quicker than a thick one, will suffice. Our picture is now reversed, as regards right and left, as all ferrotypes must be; but when taken on glass that need not be. All that has to be done, after it is varnished with the black varnish, is to turn it over and put black velvet on the film side; we then have the picture the right way about. Instead of using the dammar varnish, when a non-reversed picture is desired, the black varnish may be applied direct on the film. In this case the picture is seen through the glass, the image then is not so white when seen from the under side of the film as it is when viewed from the upper side, and, moreover, the black varnish has a tendency, when applied direct to the film, to degrade the whites. When a non-reversed picture is desired it is best to varnish it with the dammar varnish and then place it in the frame, or case, with a piece of black or purple velvet underneath. In this way the whites are purer and whiter than if black varnish were applied on the film.

Collodion pictures can be, and sometimes are, whitened by a saturated solution of bichloride of mercury. They were called "alabastine" pictures and were well suited for printing, which used to be done with powder-colours in the same way that Daguerreotypes were coloured.

In the foregoing chapters the collodion process has only been dealt with on the presupposition that the plates are to be used in the wet state, and directly after they are sensitised. There are, however, dry collodion processes, their name is legion. In the olden days almost every photographer had his pet process, in many cases one of his own invention, yet all of them were workable and capable of yielding excellent results. But in all the plates, in the first instance, had to be prepared in the same way as if they were to be exposed in the wet state. They were then treated with afterwards by different substances which acted as preservatives, or the collodion film was kept in such a state that it was easily developed by the developer. Amongst the most favourite dry-collodion processes may be mentioned the Fothergill, the tannin, the gallic, coffee, and morphine. With all the many dry-collodion processes the plates were very much slower than if they were exposed in the wet state, while the after operations were both tedious and troublesome. It is, therefore, not necessary to refer further to dry collodion processes. The same may be said with regard to the collodio-bromide process, which does not come within the scope of these articles, although it is really a collodion process.

Before concluding this series of articles it will be advisable to say something on the failures and defects that may possibly be met with, and their remedies. It must not be expected that a beginner in any, to him, new processes of a character of collodion process will not meet with some little troubles which he at first does not understand, although the preceding writers have aimed at giving instructions which, if carefully followed, would reduce them to a minimum. However, we will

now allude to some of the principal difficulties which may trouble the novice.

*Fogging of the Negative.*—This may arise from several causes. One may be too much actinic light in the dark-room or diffused light in the camera. The remedy for this is obvious. The plate may fog all over directly the developer is poured on and before the image appears. This, provided the developer is made in accord with the formulæ, is due to the bath. If the latter is a new one, the addition of two or three drops of nitric acid to the pint of solution should set matters right. If it does not, the bath should be made neutral, say, with a little carbonate of soda, or sunned for a day or two, then filtered and once more be made slightly acid. Should the negatives on development show only a slight superficial fog on the shadows it is probably due to the collodion, particularly if it is freshly iodised. This kind of fog can generally be cured by the addition to the collodion of some that has been iodised for some months, or by adding to it a little solution of iodine in alcohol, sufficient to give it a strong colour. It is always a good plan to have some old iodised collodion, which has become a very dark colour by keeping, in stock to be used in a case of this sort. Fogging may arise from excessive over-exposure, but that differs from that arising from the bath, inasmuch as, in this case, the image flashes out before the actual fogging sets in. It is needless for us to give the remedy.

*Wavy Marks in the Direction of the Dip.*—Several causes exist. One is that the plate was immersed in the bath too soon after it was coated with the collodion, or maybe it was not moved about while it was in the bath. As soon as the plate is put into the solution it should be moved about, first laterally a few times, and then rapidly removed and replaced several times so as to get rid of the solvents of the collodion as quickly as possible. This trouble is more prone to arise with newly iodised collodion than with old. Another prolific cause of these streaks is removing the plate from the bath and putting it in the slide before the collodion film is free from "greasiness" and the solution does not drain evenly from it. Sometimes fine black lines are seen in the direction of the dip when the negative is developed. These seldom make their appearance except with an old and well-used bath, but they may for a time be usually avoided by keeping the plate moving laterally for the greater part of the time it is in the bath. If that does not mend matters the bath should be discarded until it has been doctored. Sharp lines horizontally across the plate are due to a momentary check in immersing the plate in the bath. The plate must be lowered into the solution without the slightest stop.

*Lack of Density in the Negatives,* as with other troubles, may be due to several causes. One may be that the plate was too long in the bath, if that happen to be a new one, and is not completely saturated with iodide of silver, so that the silver solution has taken away some of the iodide of silver out of the film. Another is that the plate is under-exposed, or the iron development was not continued long enough to get a sufficient deposit of silver on the image upon which the intensifier might act. Another, again, may be that the plate was removed from the silver bath before all the iodide in film was converted into the iodide of silver. Still another cause of thinness of the image may arise by the use, in fixing, of a too strong solution of cyanide of potassium which has reduced the density of the image already obtained. This trouble is never likely to arise when hypo is used as the fixing agent. Thinness of the image may also be due to the plate being kept too long between sensitising and development, the solution on it becoming concentrated and dissolving some of the iodide of silver out of the film—iodide of silver is more soluble in a strong solution of nitrate of silver than in a weak one. Trouble from this cause is more likely to arise in hot weather than cold.

*"Oyster-shell" Markings.*—These are so called because in their

appearance they somewhat resemble the oyster-shell. It is a deposit of metallic silver starting from the bottom of the plate as it was in the camera. When the negative is dry the deposit can usually be wiped off with the finger, but then there is no image, or very little, beneath it. These markings are due to the silver solution, after draining down and becoming contaminated by the dark-slide, ascending the film by capillary attraction, and becoming reduced to the metallic state when the developer is applied. This trouble is another that is more prone to arise in hot weather than cold. The remedy is to drain the plate very closely and to wipe the back of it before putting it into the slide, so that there is little or no solution to drain down; also to put slips of blotting-paper in the corners of the slide or carrier to absorb what little does run down. When the wave-bath is used there is but little risk of oyster-shell markings, as in it the plate can be very completely drained without fear of its drying.

*"Crapiness" in the Film.*—This may be due to two causes. One is an unsuitable pyroxyline in making the collodion; another the use of too weak solvents for it. If any of the commercial collodions be employed this defect is not likely to be met with, unless the collodion which has become thick in use is diluted with too weak ether and alcohol. For thinning collodion ether of .820 and absolute alcohol alone should be employed.

*Mottled Stains Seen when the Negative is Developed.*—These are usually due to the developer not being evenly flowed over the plate. When the bath has been long in use, and become well charged with the solvents of the collodion, the film becomes very repellent of the developer. The remedy in this case is the addition of more alcohol to the developer to ensure its flowing freely.

*Pinholes, Black Spots, and Comets.*—The first named and

their cause are fully dealt with in an earlier chapter to which the reader is referred. Small black spots and comets are mostly due to the dust either in the dark-room or the camera. Both the latter and the slides should always be kept well dusted, and a slightly wet wash-leather is the best duster for the purpose. The comets may possibly also be due to particles in the tap-water used for washing the plates during development. One or two thicknesses of fine flannel should be loosely tied over the tap, which will retain these dust particles.

*Collodion Splitting off the Plate when the Negative is Developed.*—This trouble may be brought about by using too contract collodion, or one that is too newly iodised. But more likely it is due to the glass not being perfectly cleaned before collodion is applied, or possibly there was a very slight amount of moisture on it when it is coated. Roughening the surface of the plates, or with a brush coating the edges of the plates with diluted albumen, will prevent the collodion splitting at the edges.

*The Collodion Film Partially Dissolving when the Negative is Developed.*—This will only occur when very old collodion is used and the spirit in the varnish is exceptionally strong. The plate made unduly hot. A little water added to the developer will usually obviate this. If not, a little diluted albumen flowed over the negative after it is washed will prove a certain remedy.

Other troubles than those enumerated may possibly arise in working the collodion process; but those referred to are the principal ones that are likely to beset the beginner, and will now know how to overcome them.

In conclusion, we would once more emphasise the absolute necessity of care and cleanliness throughout all the operations in working the collodion process, as, without that, complete success cannot be expected.

E. W. FOXALL

## REAGENTS FOR REDUCING BROMIDE PRINTS TONED TO SEPIA BY THE SULPHIDE PROCESS.

[It is obvious from this note, communicated by Mr. Harry E. Smith to the "Photographic Journal," that the general accepted opinion that sulphide toned prints cannot be chemically attacked is unsound. When considered with Mr. Carnegie's paper, to which reference is made, it would seem desirable that more work should be done on this subject.—EDS., "B.J."]

It is generally supposed that bromide prints toned to a sepia colour by the sulphide process are permanent, and, indeed, as regards their susceptibility to atmospheric influences, this seems to have been proved conclusively to be so.

Having accumulated a number of sepia-toned prints that were too dark, and as there was apparently no known method of reducing them, I was led to experiment with a view to finding a satisfactory reducer. As a result of these experiments, I give the following list of reagents that will more or less satisfactorily reduce a sulphide toned print by converting part of the silver sulphide into a haloid compound of silver, which is of course easily removed by an ordinary fixing-bath. Perhaps I may here allay any momentary feeling of alarm in the case of those having sepia bromides that they value by saying that the reagents which I recommend are in most cases very unlikely to be present in the air to any appreciable extent, and in many cases it would be practically impossible for them to be so under ordinary atmospheric conditions.

The reagents that I recommend are the following:—

1. Cupric chloride and sodium chloride in aqueous solution.
2. Cupric bromide in aqueous solution.
3. Cupric chloride in aqueous solution.
4. Chlorine water.

5. Bromine water.

6. Iodine in aqueous solution of potassium iodide.

7. Iodine in aqueous solution.

8. Iodine in alcohol.

9. Solution of potassium permanganate acidified with sulphuric acid.

Some other combination of metallic chlorides also act more or less on the sulphide image:  $\text{CuCl}_2$ ,  $2\text{KCl}$  is an instance of this type of substance which is quite successful in its action, unfortunately some of the double chlorides are decomposed by water.

The above nine reagents are placed roughly in order of merit. The fact that  $\text{CuCl}_2$  and  $\text{NaCl}$  will break up  $\text{Ag}_2\text{S}$ , has been a chemical fact known for some years, of course; but I think that the compound has not been applied to the reduction of sepia bromides, though it seems particularly suitable for this purpose owing to the solubility of both cupric sodium chloride and cuprous sodium chloride. As a satisfactory working mixture I recommend a mixture of equal bulk of 5 per cent. cupric chloride solution and 15 per cent. sodium chloride solution. After reduction has gone far enough, the prints should be placed in a bath of hypo, ordinary strength, with the usual wash after fixation. I prefer to wash for five minutes between reduction and fixing.

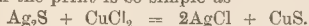


fixing, but this is not imperative. The fixing-bath quickly dissolves the silver chloride from the reduced print, and the sepia tones are well preserved; in many cases the tones gain in colour and brilliancy in this way.

The smell of chlorine and bromine water is unfortunately not to their favour; but iodine in water seems to be satisfactory, and there appears to be nothing gained by using a tincture of iodine. Iodine in potassium iodide is the most rapid and effective reducer that I have found in this connection; it will quickly and entirely bleach a sulphided bromide print. Iodine, however, in any case, open to the objection that the iodide of copper formed in the paper masks the action somewhat, so that the true extent of the reduction cannot be judged until the print is placed in the fixing-bath, which, of course, quickly discharges the blue colour. The cupric chloride and sodium chloride soluble-bleached the ordinary black silver image; but I have not found that this method of bleaching presents any particular advantage over other bleachers. To rectify a sepia tone that is too near a black, caused by a faulty sulphide bath or insufficient bleaching, I would not recommend the use of iodine in potassium iodide unless at the same time considerable reduction is required or unless the solution is either used very dilute or for a very short time only, say seconds, for example, for a length of water 100 cc. KI 3 grammes and I 1 gramme, iodine 1 part, potassium iodide 3 parts, water 100 parts.

The cupric mixture is used to improve the sulphided image; the print should be washed afterwards for five minutes in running water, then treated with 5 per cent. nitric acid for about five minutes, and again washed in running water for five minutes. The print may be again sulphided with sodium sulphide or other sulphiding solution. In many cases the tone is changed to a much warmer and richer brown. The nitric acid removes the copper from the print, thus preventing staining when the sulphiding solution is added. The fact that copper is left in the print after treatment with the cupric solution would seem to point to an analogous action to that of cuprous bromide on a black silver image, which was discovered and so accurately investigated by Sir William Abney many years ago.

I have prepared silver sulphide by precipitation with sulphated hydrogen, and find that the action is much slower in the case of a precipitated salt than in a print. I have not been able to decide what the action is that takes place in the case of the precipitated salt, and I do not think that the reaction in the print is so simple as



The statements that I have been able to look up regarding the action of the cupric mixture on silver sulphide seem to be rather contradictory. In Fremy's "Encyclopédie" 27/29, page 29, we find the statement that sodium chloride reduces silver sulphide, giving silver chloride, sulphate of soda, and sulphurous acid. The fact that the shadows of a print are perfectly cleared up by fixing with hypo seems to show that no sulphur is deposited on the film. The fact that none of the reagents I have mentioned will bleach the sulphided image completely (except iodine in potassium iodide), but leave an apparently unalterable

brownish red image, would seem to show that the sulphided image consists of at least two different substances, though doubtless the greater part of it consists of silver sulphide.

After acting on the sulphided image as far as possible with the cupric mixture, and mixing, the fact that a solution of potassium permanganate acidified with sulphuric acid, instead of dissolving the light image with separation of silver, dissolves it away entirely (Von der Pfordten "Ber." 20, 1458/1474), would seem to point to a difference in constitution of the red image from silver sub-sulphide  $\text{Ag}_2\text{S}$ . I fear, however, that no definite conclusion can be drawn from this or from the fact that the same light brownish-red image is apparently insoluble in warm dilute nitric acid (of course, the print was treated with formalin before subjecting it to the action of warm dilute nitric acid).

The chemical action on a sulphided print appears to differ greatly from the action on silver sulphide prepared in the laboratory, and I think that I may cite as a case in point that citric acid in aqueous solution, with addition of potassium nitrate, has apparently no effect on a sepia print, even when the print is treated with formalin and subjected to the action of this mixture at 43 deg. C. Yet this mixture is mentioned (by Belton C. N. 37-98) as a solvent of silver sulphide, on heating, it is true; but, still, bearing in mind the much finer state of division of the sulphide compound in a sepia print, one would expect to find some effect. Again, F. W. Hinrichsen and Tosio Watanabe, in the "Abstracts of the Chemical Society," 1906, page 85, state that the decomposition of silver sulphide by a solution of sodium chloride can only take place to a very limited extent owing to the very slight solubility of silver chloride. Perhaps, however, I should not quote this as tending to show a difference between the prepared silver sulphide and the sulphide image, as, of course, the solution that I find to act so quickly in decomposing the sulphide image contains also cupric chloride. I have not tried the effect of potassium cyanide on a sepia print as, although it is stated to dissolve silver sulphide, few would care to use so poisonous a substance when, as I have shown, there are several other satisfactory and harmless reducers of the sepia image.

I have, of course, avoided trending on the sphere of investigation that Mr. Carnegie has taken up ("B.J." Almanac, 1907), but I think it will be admitted that the experiments that I have made tend to confirm Mr. Carnegie's theory as to the probable constitution of the sulphide image, at all events in so far as they seem to show that the light red image (not affected by the reducing agents I have mentioned) does not consist of silver sub-sulphide ( $\text{Ag}_2\text{S}$ ).

Finally, perhaps, I may recommend that for reduction only of a sepia-toned bromide print, the easiest method seems to be to keep the iodine in potassium iodide solution, of the strength above given, as a stock solution. If it is diluted before use up to ten times its bulk with water, reduction, not being so rapid, is easier to follow, and as a set-off against the momentary trouble of the blue stain we have the fact that there is no question in this case of copper being left in the print, which seems to be of greater importance.

HARRY E. SMITH.

PLAYERTYPE.—In reference to the paragraph last week on this subject, Mr. S. C. Puddy writes:—The process described in the "Lancet" mentioned is a method of producing positives direct by phosphorescent printing, and is quite different to that used for photographic prints, and is not what is usually known as "Playertype," though it is also the invention of Mr. Player. The phosphorescent printing mentioned, whilst it is a very interesting and curious process, I should think, of practical value, as when some examples of it were shown at a meeting of the R.P.S. in 1904, it was remarked that the prints showed an appearance of the lines having spread,

and that the image did not appear to be sharp and clear. ("Photographic Journal," November, 1904, page 303.) The "Playertype" process, by which the prints I sent you were made, will render the lines quite sharp and clear. It was invented by Mr. Player in 1896, and was first mentioned in the "Amateur Photographer," November 13, 1896, page 398, where a description of it is given, though mention is omitted of the yellow screen which is necessary, and also one or two other essential points. A printing frame is mentioned in the article referred to, but this is not necessary, and when copying prints from a book it is not convenient.

## NIGHT PHOTOGRAPHY.

[The fascinating subject of night photography has probably never been treated in a paper as exhaustive as that recently delivered before the Edinburgh Photographic Society by Mr. Robert Dykes, assistant photographer. Mr. Dykes has pursued his hobby in Edinburgh, Paris, and London, and one cannot recommend a better series of hints and precautions necessary in this branch of work than those which he has set forth.—Eds. "B.J."]

No special apparatus is required—night photographs may be taken with the diminutive five-shilling "Brownie" or the large 15 x 12 field camera. Any old box with a lens in it that will take fairly sharp pictures by day will also take them by night. Of course, the man with the stand camera has the advantage, he feels more sure of his work, and knows what he is doing, at least what his camera is capable of doing for him. A great deal is to be said for a fixed focus camera, as it saves considerable trouble in focussing, but a full-sized finder is necessary, otherwise an undesirable light on the left or right front that should be cut out will, in all probability, be left in. In stand cameras, the best form is a square bellows with an extensive rising front; if a conical bellows be used, see that it has loops for looping up to prevent cutting off any light. If the lens is carried on a panel, which is decidedly preferable as it enables the front to be removed, if necessary, for stopping down after focussing, when one cannot very well see the F. numbers, this panel should be one easily removed, but quite firm when put in place again. It is much easier to remove a panel than to unscrew a lens. A fine ground glass screen is an absolute necessity in night photography, and focussing glass cannot be dispensed with. Grease spots are, however, of very little use for focussing, as one never exactly knows where the glass is likely to be applied on the screen. However, this applies to focussing stand cameras, and after all what one really requires in night work, providing one has a camera and lens at all, is a rigid, steady tripod, and the camera perfectly levelled, and last, but not least, a good stock of patience and confidence in oneself. You need it, especially in crowded places, where the plaintive wail of "Please to take ma photv" or other choice remarks are hurled at you. If there is a strong wind blowing it is impossible to do anything, and it is better, if one cannot get a sheltered position, to abandon the attempt. I have walked six or seven miles to get a certain view, and then had to give it up owing to wind. So that even on the quietest of nights the tripod must be well set and free from vibrations. As to levelling, the levels ought to be placed where one can see them easily, no matter at what height they may be, and for that purpose there is nothing to beat Taylor, Taylor and Hobson's single tube levels with the small side slit. I use one at the top of my swing-back for horizontal levelling, and one at the bottom, placed at the side, for vertical levelling. No matter how far above my head they may be, I can see the bubble cross the slit. To do this you must have a light. I myself use wax vestas, a piece of candle, or, if cycling, my cycle lamp, but a very handy thing to have is a small electric torch. It is essential that care should be taken in levelling the camera, as some frightfully distorted, intoxicated looking lamp-posts or buildings will be the result, and you will certainly be told if you show such productions that you must have been out that night.

A lens hood is useful to keep out too closely situated lights on the left or right lens front, one that, although it does not come into the photograph, is likely to cause "flare" or "ghost" images through internal reflection in the lens. I use a small cardboard box about four inches deep by six inches wide with a hole in the bottom sufficiently large to allow of it being slipped over the lens, top upwards; this makes a very efficient hood.

When working in wet weather a waterproof cover is necessary for the camera, also care must be taken to keep rain off the front of the lens. The lens may be wiped with a soft rag kept for the purpose even during the exposure, providing precautions are taken not to move the camera in any way. I have emphasised the importance of the camera being perfectly steady during exposure, therefore it is hardly necessary for me to warn photographers to avoid bridges where there is any fear of vibration through traffic.

### Which Lens to Use.

As every photographer knows, the better the lens the better the photograph, but the cheapest of lenses nowadays give remarkably

fine pictures, and except for the fact that to obtain a sharp negative it is necessary to stop down and so increase the exposure, any will suffice. The man with the rapid lens working at F.4 or abouts can take very short exposures. A great deal was heard of a new lens invented by Dr. Grün some few years ago, but which became of it now I am not aware. It was said to work at an aperture of F.2, enabling exposures as rapid as one-fourth of a second to be made upon open, well-lighted views. Quick exposures also tried with success, I believe, in theatres during a performance under ordinary conditions of lighting.

Whatever may be the lens used, the aperture best suitable for work is in my opinion F.11, and in some cases even F.16, so with a lens having a full aperture of about F.7 we can increase depth, make more sure of our focus, and the sharpness of our lights by putting in a couple of stops. The sharper the light the less chance of halation. All exposures should be made with the shutter as it may be necessary to put it on and off during the exposure a shutter is not easily opened or shut without jarring the camera. Care should be taken to see that the lens is firmly fixed and unlikely to fall out of the camera front. Many of these remarks sound absurd, but even to the most cautious worker the unexpected may happen.

Coming now to the question of plates, any plate may be used, no matter how quick or how slow, only, as we do not care to wait about all night over an exposure, the quicker the plate the better.

### Ordinary or Orthochromatic.

About one of the best all-round plates on the market is the I "Monarch." It is clean, rapid, and if purchased already backed quite ready for use. Some plates are very poorly backed when by the makers, it being put on in a streaky fashion, and such backing is desirable. I find Mawson's "Antalo" does very well and if the subject I intend photographing has many high lights I give my plate a coat on the top of the maker's backing. It is absolutely essential that they be backed, unless one is using double-coated plates such as the "Seed." I have used these latter frequently unbacked, and obtained splendid results. A good double-coated plate is certainly the thing to use if it is intended to make lantern slides of the views taken, as there is far less halation than in single-coated plates; the high lights stand out clear and crisp, and free from circles, flare, and radiating rays, the latter due to structural backing. Avoid putting on backing in a streaky fashion, or the result may be disastrous. The marks develop up very frequently, causing peculiar Aurora Borealis effects up the plate.

Snapshots isochromatic plates are suitable in some cases, but I rule I avoid them for night work, although I would not be without them for daylight exposures on any account. There is far too great a risk of light and chemical fog in this development, which is necessarily prolonged, not to mention the fact that they have always proved themselves much slower in my hands than ordinary rapid plates.

Films may be used and need no backing, as owing to their extreme thinness and the fact that they have a paper backing they are very free from halation.

No matter how well backed a plate may be, halation is entirely prevented, and except where enlarging is resorted to a little is necessary for pictorial purposes.

Before attempting to give some idea of exposure and the method of development, I might with advantage offer a little advice as to prospecting for likely views, and some of the things to avoid.

### Hunting for Subjects.

Prospecting should most certainly be done without a camera, the man who wanders about the streets of a great city by night with half a hundredweight of photographic apparatus will soon find that the camera and himself were elsewhere than where they are



ice subjects should be noted at all times either by day or night, visited again by night if they were first observed in daylight, or which it is a comparatively simple matter to go straight to selected spot and make an exposure.

It may be possible to do more than one view in a night. I have managed to pull off four between the hours of eight and ten o'clock, but it is far better to do one good plate than take a dozen indifferent ones, because the exposure is not the most onerous part of the work by any means. The worst part has to come in the development.

In choosing a point of view to photograph from certain little things should not be overlooked. In the first place the nearest and brightest light, whether it is objectionable, and if so, how best to avoid it. The best time of night for taking a view must be considered: if too late at night a great amount of the light is required to build up the picture may be off owing to shops shutting.

Then if too early in the evening there may be a great many bright lights, or what is worse—a cab rank, and cab ranks are a nuisance at night from a photographic point of view. Or perhaps one may be photographing in a park when it is just about dark, and the camera must perforce close also and you clear out. All means avoid motor cars, they occasionally do go, and when they do—well, they are a little faster than the plate you may be using; but apart from the fact that if standing in the middle of a road you are liable to be removed suddenly, it is the powerful kerosene lamps they carry that one must avoid and the lens capped instantly. Bicycles or any forms of vehicular traffic carrying lights led be carefully kept out of the lens no matter how rapidly they may be moving, or the plate will be crossed by innumerable white lines that on printing will look like scratches, clothes lines, or graph wires. On no account obstruct the traffic or a long coat slung about by a helmet may loom up out of the darkness and order to “move hon.”

During preparation for your exposure do not converse with bystanders or you may expose the wrong plate—this is easily done in the darkness; or perchance you may do something more absurd, as the writer did once, enter into conversation with a gentleman thinking that the exposure was going on, and the cap never removed from the lens at all.

Keep loiterers out of the immediate vicinity of the camera front, it is impossible to include any form of life in a night photograph unless the person or persons remain in the same place during the whole of the exposure. This may be arranged for in some scenes by getting friends to stand for short exposures of between five and ten minutes, provided they are able to recline against something solidly. People and other objects moving even slowly have no effect upon the plate, but keep them moving.

You may be pestered to “please take my photo,” or by a noisy crowd of a newsboy who wants you to “snatch my dial, guv’nor,” before you can kick it, disappears. If your attention is taken from your camera for a moment an individual may be kind enough to step over it; this happened to me not long since and the person who didn’t get a squint; if he had, there might have been some excuse for his trying to go where he was looking. In dealing with the public one must not be too reserved nor yet too free; politeness and common sense go well together with a little spicy language thrown in occasionally. If you don’t respond when addressed by certain persons they will become emboldened, take you for a foreigner, and begin speaking a language decidedly strong, which you must take care to give up as good a grace as possible if you wish to hold your ground. I have had a mob of half and wholly intoxicated individuals around me at night, and it was a draw as regards conversational powers, although I was a bit dry after it.

Don’t attempt photographing in low-class quarters of large cities without having one or two friends to accompany you. It is in some of the slum districts, generally speaking, that one finds good pictures, but a bull-dog or a couple of friends are indispensable. You have a revolver in your pocket, but what is the good of it if you are taken unawares with your head under the focussing cap? The suburbs and certain parts of the city of Paris are very dangerous, especially around Montmartre, and some of the streets near the Ile de la Cité. London in the East End and Glasgow in the vicinity of the docks, Edinburgh, and all other large towns, have also their haunts of crime and vice. So far I have

always worked alone, and although at times I have been in queer corners, have never yet been cornered.

### A Table of Exposures.

I have prepared a table of exposures which may be of some assistance, providing one’s own judgment is used as to increasing or decreasing the exposure by five minutes according to the quality of light. The table is only approximate, and a little latitude on the side of over-exposure can be easily remedied in the dark-room, as it is certainly better to have something on a plate than nothing at all through under-exposure. If the sky be particularly dark there is not much risk of over-exposure, it is when illuminated by a full moon or on summer nights when distinctly blue that one runs the risk. There is an old saying with regard to daylight work—viz., “expose for the shadows and let the high-lights take care of themselves”; well, this is equally applicable to night work. Get all the details possible out of the shadows, and the worst that can happen is reversal of the centre portions of high-lights such as arc lamps; it is comparatively simple to put this right with a brush.

TABLE OF APPROXIMATE EXPOSURES FOR NIGHT WORK.

Subject.	Weather.	Month.	Time.	Stop.	Plate.	Exposure.
Open street scenes, squares, monuments, views, illuminations, &c., well lighted with either electric or incandescent gas.	Clear, cloudless with or without frost, after a heavy fall of snow, with a full or half moon, or a shower or rain with wet pavements, &c.	From Sept. to Feb.†	8.30 P.M. to 3 A.M.‡	F. 11 §	“Seed”	15 minutes
					Ilford Monarch	20 “
					Imperial Special Rapid	30 “
Country scene, or any view, or no artificial lighting.	Only possible under above weather conditions.	Ditto.	Ditto.	Ditto.	“Seed”	30 minutes
					Ilford Monarch	40 “
					Imperial Special Rapid	50 to 1 hour
Close views in small squares, or in dark corners, or in dark squares not too well lighted. Principal objects in foreground.	Ditto.*	Ditto.	Ditto.	Ditto.	“Seed”	20 minutes
					Ilford Monarch	30 “
					Imperial Special Rapid	40 “

\* Any other conditions than these, such as no moon, very dark and overcast, cloudy, no rain or wet reflections, no snow, add ten minutes.

† During summer months five minutes should be deducted when the sky is cloudless.

‡ During summer months 11 p.m. to 2 a.m.

§ Stop value the same as for daylight work.

With a “Spectrum” plate and a lens working at F. 8, an exposure of one minute, or even in some cases of ten seconds, is possible. I have obtained a negative with an Ilford Monarch, Cooke lens F. 6.5 and an exposure of fifteen seconds. The above exposures are very full, and it may be necessary sometimes to shorten them, but it is advisable not to do so if possible.

### Development.

Having been out in the dark we will now go into the dark-room, and here commences the real work of night photography. In the first place cleanliness has to be strictly observed, clean dishes, clean hands, clear solutions free from sediment, and a perfectly safe light. Whatever developer we may use, and we all have our favourites, it must be diluted down very considerably, quick developers such as Rodinal more so than slow ones such as pyro soda, for our plate has to be coaxed up slowly, not driven or forced. On no account should a plate be developed in less than twenty minutes or over forty minutes; generally speaking it may be finished in half an hour. One of the main reasons for failure by many who attempt night photography is that they invariably treat the plate much the same way as they would a daylight exposure, and as a consequence up flash all the high-lights black and dense, and the shadows—well,

there is nothing else but shadow when the plate is fixed, with a lot of black circles indicative of light.

To develop the plate, the gelatine surface of which should on no account be fingered, it is placed in a perfectly clean dish film up and flooded with the diluted developer; it is then covered up, and rocked well to free of any likely air bubbles. After having been in the developer for a few moments the plate is removed, and either placed into a large dish with cold water or put film up under a running tap, and held there whilst the backing is removed with a tuft of cotton wool. The light should be turned down as much as possible without inconvenience to prevent any chance of fog. Unequal development would take place due to draining off of the developer if we were to remove the backing without keeping the film flooded with water. After the backing has been removed, the plate and dish should be well rinsed and then flooded with fresh developer sufficient to cover the plate about one inch deep. It is then covered up and may be safely left without continuous rocking for ten minutes, a slight rock being given at odd intervals.

On no account should the plate be examined by transmitted light; always look at it by reflected light as it lies in the dish; and before renewing the developer, which should be done every ten minutes, thoroughly rinse off the old stuff. To one not accustomed to the appearance of a night negative, it may be somewhat disconcerting to find next to nothing on the plate after twenty minutes' development, but it must be remembered that our view is a night one, therefore the shadows will largely predominate, and shadows are in a negative almost clear glass. Do not examine the plate too much during development; I never look at mine until well over ten minutes. You are perfectly safe to leave it; your developer is weak and cannot do any harm. When to stop development is a question most serious, a question oft asked but not so easily answered, at least in daylight work. However, I think that one may safely say that a plate is fully developed when the clear margin around the edge due to the rebate of the carrier begins to get discoloured or smoky; this is a sign that the developer has done its work, and that the unaffected silver salts are being attacked. The blackness of the high-lights should also be taken into consideration; they must be pretty strong, yet not too strong, or they will print out chalky. Having given half an hour or more for the development of a plate that we feel has been pretty correctly exposed, we are quite safe in giving it a rinse in a little stronger developer for a moment, rinsing in water for a minute or so, and placing in the fixing bath. This should be pretty strong, more so, perhaps, than that used for daylight negatives, as there is considerably more silver to remove. I have no special strength—speaking photographically—and pop them into bath made up in a very rough and ready and not too economical way. Thorough fixation is essential, and on no account should the plate be examined by ordinary light until fixation is complete. I never allow less than fifteen to twenty minutes for this operation, and if the plates are double-coated, not less than thirty to forty minutes.

As regards developers, I prefer pyro soda made up according to the "Imperial" formula, which I need not give here; suffice to say that I use about four drachms of the pyro to five drachms of the alkali in about sixteen ounces of water. This is only approximate: I sometimes use it a little weaker or a little stronger. To finish off a plate, I rinse it in one ounce of the normal developer (equal parts of pyro and alkali) in eight ounces of water. This must not be allowed to act on the plate longer than one minute, it is simply used to strengthen up the detail. On no account use bromide in development, unless it be with a camel-hair pencil to retard a too obtrusive high-light.

In using quick developers such as rodinal, dilution must be carried to the extreme, say, perhaps one drachm in twenty ounces of water. Too much pyro soda developer in a diluted state should not be made up at once, as in this condition it is rapidly oxidised, and stains instead of developing the negative. For this reason a plate should certainly not be left longer than ten minutes without changing the solution.

Having fixed, the next proceeding is washing. This ought to be well done in perfectly clean running water, so that on removal from the washing tank there are no specks of grit or other particles adhering to the emulsion.

Precaution must be taken in the drying to ensure a perfect clean negative: finger marks, bits of dust, scratches, etc., all appear only too plainly when the plate is dry if care has not been taken. There is so much clear gelatine present that dust and marks of description are far more serious on a "night-scape" than they would be on a daylight production, particularly if they are required for lantern plate purposes. Stains due to the water trickling down the plate when set up to dry may be prevented by mopping up the superfluous moisture with a very soft piece of rag, free from fluff, such as an old handkerchief.

#### After Processes.

Intensification can only be applied locally to skies. I would strongly advise that a negative that through under-exposure somewhat thin should be thrown away, if it is at all possible to obtain another. I have never yet been able to improve a "night-scape" by intensification except, perhaps, locally, for strengthening traces of cloud in a sky.

Reduction may be attempted with success, but care has to be taken that it is not carried too far. Local reduction is very necessary sometimes when an area shows up too strong in a view. The mechanical Globe Metal Polish reducer is very handy in such cases if carefully used with a stout artist's stump. It is much more preferable to take a view over again if possible than attempt either intensification or reduction.

As to the preservation of the negative, it should be carefully varnished, the plate being well flooded and then thoroughly drained before setting up to dry, for little rills of varnish will print up distinctly. Thin negatives of this description ought to be varnished; they are valuable at all, although I do not varnish my own, and the consequence have lost a goodly number of them through print stains, etc.

Before concluding, some mention may be made of the most suitable methods of printing night views. The best effects are obtained by printing in black or blue carbon—browns, reds, and other colours being, of course, not suitable. Platinum prints stand first and foremost, followed by black or blue carbon, double or single transfer process, according to necessity. Finally, we have S.C.P. for contact work, and bromide paper for either contact or enlarging. I do not enter into details concerning the methods of working the various processes as they are already very well known. There is only one thing I might mention, and that is to ensure thorough fixation, but at the same time not to leave prints too long in fixing bath, or the shadows will lose their rich blackness so necessary for contrasty effects in night views and become grey.

Toning is of no use, but a yellow colour may be imparted to high-lights by immersing the washed print in a solution of potassium permanganate about 2 per cent. in strength. This must be carefully done, for if too much permanganate be used, the print will, after a week or so, turn purple and go off colour. I had the misfortune to exhibit a print treated in this manner, and it had been on exhibition three days before it went purple in the face, presumably with shame.

In mounting and framing every one must suit their own taste, I have found by experience that dead black borders and frames for night pictures off to the best advantage, the margin between print and paper to vary according to the nature of the subject. Very frequently it may be better to frame close up without a margin at all.

In conclusion, whatever may be the nature of the subject photographed at night, keep a note of exposure, weather conditions, etc. It is impossible to remember every little detail, and carefully made notes will be of the greatest assistance in preparing a table of approximate exposures for future work.

ROBERT DYKE

LUMIERE "AUTOCHROME" PLATES.—One of the first specimens of colour photography on the Lumière new "Autochrome" plates is to be seen in the Kelvin'side Art Galleries at Glasgow. The example

is a portrait of Madame Merriot, wife of the Mayor of Lyon, and is lent by Mrs. Bilisland, wife of the Lord Provost of Glasgow.



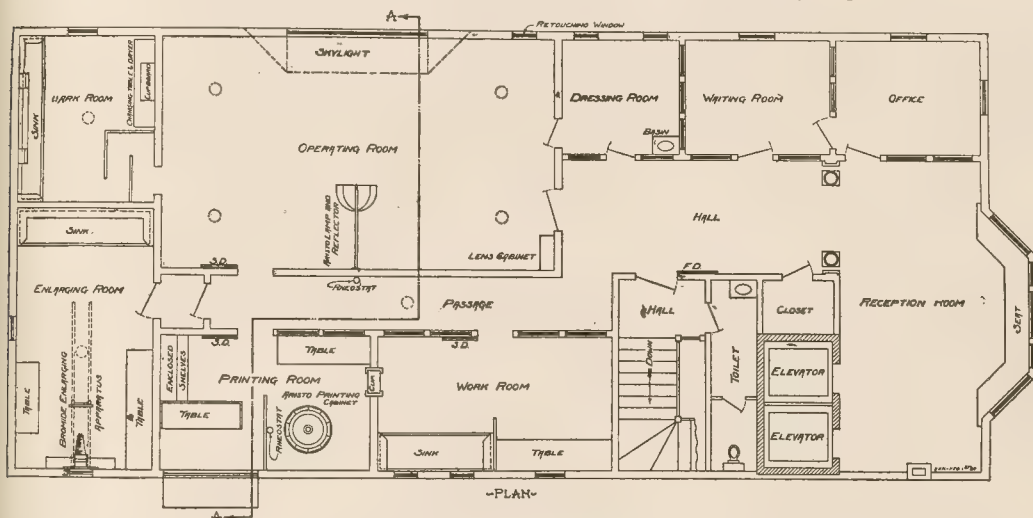
# THE EASTMAN STUDIO AT ROCHESTER, U.S.A.

An interesting account of a model set of premises installed by the Eastman Kodak Co. into their Rochester offices, is given by Mr. F. andas Todd in the current issue of the "Photo-Beacon," from which our plan of the premises is taken.—Ems., "B.J."]

Mr. J. B. GUTHRIE, who is largely responsible for the designing of the studio, would be the very last man to call it a model in the usual acceptance of the word. He simply says that he was permitted to use the amount of space that is ordinarily furnished by the average photographer, which in this case was 40 feet by 90, and it was his business to utilise that space to the best advantage for every phase of photography that could come within the routine of the average city photographer.

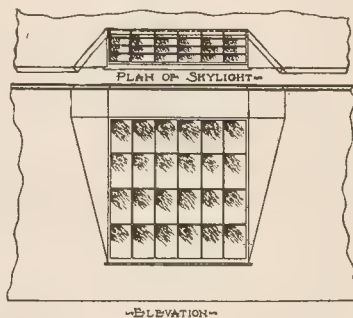
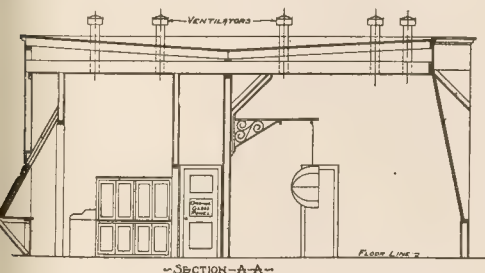
Mr. Guthrie was for many years a demonstrator on the road and at his elbow a number of men of similar experience. All of these

trated this. I found Mr. Guthrie rather perturbed about the appliances and accessories for the operating room. He really could not figure out where he was at, when he considered certain experiences. At the outset he had placed in this room only such things as were essential, being of opinion that he would get other accessories as experience showed them to be necessary. The first demonstrator to pay the studio a visit was invited to make a few samples of different kinds of lighting, but before he could get down to business he demanded certain reflectors and screens, which were at once supplied. The second demonstrator to try his paces felt he could not use the



men have called upon thousands of photographers in all parts of the country, and as a consequence have gathered together a great many ideas, and they endeavoured to group as many conveniences as possible into the least possible amount of space. I was informed that as a matter of fact, the arrangements took a very long time to put together. Sometimes the construction of a particular portion

of the premises recommended by number one, and so he was supplied with what he wanted. The third demonstrator was built like the other two in this respect, that he was accustomed to certain accessories, and so he was supplied according to his ideas. The same sitter was used in every instance, first-class negatives were got every time, but the operating-room was fast being filled up with a whole lot of things



of the workrooms would be considered as being practically complete, when some demonstrator would come in from his travels and tell of a clever idea he saw in a certain studio, and at once it would be incorporated, even if a very considerable amount of work had to be torn to pieces for that end.

I need scarcely say the studio is not used for regular work. It is only a suggestion, a very expensive one at that, which ought to be used by every photographer who wants ideas in designing, constructing and decorating his place of business, for it is certainly a thing of beauty and beauty. It will be directly of great benefit to photographers, and I fancy much more so indirectly, because it is a meeting-point where all kinds of ideas are thrashed out. Let me illus-

trate which were of use to the man who had procured them, and to no one else. Mr. Guthrie began to wonder where he was at and what he was going to do with all the appliances that were accumulating on his hands. While in this frame of mind he received a visit from a very famous photographer who very kindly responded to the proposition that he make a few sittings. He was informed that if the accessories did not quite suit him he had merely to say the word and others would be provided. Mr. Photographer was of opinion that there was enough, in fact he would take it as a favour if every

one of the reflectors and shade screens were piled in a corner out of his way. Then he proceeded to make a series of very fine negatives without the aid of the accessories that others had deemed so essential, so the following day every one of them was relegated to the storage, and the photograph reproduced indicates that they still remain there.

In the detail work most interest will centre round the dark-room, enlarging-room, printing-room, and workroom.

The dark-room has inside dimensions of 12 by 14 feet. It is entered by a winding passage-way which faces the developing sink. The latter is a marvel of compactness. Two men can easily work at it and there are water taps, fixing and washing-boxes for each. When the day's work is done there is no excuse for a single article lying on the benches, as there is a place for everything. Even the graduates are hung downward so that they will drip into the sink and be always clean and ready for use. Trays are stored in the racks underneath the bench and any drip from them is caught into a trough. The arrangements for various coloured lights are self-evident, but I would point out that the electric connections are so inter-locked that white light cannot be turned on before the ruby light is turned off.

The opposite side of the room is principally used for drying and loading plates into the holders. Underneath the loading-bench is a

chamber protected by a lattice door, and in this is placed the drying rack with the plates, which are rapidly dried by an electric fan.

The problem in the enlarging and velox room was to make the most use of the available space and keep as much off the floor as possible. The easel for the enlarging camera, it will be observed from the plans, is swung from the ceiling, where it travels by means of rollers on a track and can be clamped securely in any position. The enlarging camera is placed in front of a window, but since daylight is not always reliable, a mercury vapour-lamp is convenient, and can be swung very readily into position. Underneath the tables in this room are a series of drawers in which are placed the various sizes of different brands of paper.

The printing-room plans and that of the workroom almost explain themselves, it always being understood that underneath each table in the printing-room are drawers in which the paper is stored, and underneath the table in the workroom is a convenient supply of mounts. Special attention should be drawn to the cupboard between the printing-room and the workroom, because this compartment has a door on each side, and into it are placed the prints as they come from the frames, which are at once available for toning if on silver, or for development if on platinum.

## OBSERVATIONS ON THE LATENT IMAGE.

[The following paper, read before the Société Française de Photographie, further discusses certain observations of the author, Dr. H. Demole, which were published in our issue of May 10, p. 346.—Eds. "B.J."]

THREE facts have been known for a long time:—

1. A photographic plate, treated with bichromate of potassium for some minutes, acquires the property, after washing and drying in the dark, of giving a negative, when developed in white light, after exposure behind a negative.<sup>1</sup> 2. The prolonged action of light alters the latent image and two reversals are obtained. 3. When the sensitive film is acted upon by light in the presence of oxidisers, the reversal of the image is facilitated.<sup>2</sup>

I proposed to study the action of feeble oxidisers on the latent image, not to destroy it, as happens if it is treated with an energetic oxidiser,<sup>3</sup> but to find a new combination from which one might deduct its constitution.

The oxidisers which gave me the best results were the bichromate, permanganate, and ferricyanide of potassium. I rejected the first because it affects the gelatine, a phenomenon which might mask or nullify the reaction which I wanted to obtain; the second appeared to me to be inadvisable, because of its staining the gelatine, and finally a 1 per cent. solution of potassium ferricyanide was used.

It is possible to use a much more dilute solution, 1:500 or 1:1000, but the time of oxidation is long, and the stronger solution is more convenient when several plates have to be oxidised.

When a plate is exposed in a printing frame or camera, immersed for about four minutes in a 1 per cent. solution of ferricyanide, and then developed<sup>4</sup> after rinsing, a curious phenomenon will be observed, that is, that the development is very slow. If to make it easier the exposure is increased and great over-exposure given, another remarkable fact is noticed, the appearance of the image is not accelerated, and, moreover, there is not the slightest trace of over-exposure.

One may thus expose a Lumière blue-label or Jougla red-label plate in a printing frame for several minutes behind a negative, oxidise for a certain time, and then develop without obtaining a positive, notwithstanding the exposure has been considerably above normal.

If the plate is exposed in the camera, either on a landscape or in copying an original, the oxidation preceding development serves apparently to regulate the time of exposure, and over-exposure does not produce the customary effects, assuming that the time of oxidation has been adjusted to the exposure. I hope to be able to indicate the ratio which ought to exist between the times necessary for the two operations. My experiments were not undertaken with the idea

of creating a new process, but only to clear up one of the most difficult problems of photography.

With development papers<sup>5</sup> the ferricyanide acts as with plates. enlarging a negative, the normal exposure for which was five seconds an exposure of 300 seconds could be given, and the paper then oxidised and developed,<sup>6</sup> without showing the slightest trace of over-exposure.

If in lieu of developing the plate or paper and oxidising in white light, it is exposed to the white light of a candle, a still more remarkable phenomenon is observed; the development, without being accelerated, gives a reversed result. Under the action of these two factors, oxidation after exposure, white light, and development, latent image is reversed, and a "contretype" is obtained.

This action is limited by the duration of exposure. If, for example, a negative requires one second to give a good positive in a printing frame in the ordinary way, it will give a negative if oxidation and development are effected by white light. The time of exposure may be increased to 140 seconds, and a negative always obtained. At 150 seconds the image is always negative but less clear. It is the same for 160 and 170 seconds, but at 180 seconds a positive results; then, after a very short time, it turns into a negative. Nevertheless, this negative appears to be superimposed on a positive and if the latter is feeble the whole by transmitted light appears a negative.

With 200 seconds' exposure a positive is first obtained and then negative. With seven minutes' exposure the image appears as a positive and does not alter, but the clear parts are, however, altered. Finally, with 14 minutes, and probably before, the positive is so time indestructible, if the duration of development does not exceed one minute, and thus by means of two reversals the problem of development in white light, which has been so much sought for, is elucidated.<sup>7</sup>

It only remains to find an explanation of the facts which I have recorded, and which would seem to have a probable origin in the known as solarisation.

One may suppose primarily that the ferricyanide acts on the silver bromide in the same way as do numerous bodies with which the substance unites to form combinations, which are not easily reduced by developers. It is easy to prove that this is not the case. An exposed plate, immersed for some minutes in a 10 per cent. solution

<sup>1</sup> "Phot. News," 1880, p. 304.

<sup>2</sup> "Phot. Journ.," xxvii., p. 201, 451.

<sup>3</sup> Eder's Handbook. French Ed. 1883, p. 69.

<sup>4</sup> After many trials the following developer was adopted:—Potassium bromide, 8 gms.; sodium sulphite (anhydrous), 140 gms.; hydroquinone, 34 gms.; caustic potash, 50 gms.; water to 1,000 ccs. For use dilute 1:5.

<sup>5</sup> A rapid bromide paper was used, but it seems probable that other papers would give like results by slightly varying the conditions.

<sup>6</sup> The formula used was:—Metol, 3 gms.; hydroquinone, 5 gms.; sodium sulphite (anhydrous), 45 gms.; sodium carbonate, 45 gms.; potassium carbonate, 15 gms.; water to 1,000 ccs. For use mix 20 ccs. with 60 ccs. water and 20 ccs. of 1 p.c. potassium bromide.

<sup>7</sup> To reverse the image on paper it is advisable to add to the solution of ferricyanide 5 p.c. of glacial acetic acid.



potassium bromide, then rinsed and developed, is retarded in proportion to the action of the bromide on the developer, and one can prolong the exposure without fear of fog in development. But if such a plate is developed in white light it will not only fog but the image will not be reversed.

The hypothesis which naturally suggests itself as the least complicated to explain the singular reaction described, is based on the chemical nature of the latent image. It has been supposed for a long time that the light acting on the silver bromide in a state of extremely fine division as in the gelatine film, decomposes it with the formation of silver sub-bromide,  $\text{Ag}_2\text{Br}$ , the bromide given off being taken up by the gelatine.

The sub-bromide of silver, a substance which is chemically very unstable, appears apt to be reduced by the developer, and thus the latent image produces by development the visible image. It does not appear unreasonable to suppose that the latent image, thanks to the instability of the molecules, may be prone to consolidate, owing to oxidation.

Calling, say, the substance resulting from this oxidation oxybromide of silver,  $\text{Ag O Br}$ , it would be formed according to the  $4\text{Ag}_2\text{Br} + 4\text{H}_2\text{O} + 3\text{O}_2 = 4\text{AgOBr} + 4\text{AgOH} + 2\text{H}_2\text{O}$ . This oxybromide of silver, which, however, is not known, would be fairly resistant to the action of alkaline developers, even in the presence of white light. Then the silver bromide which surrounds

it and which, in an exposed plate, corresponds to the parts not affected by light, in the presence of a developer, and white light would undergo ordinary reduction, and the image would be reversed.

The mechanism of this reaction recalls very much that of a bichromated plate, which, when exposed to light and developed, gives a "contretypé." In the two cases the latent image is rendered stable, and thus permits the reduction of the surrounding silver bromide.

But the hypothesis, which assumes the formation of an oxybromide,  $\text{Ag O Br}$ , suffers from considerable difficulties, the first of which is that a molecule containing one Br and one O, should be very unstable.

One would be probably very much nearer the truth in supposing with Carey Lea that the latent image is the result of a combination between the silver sub-bromide and bromide. This easily reducible compound would be equally accessible to oxidation, and would give an oxide more complicated but more stable than  $\text{Ag O Br}$ . This substance would resist reduction for a long time, a fact which would explain the reversal of the latent image and the regulation of the time of exposure.

There only remains to explain the second reversal, which is so easily produced by development, if the plate has been oxidised previously to development. The experiments are being continued.

E. DEMOLÉ.

### ON THE LATENT IMAGE.

[A Paper in the "Zeitschrift für Wissenschaftlich Photographie und Photochemie."]

continuation of the experiments carried out in conjunction with Professor Schaum<sup>1</sup> on the nature of the latent image in silver bromide emulsions, it appeared essential to determine what part the gas, which surrounds the emulsion during the exposure, plays in the formation of the latent image. The particular point was the much discussed point of the action of oxygen.

Abney<sup>2</sup> has explained solarisation by the formation of an oxybromide of silver. The question as to the co-operation of atmospheric oxygen in the formation of the latent image has been treated amongst others by Meldola,<sup>3</sup> Tugolossow,<sup>4</sup> and W. Braun<sup>5</sup>. The last from his experiments answered it in the affirmative, and laid down the axiom that "the greater the concentration of the oxygen, the more vigorous the latent image." Braun's most important results must be here briefly stated; according to him gelatino-bromide plates, exposed under a Vogel paper actinometer in oxygen, air, and nitrogen, and then chemically developed, gave a different number of steps, which increased with the increase of the oxygen.

Eder<sup>6</sup> considered that any action of oxygen in the formation of the latent image was extremely improbable, and suggested that contrary evidence of the experiments was required.

Similar experiments to Braun's were carried out under totally different experimental conditions to see whether his axiom was generally valid. It may be as well to state at once that an increase "vigour" of the latent image, with increasing concentration of oxygen in the surrounding atmosphere, could not be proved, either by chemical development or physical development, after fixation.

#### The Gas Dark Slide.

Schaum's sensitometer was used, but the ordinary dark slide was replaced by a special form of dark slide, constructed by Herr Braun, at Professor Schaum's suggestion. The accompanying diagram explains it.



The space for the gas  $R$  was closed in front by the glass screen  $G$ ,  $S$  is the sliding shutter. In the back of the slide was the metal plate  $B$ , and behind this the strip of plate  $P$ , which was pressed

up to the metal cover  $M$  by the springs  $F$ .  $O$  and  $O^1$  are apertures in the sides of the slide, and are diametrically opposite to one another, and serve for ingress and egress of the gas.

#### The Exposure.

In opposition to the experiments of W. Braun I made measurements, not only on dry, but also on wet, strips of plates. I hoped that there would be a better absorption of the gas, and therefore a greater chemical effect than would be possible on the dry plates.

The strips of plates were immersed for ten minutes in distilled water. Greater value must be placed on this soaking, because the plates lose sensitiveness when dampened. It was essential to carry out the work in a room free from the fumes of burning gas, as it is well known that the latter very easily fog a damp plate. The swollen plates were then placed in a dark slide, and a brisk stream of gas passed through the latter for ten minutes, and continued during the exposure. With chemical development the exposure was one minute, at a distance of 1.294 metres, from a benzine candle<sup>7</sup>; for physical development after fixation the exposure was six minutes, to an incandescent gas burner at a distance of 1 metre. To obtain, as far as possible, an even illumination there was placed, in front of the brightest part of the mantle, a metal screen, with an aperture of one square centimetre. The exposure was made alternately in oxygen, air, and nitrogen, in order to avoid errors as much as possible. The gases were obtained commercially, compressed in bottles.

#### Chemical Development.

After three strips had been exposed as quickly as possible, one after the other, the first in air, the second in oxygen, and the third in nitrogen, they were placed in one dish and developed with Eder's normal ferrous-oxalate developer. Development was continued till the first traces of fog were seen. The developer was poured off, the plates rinsed and fixed in a 1:5 hypo solution, and well washed. When dry, the "Schellenwert" of the plates was read by placing them film downwards on white paper, and reading off the last visible number.

In this way a great many of the commercial plates were tested, and out of the whole of the experiments no higher "Schellenwert" could be read on the plates exposed in oxygen than on those exposed in air or nitrogen.

With some plates which were left undeveloped for some time there was, in almost all cases, a formation of fog, which only appeared on the plates exposed in oxygen, and not on those in the other gases. The density of the oxygen plates appeared in consequence of this fog to be greater than on the others.

<sup>7</sup> Eder's Handbuch, Th. 3, p. 215.

<sup>1</sup> "B.J." August 31, 1906, p. 697.

<sup>2</sup> Proc. Roy. Soc., 1873, pp. 291, 461.

<sup>3</sup> Chemistry of Photography, 1891, p. 53, et seq.

<sup>4</sup> "Phot. Korr.," 1908, p. 594.

<sup>5</sup> Zeit. f. Wissen. Phot. 1904, p. 290.

<sup>6</sup> Eder's Handbuch, Bd. I., 1906, p. 258.

### Physical Development.

For this the plates were exposed, as described above, and fixed simultaneously in 1:5 hypo solution. As hypo reduces the latent image, the plates were simultaneously washed, and remained exactly the same time in contact with the hypo. Had the time of fixing not been the same there would have been variation in the results. After well washing, the plates were developed with the metol-sulphocyanide-silver developer, washed, and dried. The number of visible fields remains always the same, whether the plate had been exposed in oxygen, air, or nitrogen. Therefore there is no ground for the assumption that the part of the latent image, more stable in thio-sulphate, can be represented as an oxygen compound.

As already mentioned, experiments proved that the plates exposed dry, and physically and chemically developed, as described above, gave the same results.

### The Effects of Home-made Nitrogen.

In some further experiments nitrogen, prepared in the usual laboratory fashion, was tried. A copious evolution of this gas can be obtained by gently warming the following solution:—

Water .....	90 ccs.
Sodium nitrite .....	10 gms.
Ammonium nitrate .....	10 gms.
Potassium bichromate .....	10 gms.

I noticed the plates treated with nitrogen, prepared according to this method, were fogged, although bichromate was used to oxidise the small quantity of nitrous fumes formed. As a matter of fact, the strong action of this gas on gelatino-bromide can be easily proved. According to my experiments the nitrous fumes developed by the action of nitric acid on copper turnings soon cause solarisation on ordinary dry plates. If the gas is formed by heating lead nitrate to redness the reaction is less evident; in a short time a normal image, but with a longer time a solarised image is obtained.

Marburg.

EDOUARD SCHLOEMANN.

### CATALOGUES AND TRADE NOTICES.

FALLOWFIELD'S PHOTOGRAPHIC ANNUAL.—Difficult as it is to say anything fresh or in higher praise of Fallowfield's list, yet we note one or two additions to the 1907-8 list, which still further add to its usefulness. There is a directory of towns to which the firm delivers free all goods over 5s. value. We see also a useful set of outfits suggested as most suitable for purchasers of different types. In other respects we cannot offer a more cordial welcome to this huge list than to say that it is a triumph of arrangement and classification, and must be as frequently consulted every day of the week by hosts of photographers as by ourselves. The price of the "Annual" is 1s. 6d. post free to any part of the world. There is no better or more complete catalogue of photographic requisites.

A NEW VANGUARD SPECIALTY.—It is hardly within our province to review a new paste for the razor strop which the "Vanguard" Manufacturing Company, of Maidenhead, has introduced, but we may do so on the reasonable assumption that the majority of our readers will find such preparation of occasional service. Its action, in our single experience of it, has been satisfactory.

ROTHERHAM PHOTOGRAPHIC SOCIETY.—The eighteenth annual exhibition of this society is fixed for October 16, 17, 18, and 19 next. In the open section, instead of distinctive classes, the judges will award for "photographs, any size, subject, or school of work" of special merit. No entrance fees. For lantern slides the entry is 1s. per set. There are the usual members' classes. Entries close October 7. The secretary is Mr. H. C. Hemmingway, Tooker Road, Rotherham.

PHOTOGRAPHS OF HOLLAND.—With reference to the exhibition of photographs of Holland, now being held at the house of Messrs. A. E. Staley and Co., a notice of which appeared on page 580 of our issue for August 2, we have pleasure in stating that the entire work connected with the enlarging, mounting, and framing of the pictures was carried out by Messrs. Raines and Co., of Raling, London, W. This firm's work is, of course, known to many of our readers, but others who know it only by reputation should be interested in making a note when at Messrs. Staley's house, of the admirable printing and enlarging of Messrs. Raines.

### WILLIAM MOLYNEUX, ON THE FOCAL CENTRE OF A THICK LENS IN 1692.

IN an editorial note in the BRITISH JOURNAL OF PHOTOGRAPHY March 22 attention was drawn to some early works on optics. A special reference was made to the fact that Dr. Wood, in his "Optics," (1818, but the first edition was 1799) treats not only thin lenses, but also of thick ones, and in the case of the latter makes use of points which he calls focal centres, which correspond to the points we now style "principal points" or "nodes."

In the number for April 5 there is a further reference to the subject, pointing out that Harris (in his "Optics," 1775) had discussed the question much in the same way as Wood, and had treated the subject as if it were already a familiar one to optical students.

It may be interesting, therefore, to our readers of the "Journal" to note that the question of the focal centre of a thick lens was discussed as early as 1692 by William Molyneux of Dublin, F.R.S., who in his "Diotrica Nova," or "Treatise of Dioptricks" (Proposition XXVI., p. 10) demonstrates that in the camera obscura the distance of the object from the lens is to the distance of the image on the white paper screen in the distinct base from the lens as the diameter of the object to the diameter of the image. In doing so he neglects the thickness of the glass, because lenses of large spheres and small thicknesses it is inconsiderable in respect to the focal distance.

He adds the following scholium which may be quoted *in extenso*:—

"But if we are yet more scrupulous and will consider also the thickness of the glass; then the point within the glass from whence the distance of the distinct base is to be counted may be thus determined

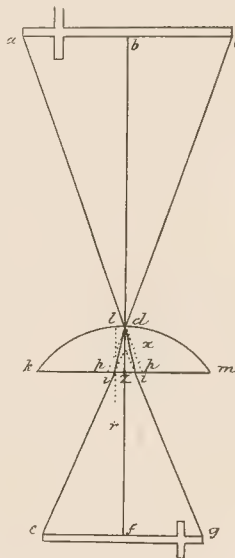
a plano-convex glass. In the figure *k d m* is a plano-convex glass, with its convex side towards the object *a b c*; *a d, c d*, the axes of radii cones falling obliquely on the glass in its pole *d*; which (if the glass were not interposed) would proceed directly on to *p*, but the glass are now refracted into *d i, d i'*; but at *i i'*, meeting with second surface of the glass, instead of going straight onwards, they are again refracted into *i e, i g*, parallel to *a d, c d*. Let *e i, g i'* produced backwards till they intersect the axis, *b f*, in *x*. I say: the point in the glass's axis, from whence the distance of the distinct base is to be reckoned. And as the thickness of the glass, is to the distance of this point, *x*, from the inner surface, *z z*, so the cotangent of the angle of incidence from glass to air to the cotangent of the refracted angle.

"For to the point of incidence, *i*, draw *i i r* perpendicular to *k m*. Here the angle of incidence from glass to air is *i d z = i d z'*, the complement of *i d z* is *d i z*, whose tangent is *d z* (making radius), and the refracted angle is *r i e = i x z*, whose complement is *x i z*, and the tangent hereof is *x z*.

"In double convexes the case is something different, but it is needless to enlarge any farther thereon.

"Wherefore we see that if we use a plano-convex glass, with its convex side towards the object, and if we allow for its thickness, are to compute the distance of the object from the pole of the glass, *d*, and the distance of the distinct base from the point, *x*. I suppose the plane side towards the object, *e f g*, then we reckon the distance of the object, *e f g*, from the point, *x*, and the distance of the distinct base, *a b c*, from the pole, *d*, of the glass."

It seems probable that this is the earliest mention of these optical centres in English, but it may be noted that Molyneux refers in his fourth corollary to the same problem (p. 111), and gives its solution in the 52nd proposition of James Gregory's "Optica Promota" (1663):—"The distance of an object and its diameter being given, 'tis required





represent its image in the distinct base under a given measure; thickness of the glass being given also." In this case, however, thickness of the glass is treated as a whole; and no reference is made to an inner point or points as in Molyneux's own problem. It seems to have treated the question in a somewhat similar way (see Hutton's "Mathematical Dictionary," 1815, vol. 1, p. 717,icle lens).

Molyneux's book is of special interest, because it was the first book English on optics, and contains a number of practical problems relating to the use of lenses, theoretically and as applied in the telescope, microscope, camera obscura, etc., as well as a good deal of curious and interesting information on the early use of lenses, etc. pointed out in my paper on "Early Heli-dioptic Lens Systems" (Photo Journal," 26), he has discussed methods of finding the focal length of combinations of concave and convex lenses.

J. WATERHOUSE.

## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes.*

The following applications for Patents have been made between July 22 and July 27:—

**LEATHER STRAP.**—No. 17,072. Improvements in or connected with straps or hangers for golf caddie, photographic camera, and other bags or articles. Henry John Carter, 173, Fleet Street, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**THREE-COLOUR CARBON.**—No. 18,741. 1906.—The invention consists in a process of transferring a carbon print to a collodionised plate, attaching a hardened transfer paper to a print whilst still on the plate, stripping it off together when dry, and attaching to the next print. The carbon tissues are sensitised in about a 3 per cent. solution of bichromate of potash for three minutes, then hung up to dry.

To the bath for the blue tissue is added about four ounces of a concentrated solution of picric acid to eighty ounces of about a 3 per cent. solution of bichromate of potash which will turn the blue tissue (which has been coloured with Prussian blue) into a blue-green, which colour will assimilate much better with the yellow and red tissues than the ordinary blue, or the picric acid may be added to the blue emulsion when making the tissue.

All the tissues should be dried in an airtight calcium chloride box, and heat should not be used.

Great care should be taken to cut up the tissue and transfer papers all in the same way, otherwise difficulty may be caused by the stretching of the papers.

Positive prints are obtained upon the carbon tissues from the colour negatives in the ordinary manner. The tissues are then soaked in cold water until limp, and are transferred to glass plates which have been rubbed with French chalk, and then coated with collodion which has been allowed to set, but not dry, and has been washed in clean water. Care must be taken not to put too much pressure on the squeegee used in transferring the tissues to the plates.

The use of French chalk obviates the necessity of employing wax or the like below the collodion, to which there are many objections.

After a few minutes the plates with the tissue on them are soaked in hot water (100 deg. Fahr.) for a few minutes, and the paper on the back of tissue is removed. The prints are then developed and washed.

The yellow print should be fixed, but the blue and red prints should not be fixed, but simply well washed and put to dry. Any good white or tinted double transfer gelatine coated paper is suitable for the final support of the prints.

The transfer paper is soaked in cold water for a few minutes,

then in an about 10 per cent. solution of alum (or a weak solution of formalin) for one minute, is well washed, and is placed upon the yellow print while it is still wet, and the two are well squeegeed together.

When the yellow print has become dry, it and the transfer paper are separated from the glass plate by a sharp knife.

The yellow print having been successfully transferred, the next step taken is with the blue one.

Both the red and blue prints are transferred from the glass plates in the same manner, but a solution made of the following is required to ensure adherence.

To twenty ounces of good size add about half an ounce of Swinburne's isinglass. The isinglass is soaked in water for half a minute and then drained and allowed to stand for ten minutes before adding it to the warm size. The solution is strained and used at a temperature not over 95 deg. Fahr.

The blue print, whilst still on the glass backing, is placed on a levelling stand, and the solution is poured over it. The yellow print, previously soaked in cold water, is placed on the top of it, then slightly squeezed.

The two prints can be registered by looking through the glass of the blue print. The prints are dried on the glass plate and are then separated from it as before. The red print is transferred in exactly the same manner as the blue.

It is advisable after the red print has been transferred to paste a piece of double transfer paper which has been soaked in alum (or formalin) water, and then washed to the back of the print on the glass with the gelatine outside. This will keep the finished print flat when it is detached from the glass.

If any of the three prints appear to be too dense when temporarily superimposed they can, if not over-printed, be reduced by gently rubbing with cotton wool and methylated spirit. Albert Davies, 65, Durnford Street, Stonehouse, Plymouth.

**SCREEN PLATES FOR COLOUR PHOTOGRAPHY.**—No. 20,834. 1906. This invention relates to improvements in the manufacture of screens and plates for obtaining photographic pictures in colours of that class in which a series of transparent filaments of the required colours is mounted on a transparent base. The invention consists in producing photographic screens and plates, comprising a sensitised emulsion, coated over a coloured pigment net or base, and in an improved form of such net or base in which the coloured particles are arranged symmetrically over the whole surface.

For forming the net or base a number of the transparent filaments, which may be of silk, cotton, flax, cellulose, etc., are employed. The net is produced by one of the following processes: For example, to form a fabric there is used as weft and warp alternate filaments of each of the three colours, or, as weft and warp alternately, a filament of each of the three colours, leaving the filaments of opposite direction (warp or weft) in white or non-coloured silk; or a fabric may be used the warp of which is dyed with one of the three colours, the weft with a second of such colours and the interstices thereof filled with a coloured material making the third colour. The filling of the interstices and consequently the production of the third colour of the net, may be obtained in any suitable manner, either by means of a coloured powder, or preferably by using a suitable coloured gelatine or varnish.

In the case of an assemblage of filaments without weaving or interlacing, a band formed by the linear juxtaposition of homogeneous filaments, alternately coloured in the primary colours, may be employed, and stuck to each other or embedded in a heterogeneous medium.

This latter means of preparing the coloured net or base permits of obtaining on the plates, not only coloured negative images of the objects photographed, but also positive pictures in colours by printing with white light through the coloured negatives prepared similarly to those used in ordinary photography.

The plates are usually rectangular, and the threads are so placed that they are parallel with the shorter sides of, say, the positive and with the longer sides of the negative. The linear arrangement of the colours on the two surfaces then automatically assures the superposition of the dyes of the same order at all points of intersection of the filaments of the same colour; moreover, the refraction of the light in the monochrome

filaments, when each filament is exposed within the exact limits set by the filaments of complementary colours, causes the haloid silver salts to be reduced over the whole length exposed, and thus ensures the quality and purity of the shades.

In order that this latter phenomenon shall be as distinct as possible, filaments of single thread or ply, approaching as nearly as possible to the required optical conditions, must be used. The net or base may be directly laid on plates or on pellicles by means of a roller, and the selective filter thus obtained we have termed "a chromo-film."

The production of the "chromo-film" is as follows:—

In practice, the coloured filaments on leaving the spools and after sufficient drying are placed on slightly conical rollers, which, by rotating and sliding the threads along the generating line, bring them into contact. The contact is made more perfect by moistening the filaments with a viscous liquid, such as glycerine or dissolved gum arabic, and by causing them to travel over a polished cylinder, the tangential velocity of which is slightly greater than the velocity of the filaments. Capillarity then ensures intimate contact without overlapping.

Seen with the naked eye the resultant film appears absolutely neutral, if the pigments are properly selected, but under the microscope the fine striæ in three colours are visible. This film forms a perfect selective filter.

The chromo-film described can be used in the manufacture of photographic plates, for the production of photographic prints in natural colours, according to the nature of the panchromatic emulsions used. The chromo-film is applied to a layer of emulsion between rollers or the like before the gelatine has completely hardened.

The glass plates to which the screens and emulsions are applied are prepared and washed in the usual manner. When the glass has been dried it is coated with a solution of mastic in benzene, and the practically instantaneous evaporation which takes place leaves the glass coated with a very thin and adherent pellicle. On the latter a solution of caoutchouc, which dries very slowly, is spread in the manner usually employed for spreading gelatine. After being allowed to dry spontaneously for a period of two hours the caoutchouc layer is ready to receive the chromo-film or fabric.

The fabric preferably used is very close muslin, dyed in the usual manner with a very fast mordant, and of rather dark colour. If necessary the fabric may be sized to prevent the adherence of foreign substances to the silk during the subsequent treatment. The screen is applied to the caoutchouc-coated glass, adherence being produced by applying suitable pressure with the aid of a soft roller.

If it is necessary to fill the interstices of the fabric with a pulverised substance, the filling is effected after the fabric has been applied to the glass and before the caoutchouc layer has become quite dry. A soft rotary brush can be used to remove the superfluous powder.

If the interstices are filled with gelatine or with a coloured solution containing a ferric, chromic, or other sensitiser, which gives a coloured reaction under the influence of light, the third colour is obtained by the photographic exposure through the screen, the threads of the fabric protecting the gelatine directly behind them.

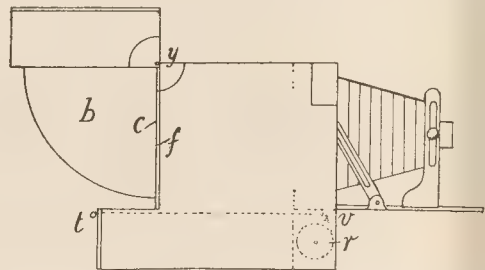
The screen is varnished when dry, either with wet or with pulverised varnish, and the emulsion is applied when the varnish is dry. Highly sensitive bromide emulsion, with or without iodine, is used, the emulsion being rendered panchromatic and applied in the usual manner.

The material required for using the plates differs only very slightly from the materials ordinarily used. A coloured screen is placed in the path of the rays, in front of, behind, or within the objective, if the panchromatism of the emulsion is not perfect.

Several successive and distinct operations are involved in the subsequent treatment—viz., developing, inversion of the picture, if a direct positive is to be obtained, and fixing. Rodolphe Berthoin and Joseph Gambs, 8, Place des Jacobins, Lyons, France.

MAGAZINE CAMERAS.—No. 16,253. 1906. The invention consists of a type of camera in which the plates are carried in a magazine

which can be raised on a pivot, *y*, so as to afford a clear of the focussing screen. The latter, *c*, is fixed in grooves attached to the quadrant shields (*b*) of the magazine, so that by movement of the mechanism the magazine is raised, and



focussing screen is simultaneously brought into position shielded from side light. Octave Edouard Jules Joublin, Harper Street, New Kent Road, London, S.E.

## New Trade Names.

MOORLAND.—No. 292,534. Photographic papers and posters. Harold Arthur Blades, The Central Pharmacy, 1, Stanley Street, Leek, Staffs, dispensing and photographic chemist and druggist. April 29, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Blisters in Carbon Printing.

A good deal of difficulty may be avoided (says a writer in "Photographic News") by a careful selection of transfer paper. If surface is what is desired, choose a thinner paper in preference to a thicker one, the thinner paper being easier to saturate with water prior to squeegeeing down the exposed tissue. A fairly soft paper is preferable to a very hard one, less vigorous squeegeeing being necessary to secure perfect contact over the minute inequalities of the paper surface. The character of the gelatinous sizing should also be noted, and it is well to soak a sample of the transfer paper in water, say at a temperature of 130deg. F., and notice carefully the gelatine behaves. After some little time the transfer paper may be taken out of the water and surface-dried between blotting-paper and the gelatine rubbed with the ball of the finger. If it remains firmly on the paper it will probably work satisfactorily, but if it readily rubs up almost in a moist, powdery way the transfer paper may be regarded with suspicion. The gelatine is poor, or has been allowed to remain heated for too long a time when the sizing has been done. Better a little additional sheen on the surface of the print than no print at all on account of blisters.

### Vignetting a Portrait.

One of the cases in which it is likely that the photographer will want to use the glycerine method of control in platinum printing (says a writer in "Photography") is to get a good, bold, sketchy vignette effect in a portrait. The whole of the face and other portions that are to be fully shown are first brought out to their proper depth, and not until this has been done is the vignetting properly undertaken. Then, with such admixture of developer and glycerine as the circumstances seem to dictate, the lighter parts of the vignette are brought out. By a series of strokes with the brush, one going a little further than the last, we shall find it possible to develop up an image gradually getting fainter and fainter towards its margins, yet without showing by any defined lines where the fading off in depth has taken place. When this has been done to satisfaction, we may still wish to add a few more decided brush marks, and this we can do with developer containing a smaller proportion of glycerine, or even none at all. But as such application



only develop up an image if there is one there to develop, we find that without further help the effect we want is not to be. In such a case, we may put down over the greater part of the surface a piece of black paper rubbed with glycerine, and then expose the print to light for a little while, so that the unprotected parts, which, however much they may be coated with glycerine, are still sensitive, may be so far affected that they will develop up black if required. It is well to cover the print with a piece of glass while doing this, and to shade it so as to avoid a dark line at the edge of the black paper. Drastic as such treatment may seem, it will do no harm if the developer has been properly removed from the finished prints and glycerine substituted. After the light action, we may remove the glass and the black paper, so as to see what we are about, and add such further work as seems necessary, remembering always that every brush-mark now will no longer develop up in correct relation with the rest, but only as a dark mark.

### Dark Slides for Hand-Camera Work.

Dark slides with hand-cameras (writes Mr. J. H. Crabtree in *Focus*) are, at times, a decided advantage. We may have two slides with iso. plates, two with extra rapid plates, and two with plates of moderate speed. We can now choose any plate we find most suitable for a specific purpose—the moderates for open landscapes, the iso. plates for clouds, and the extra rapid for quick-moving objects. Every hand-camerist knows well the importance of being able to select his plate. But we have such a knack of forcing which plate has been exposed. Here is a "tried" wrinkle:—on each side of the plate-holders paint in white a large figure, indicating the number of the plate, and with a black-lead pencil make a cross on the white figure when the plate has been exposed. This is done in a moment, needs no book, no list, and is certain. When the plates are removed for development cancel the crosses. You may use each figure to hold at least twelve crosses; they may be easily erased by means of india-rubber.

## New Books.

and the Camera." By Antony Guest. London: Geo. Bell and Sons. 6s.

This would prove an excellent book for photographers who suffer from sleepless nights. Kept within handy reach, its soporific qualities could not fail to induce the coveted snore of obliviousness. That it is a bad book as such books go; but it trots on, up and down, through thick and thin, without anything more than a misprint or an orthographical lapse to relieve the soothing monotony.

I say that there is no need for such a book is only to repeat what might be said of hundreds of other books published nowadays. A poor old Art seems to be fair game for anybody, qualified or otherwise, who wants to raise a few pounds by making a book. Photography, so far as it is concerned with art, is similarly doomed. Small public could, no doubt, be found who would buy Mr. Guest's book and take no harm by reading it; but to the majority of photographers it will be but cold kail, or, more correctly, a piping up of stale fare from the photographic weeklies. Articles, reviews, correspondence in the Press, discussions, all have had to matters for subject over and over again. Hence the book has little originality of thought on the part of its author. But young lady in the country, if she does not take a photographic interest, will probably value it highly. Its closing page or two, in the author pleads, with his usual *juste milieu* attitude, for analytical and synthetical methods, is distinctly good.

Mr. Guest trims his sails too constantly, and to all quarters, not, indeed, to the professional photographers, for whom he has a charitable word. Presumably he considers this the safe and prudent line to pursue in the circumstances. Even to the "arty" crafty movement he makes his profoundest obeisance.

In the art-crafts a thing is reckoned beautiful because it is useful, and has been fashioned simply and exactly to meet the purpose for which it is intended, with no ornamentation for the mere

sake of ornament, but with due sense of design, and such adornment as may result spontaneously from the craftsman's pride in his work, and from the character of his material and tools."

We quote this to show how easily the author allows his subject to trot nicely away with him. If every term in the extract were reversed, something like the truth of the matter to-day might be derived, for the Morris ideals were buried and lost years ago.

Mr. Guest is given to perverting fact in that way. Here is another example:—

"Something more vital has been wanted than fashionable professional portraits and trade views of scenery, and it was this need that led to the formation of the 'Linked Ring.'" To which we can only remark, "Was it, indeed?" Here is another crystal gem of truth of the first water:—

"The Royal Photographic Society has been tempted to follow the example of the Salon by holding an annual exhibition of pictorial work."

A propensity to construct theories out of his own conclusions is a marked defect of the author, leading him into such quagmires as, "Training is an assistance, not an essential." This little aphorism, denied by all life and experience, is vamped up to support the photographer's claims to rank as an artist. It rests upon the common blunder of confusing the final achievement of a thing, as implied in the noun "artist," with the leaning toward, or the propensity for, a thing, as implied in the adjective "artistic." School-training or self-training is as indispensable to an artist as it is to a scientist. Only those who actually work to some purpose in any branch of art know how enormous a part is played by training, mental and physical. All the cant about soul and inspiration is so much popular rubbish. Mr. Guest and writers like him have much to answer for, inasmuch as the unthinking button-presser, otherwise sane and modest enough, comes to think himself the equal of any artist by reading year after year such empty flattery as the passage commencing: "Nor does it follow that those who are trained in art are the only artists."

So far we have said nothing of the illustrations of this work. As a matter of fact, they are an unimportant feature, since everybody who has preserved his weekly papers has them in duplicate or triplicate, and much better printed. For some reason or other (something with "art" in it, no doubt) the pictures are given in faint shades of grey or brown, regardless of their subjects, and utterly without regard to the tone of the originals. "Washed-out" is the sole term that describes them suitably. The only prints that have not suffered much are the sea-pieces by Mr. F. J. Mortimer. His "Peace" has quite a fine fog effect. But where was the necessity for fog in Mr. Horsley Hinton's "Melton Meadows"? We are sorry for Mr. Evans, whose "best picture" in York Cathedral is itself a magnificent ruin, as flat as wallpaper. As for Mr. Arbuthnot's "Road to the Farm," it is ridiculous. Mr. Guest thinks it "apparently simple, but really very subtle."

There are 150 pages in good-sized type, and thirty-nine enfeebled pictures, and the price is 6s. The proofs seem to have been carelessly read, otherwise such tautology as "visual appearance" would surely have been looked to, to say nothing of "judgement," and other little trifles that waken the reader, with unpleasant jarrings, from out of the nodding state induced by the moderate opinions, the obvious platitudes, and the pretty compliments on the illustrations, uttered in rubber-tired phraseology. We wish the book well.

"The Half-Tone Process." By Julius Verfassers. Fourth edition. London: Iliffe and Sons, Ltd. 5s. net.

That there is a constant demand for a good book on the half-tone process we are constantly reminded by the inquiries we answer through our correspondence columns, and so we are not surprised to find that "The Half-Tone Process," by Julius Verfassers, has reached a fourth edition. In preparing this, the author has thoroughly revised his matter, and brought the book entirely up to date, with several additions. Though much of the book is taken up with descriptions of apparatus which are tedious reading to those familiar with the process, or those who have prejudices in favour of one sort of thing rather than another, nevertheless we must remember that the book is not written for them, but for the man who only knows about ordinary photography, and wishes to know something of half-tone work. Certainly, if his intention had

been to commence business in this process the quantity and expensive character of the apparatus described is calculated to deter him, unless he is prepared for a large outlay.

The opening chapter, "What is a Half-Tone?" is an admirably lucid answer to the question, an explanation assisted by excellent diagrams. The second half of the book, describing the operations, is also exceedingly interesting, and while we think that perhaps the author's claim that "the reader will find in the book everything it is necessary to know for practising the half-tone process," is a little extravagant, we are inclined to agree that there is as much as one can expect in a book on the subject. Throughout the Continental and American methods are compared with English ones; there is a chapter on three-colour work, and also one on the preparation of originals, all formulæ are given in both English and metric weights and measures, and in the practical quantities of either one pint or one litre, and finally there is a full index. We can thoroughly commend the book.

"Hints on the Selection of Zeiss Objectives." By Dr. P. Rudolph, Jena. Fifth Enlarged Edition.

This is a most useful pamphlet that all prospective purchasers of Zeiss or indeed any lenses will do well to consult. It enumerates the various uses to which photographic lenses are put, and describes the particular kind of lens that is best suited to each purpose. Many useful rules are given, together with reasons, and Dr. Rudolph's name is sufficient assurance, though the reasons are sound ones. For the hand camera we are advised "always to choose a lens so as to have its focus neither considerably longer than the diagonal of the plate, nor appreciably shorter than its longest side." It is then pointed out that while these limits determine the view angle as from 50 deg. to 70 deg., yet "in order that an image of that angular extent may not exhibit a too glaring decrease of light from centre to margin, it is desirable to have an objective whose field is largely in excess of that estimate. Hence objectives having a field of from 65 deg. to 90 deg. are the most suitable." Advice is given respecting the selection of lenses for a one-objective outfit for a stand camera, for a set of objectives for a similar camera, and for stereo cameras. It is pointed out that if one used single protars for the stereo work, the same two lenses can be screwed into one mount to form a double objective for panoramic wide-angle pictures, which can be produced in the same camera.

Lenses for three-colour work are also considered, and a good example of a three-colour portrait is given, together with some excellent examples of work in monochrome.

Though the book deals only with Zeiss lenses, it does not leave us with the impression that it is a mere advertisement. There is a refreshing absence of puff in statements such as the one explaining that, as regards orthoscopy, "Single lenses with frontal stops still leave something to be desired." It is evident that the pamphlet is intended to so advise the purchaser as to render him capable of selecting for himself, and also to give him useful information of a kind that he often cannot obtain from a salesman.

"THE PHOTO-MINIATURE."—No. 8 of this periodical (Dawbarn and Ward, 6d.), concerns itself with the practice of outdoor photography, on which topic of the present season it has a good deal to say which will run no risk of being hailed as startlingly new, which is, indeed, old enough to be worthy of occasional resuscitation. The writer's notes on how to photograph the common objects of town and country—from a motor-car to a moonrise—are sufficiently brief to be rapidly digested. The "Miniature," we are glad to see, is redeeming its promise of regular publication. Its next number is to deal with modern novelties in printing processes—kallitype, ozobrome, and, of course, oil.

EASTMAN KODAK COMPANY OF NEW JERSEY.—The usual quarterly dividends of  $1\frac{1}{2}$  per cent. (being at the rate of 6 per cent. per annum) upon the outstanding preferred stock, and of  $2\frac{1}{2}$  per cent. (being at the rate of 10 per cent. per annum) upon the outstanding common stock, have been declared by the Eastman Kodak Company of New Jersey; also an extra dividend of 5 per cent. upon the common stock, payable on October 1 to stockholders of record at the close of business on August 31, 1907.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, AUGUST 10.

Borough Polytechnic Photographic Society. Outing to Southfleet.  
Bowes Park and District Photographic Society. Outing to Zoological Gardens  
Bristol Photographic Club. Outing to Frome.  
Devonport Camera Club. Outing to Fice's Well, Mis Tor, Langstone Moor Ch  
Rolls Tor, Staple Tor, Merivale Bridge, Vixen Tor, Huckworthy Bridge.  
Hackney Photographic Society. Outing to Zoo.  
Hull Photo Society. Outing to Hornsea.  
North London Photographic Society. Outing to Boreham.  
Photo Art Club. Outing to Elton.

MONDAY, AUGUST 12.

Bowes Park and District Photographic Society. Affiliation Competition Slides,  
Bradford Photographic Society. Ramble to Hirst Wood.  
Southampton Camera Club. Discussion: "Is the Competitive Spirit in Photography Advisable?"

TUESDAY, AUGUST 13,

Hackney Photographic Society. "Questions and Answers.

WEDNESDAY, AUGUST 14.

Bristol Photographic Club. Outing to Nailsea Moors.  
Devonport Camera Club. Outing to Drizzlecombe and Deacombe Antiqu  
Classenwell, Stanlake Falls, Black Tor.  
Edmonton and District Photographic Society. "Art and the Camera." Mr. C  
Everton Camera Club. Half-day outing to Helsby.  
North Middlesex Photographic Society. "Leaves from my Note Bo  
A. H. Lisett.  
Leeds Camera Club. "Mounting and Framing." A. Cohen.  
Rugby Photographic Society. Outing to Frankton Woods.

## Commercial & Legal Intelligence

CHARGE OF EMBEZZLEMENT.—John Hy. Preece, photographer, charged at Middlesbrough last week with embezzling sums amounting to £6 5s., the property of Arthur Rollin, 17, Shields Road, Newcastle-on-Tyne. The prosecutor said that he carried on a photograph business at Newcastle, and opened a branch shop at 18, Wi Street. The shop went by the name of the American Studio, prisoner was engaged by witness to develop and touch up negatives to look after the money, and generally to supervise the business Middlesbrough. His salary was 35s. a week. Prisoner's arrangement was to send in an account every Saturday evening showing financial position for the week, and enclosing the balance money order. On July 19 witness received a letter from prisoner asking for a loan of 50s., and enclosing a crossed cheque post dated July 22 witness received a correct statement of the transactions, only on an order for 7s. 6d. instead of £6 5s., the correct amount. Witness came to Middlesbrough and found that prisoner absconded. He afterwards received by post from prisoner a post order for 5s. 1½d. in part payment. Prisoner pleaded that he did intend to defraud. The Chairman told prisoner that his downfall was evidently due to gambling, and but for the excellent testimony produced in his favour the Bench would have sent him to prison. A fine of 25s. or one month was imposed.

## Correspondence.

"\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
\*\* We do not undertake responsibility for the opinions expressed by our correspondents.

### GLAZING A STUDIO.

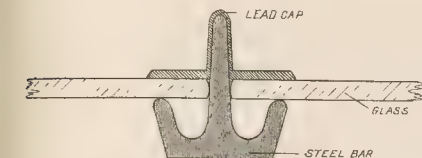
To the Editors.

Gentlemen,—An inquiry in the current issue of your journal, dealing with the best way to glaze a new studio (or to reglaze an old one for that matter) prompts me to send you particulars which may be useful to your correspondent or to others who may be troubled with leaky roofs.

Last Whit Monday I entirely removed the old roof of my studio



placed with steel bar, a drawing of section of which is given. This is only a little less than actual size of bar, and can be used by Mr. Sam Deards, Victoria Works, Harlow, Essex, who will be pleased to send full particulars to any enquirer, as to me. The advantages of the system are numerous—easily absolutely rainproof, no putty or other material, and prac-



indestructible; very little stoppage of light, neat in appearance and cheap.

I can add I have no interest whatever in Mr. Deards, but I here must be many photographers who would be as glad to have the improvement as I was.—Yours faithfully,

The Grove, Hammersmith.

GEO. E. ORGAN.

## Answers to Correspondents.

Matters intended for the text portion of the JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photocraphs at a charge of 1d. each photograph, to cover cost of registration fee, form, etc. Unmounted copies of each photograph must be sent with the

SKIN AFFECTION.—I should be pleased if you would give me an answer to this question in the next publication of your Journal. I am a printer here, and I do a lot of bromide work; use a lot of gaslight papers. In developers for these I use amidol and metol. I have only been using same for a week, my hands are very bad indeed. There are little white scales come; they burst, and a kind of liquid like water comes from them. They are rather painful, and my fingers have swollen a little; it is mostly between the fingers; not at the ends, but right down. Can you tell me how to cure this, or, how to prevent it? I should be much obliged if you could.—A. T.

As is evidently the case, you are susceptible to metol, there is nothing for it but to discontinue its use. We know of no preventive measure. We should advise you to select another developer. Amidol is not, as a rule, a cause of these troubles.

AGREEMENT.—So far as we can make out from your letter, the agreement seems to be a very loose one; verbal agreements are of little value. The best advice we can give you is to consult a solicitor at once, tell him the arrangement made, and show him your letter you have, which you call an agreement. We should recommend you to do this without delay.

ANSWERS.—I heard from a friend that you had lately published, in the "Answers to Correspondents" column, an answer to an inquiry about transferring photographs on watch-cases, etc., by the C. process. You said that the directions were to be found

in a "B.J. Almanac." Have you a copy of it that you could supply me with? If not, where could I obtain one, and what year was it dated?—W. ALLCHIN.

The method of producing photographs on watch-cases and the like by the collodio-chloride process did not appear in the "Almanac." It was fully described in an article that appeared in the "Journal" for 1901, p. 451. Full working details are there given.

PHOTO RELIEFS.—Can you please tell me how to take plaster of Paris casts from gelatine reliefs. I can make the reliefs all right, and they have a high relief, but my difficulty is with the plaster cast. I slightly oil the relief and then mix the plaster with water to a thick cream, and then join on. It takes some hours to dry, and then when I try to get it off it all breaks to pieces.—RELIEF.

The trouble is, apparently, entirely due to the plaster of Paris. The plaster for this purpose should be of fine quality and freshly burnt. That sold at oilshops, in bags, is not at all suitable for making what you desire. You should get the quality used by those who make plaster figures. Any of them will supply you with some, but you will have to pay more for it than that you get at the oilshop.

R. J. BILLING.—The only way to recover the debt is to sue the secretary of the club—or, rather, the one who gave you the order to photograph the group—in the county court. If it was the secretary of the club who gave the order it is him you must sue.

T. A. SMITH.—It is not photographers who can prosecute in the matter, but only those who have been swindled out of their money, and you have not. All you can do is to bring the people prominently to the notice of the police and get them to take action. We hope you will do so, if the facts are as stated.

RESIDUES.—I have been for some time past saving my wastes, print washings, burnt prints, etc. I have now got about half a pound quite dry. What had I best do with them?—AMATEUR.

We should say save them until you have accumulated a sufficient quantity to make it worth while to send it to a refiner to deal with. Such a small quantity as you now have certainly is not.

SURFACE PAPER.—I want half a quire or a quire of enamelled paper, such as is used for P.O.P. Will you please tell me where I can get it? I have applied to several dealers, and they all say they do not keep it.—FIRM.

Messrs. Otto König and Co., Cross Street, Finsbury, supply it, but we think only in wholesale quantities—reels weighing, perhaps, a couple of hundredweights each. They might, however, let you have a small quantity in sheet. Better write them.

METOL POISONING.—One of my men, an assistant operator, has been unable to work for the last two or three weeks through the metol developer badly injuring his hands—and they are bad. His wages are 35s. a week, and he tells me I am compelled, under the new Act, to pay him half his wages until he is well enough to resume his work, and that unless I do he will summon me for it in the county court. Can I be made to pay, as the man has been of no use to me for nearly a month?—W. J.

The man is quite within his rights, and you will have to pay him half his wages. If your employees are insured, the insurance company will, of course, meet the claim.

AN OLD LENS.—A little while ago I bought a whole-plate lens of Voigtlander's at a pawnbroker's. It seems to have no focus at all. My 10x8 camera focusses from 7½in. to 24in., and I cannot get any image at all with the lens. The front lens is 3½in. diameter, but the back is less than 2½in. On the mount is an engraved scale, with about 1-16in. divisions. Can you tell me what is the matter with the thing, and how to put it right?—R. BOLTON.

From the description we recognise the lens quite well. It is not a whole-plate lens at all, although the mount is the size of one. This form of lens was made by Voigtlander in the early days of the Daguerreotype process for taking small portraits of

children very quickly. We are not at all surprised that you do not get an image with your camera, as the back focus of the instrument is but about 3in. It is only intended for small pictures, locketts, and the like, and might be used for midgets. The exposure required with it is only about the fourth that of the usual portrait lens. The visual and chemical foci do not coincide, and the object of the scale is to show how much the lens should be racked out after the visual focus has been obtained to get it in the chemical focus.

**WORKMEN'S COMPENSATION ACT.**—Will you please let us know, in "Answers to Correspondents," if it is really compulsory to insure our assistants under this new Act, and what is the fine for not doing so? We employ ten assistants and apprentices and an errand boy, and to insure them would be an item that would increase our expenses, and we have to cut them fine, as ours is only a cheap business.—C. J. AND CO.

It is not compulsory to insure your assistants, and there is, of course, no fine for not doing so. The responsibilities of employers under the new Act are so great that most photographers recognise the advantages of insuring. The insurance companies undertake to pay any compensation for injuries that employees may meet with during their work, which the employer would otherwise have to do.

**COPYRIGHT ("ILL-USED").**—If the father ordered the portraits of the children to be taken, although you cannot get payment for them, the copyright in the pictures is his, and not yours, even if you register it. The father, in ordering the portraits to be taken, incurred a debt which you may recover in the county court, and in these circumstances, according to the decision in the *Boucas v. Cook* case, the copyright is vested in the father.

**CARBON PRINTING TROUBLE.**—Will you please suggest the cause of my difficulty and how to obviate it? I am trying to work the carbon process. I sensitise the tissue for three or four minutes in the following: Bichromate of potash 1oz., water one pint, with six drops of ammonia, then slightly squeegee on to a ferrotype plate and allow to dry. The drying with me takes twelve to fifteen hours before I can get it off the plate. After printing and squeegeeing on to the single transfer paper, the tissue will not adhere. I have soaked it various times, but all with the same result.—BEGINNER.

The cause of the trouble is that, through the long time taken in the drying, the tissue has become insoluble. You should manage to dry it in six or eight hours at most by crying in a drier place than you have hitherto done. Failing to obtain that, we should recommend you to try the spirit sensitiser now being sold by the Autotype Company. We might mention that the bichromate solution you have employed—5 per cent.—with the long immersion you have given, is too strong for this time of year, unless you have exceptionally hard negatives to deal with. Three and a half per cent., with a couple of minutes' immersion, would be better.

**STRAW BOARDS.**—As one of your regular readers of the "B.J.," I should feel much obliged if you would kindly give me the address of two or three firms who manufacture straw-board postal tubes? I have looked through the trades directories here, but cannot find any.—J. T.

Try L. Canesi and Co., 16, Clerkenwell Green, E.C.; Oram and Robinson, 2, Academy Buildings, Hoxton, N.; and Arundel and Marshall, Penn Street Works, Hoxton, N.

**EASELS.**—Will you kindly give the names of firms where carved easels may be obtained?—W. H. DEE.

Marion and Co., Ltd., 22, Soho Square, W., and J. Barnard and Son, 19, Berners Street, W.

**SULPHITE IN DEVELOPERS.**—Some time since attention was called in your columns to the preservation of sulphite soda in solution, and at various times since remedies have been suggested, but they all seem to tend to an excess of metabisulphite of potassium. My experience of this—say, a 1 to 4 solution—is that when freshly made up it is slow, and needs much more pyro, and also that it does not keep. I made up some—soda sulphite 4oz., metabisulphite 1oz., water 20oz.—about three months ago.

Upon using same a few days since nothing but a very faint image was the result. I increased the exposure to four minutes (interior work), but still could get nothing satisfactory. I made up fresh sulphite soda solution with 4oz. metabisulphite instead of 1oz. With this an exposure of 15 seconds gave rather over-exposed negative! I think I saw in the "B.J." some weeks ago a suggestion of yours to use spirit as a preservative. Is this any good, or has anything else been found to preserve sulphite in solution, say, for three months without losing its power? My developing is at irregular intervals, and owing to the varying power of the sulphite I lose many plates. I sometimes want it at short notice when there is not time to make up a fresh lot; there is also the waste of throwing away half three-quarters of the old solution. I much prefer the pyro on account of it being so much cleaner than ammonia. I do not know the action of the sulphite in the developer, and do not know if an acid or alkali should be looked for to preserve it. I may add that I find 1 drachm metabisulphite in 1oz. pyro mixed up to 20oz. keeps well for several months in a corked bottle.—W. E. M.

The formula you refer to was stated to be slow. If you increase the pyro and the carbonate the slowness is remedied but development generally takes from five to ten minutes. Slowness does not denote want of keeping power—rather the opposite. Metabisulphite is perhaps the best possible preservative for sulphite. Alcohol is a good preservative, but we do not know if the sulphite preserved with it will be much good for development at the end of three months. A little metabisulphite will probably be more effective, but we are not at present able to state the minimum quantity that will serve. These matters that we hope to experiment upon shortly. For use as an emulsion, a mixture of sulphite and metabisulphite seems to last indefinitely, and though the conditions with pyro are somewhat different, we have found the same solution to serve well for six months. A good deal depends on the quality of sulphite used. Not very much is known with regard to the preservation of sulphite, but it seems to keep best when no alkali is present. In a few months we may have more information on the matter.

**W. C. E.**—J. Epstein and Co., Rupert Street, Bristol; the Birmingham Moulding Warehouse, 48, Great Hampton Street, Birmingham; Frost and Reed, 8, Clare Street, Bristol.

**REDUCING INTENSIFIED NEGATIVE.**—In the case of a negative which is too contrasty by re-development-intensification, can it be reduced by persulphate or sulphite of soda? Kindly recommend the treatment and oblige.—G. H.

Reduction with persulphate is apt to be irregular in such circumstances. If we understand you to have used a developer after bleaching, we should advise you to repeat the process, taking care to stop the process at an earlier stage.

**BLUE PRINTS.**—Would you be so kind to let me know whether ferric prussiate prints are as permanent as other papers, and you greatly oblige.—F. R.

They are fully as permanent as any other print; in fact, blue print is one of the most permanent forms of photography.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears on the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

sentence of three months' imprisonment for theft was passed at  
 row last week upon an enthusiast in pictorial photography.  
 offender had taken part in competitions and received awards in  
 shape of gold and silver medals. (P. 624.)

y. Pirie MacDonald explains his very simple adaptation of the  
 index system for keeping a watch on business which is in danger  
 slipping from the photographer's hands. (P. 615.)

case in which a claim for wages was made against the managers  
 factory which had stopped working was heard before the City  
 h last week. (P. 624.)

rther canvassing frauds, and robberies by canvassers, are  
 ted on page 623.

e refer on page 611 to certain practices and styles as regards  
 grounds which may repay revival.

ans of alleviating or preventing the metol skin disease are men-  
 d by two correspondents. (P. 624.)

. F. E. Ives has recently described before the Franklin Institute  
 fraction colour-meter. (P. 619.)

e only patent of the week is for a stand for the cinematograph  
 ctor. (P. 621.)

ne hints on colouring photographs with water-colours have been  
 shed by an American worker. (P. 617.)

. A. J. Anderson, writing on the use of a long-focus lens in  
 camera photography, makes a strong case against the normal  
 length of 5 in. on a quarter-plate. (P. 612.)

e Lumière Brothers have recently found that the theory of  
 on with hyposulphite does not apply equally to the different  
 ounds of silver. Their experiments again show the danger of  
 ing the fixing bath to the point of complete exhaustion. (P. 614.)

ne curious phenomena of marine photographs taken against the  
 appear to afford some explanation of the formation of water  
 ss. (P. 610.)

## EX CATHEDRA.

### The "B.J." Almanac, 1908.

Next year's volume of the "British Journal Photographic Almanac" is already the object of our immediate care, and we are at the moment looking forward to seeing a large proportion of its pages accumulate on our table between now and the end of September. In quite a number of respects the "Almanac" will be remodelled and brought up to date. One of our endeavours will be to save space without sacrificing matter, in order to co-operate with our publishers in reducing the bulk of the volume and making it more conveniently handled by both the reader and the distributor. In general, however, the arrangement of the current issue will be maintained, and no effort relaxed to make the "Almanac," as before, the most complete record of the photographic progress of the year, not only in technical matters, but as concerns the trade and business of photography. The practical formulæ section of the "Almanac" will also be revised, so as to bring it into line with the latest approved practice.

\* \* \*

### Pageants and Business.

There is no question that the pageants which seem to have been the order of the day during the past month or two have brought much business to photographers. They have also served to illustrate the enterprise of some photographers: for example, photographic reproductions of most of the scenes have appeared in the press the following day, and cinematograph pictures at the music-halls the same night; and within a day or so the different places where the pageants have taken place have been flooded with postcards depicting the various phases of the processions. Yet in many instances the cards are not the work of local photographers, but of enterprising London firms, who sent down operators specially to take the pictures. The local men, in most places, have been at work, and have obtained excellent results; but they did not get sufficient pictures on the market to supply the demand before the outsiders' supply came to hand, and, in many instances, at a lower price, much to the loss of those on the spot. We have more than once commented on the lack of enterprise amongst provincial photographers in the matter of the publication of postcards of local scenes and events. All these pageants should have proved a rich harvest to the photographers at the places at which they were held, but we fear that many have not profited by them to the extent they might have done had they been more energetic and enterprising, and so forestalled the outsiders.

\* \* \*

### Electricity Dangers.

Many photographers who now employ the electric light, and probably many who may adopt it in the future, understand very little of

electricity, and the risks they may run. The annual report of the Chief Inspector of Factories and Workshops, recently issued, shows the necessity for more caution being exercised by those employed in the installation and working of electrical machinery and plant. This report refers more particularly to generating stations and the like, but it should be stated that it applies equally to all places where the current is employed, even in photographic studios. At the present time the current supplied by most of the companies is of a much higher voltage than was the case a few years ago. Two hundred volts is now very general, and though hitherto that has not been looked upon as being at all a dangerous one to deal with, yet quite recently we read of a workman who was running wires for a temporary light being killed by a shock to earth of only 200 volts. Evidently the man was somewhat incautious, inasmuch as a current of that pressure is not considered actually dangerous, but only one that would give a severe shock. Mr. Henry Van der Weyde, who was about the first in London to adopt the electric light in portraiture, and who used a hand-feed lamp, always made it a rule when manipulating the light to keep one hand in his pocket, so as to avoid all risk of getting a shock, although he did not employ a voltage of anything like 200 volts—probably not half that. Still, at that, a shock, though not dangerous, is decidedly unpleasant. Photographers who employ the electric light will do well to be very cautious, and not touch any wires that are not thoroughly insulated.

\* \* \*

#### The Late Exhibition of the Royal Academy.

The Royal Academy having closed its doors last week, we learn that the attendance during the time it was open was about the average—a testimony to the position of the R.A. Exhibition in social life of all classes rather than to its "artistic" character. So far as the exhibition is concerned there was nothing very exceptional in it, as there sometimes is. Sales, we learn, have been below the average, particularly in the case of the higher-priced pictures. The highest price, we are told, paid for a single picture reached four figures—viz., one thousand pounds, for Mr. L. Campbell-Taylor's "The Rehearsal." Several of the pictures which met with the highest approval of the Press critics remain unsold, and many of those that did meet with sale have not realised what their painters fixed as their value. It seems that at the present time modern pictures are more or less a drug in the market, as witness the small prices fetched at recent auction sales by those for which a few years ago large sums were paid. It seems that, at present, the only pictures for which high prices will be paid are those by the old masters, as will be seen by the almost fabulous sums that have been given for them at auction sales during the past year or two. This does not seem a very promising outlook for rising painters, whose only consolation appears to be the possible, and sometimes remote, contingency that a few centuries hence their pictures will be changing hands at the price of a king's ransom.

\* \* \*

#### Some Applications of Ozobrome.

The following suggestions by M. Coustel in the "Photo-Gazette" are decidedly worthy of trial, and considerably increase the usefulness of this process. If one has a thin negative that requires intensification, we can use the ozobrome process. A sheet of the pigment paper should be immersed in the sensitising solution and squeezed into contact with the negative. If the negative is somewhat hard, it is advisable to increase the strength of the sensitiser and

reduce the time of contact. If, on the other hand, negative is soft, then the sensitiser should be reduced in strength and the time of contact increased. When carbon image has been developed, one may either dissolve out the original silver image or re-develop it. If the tensification given by the superimposed pigment image is insufficient, an easy remedy is to stain it with a dye, so that this image is formed by varying thicknesses of gelatine. It is advisable to harden the negative in formaline first, as to make it stand the hot water. If, instead of using carbon film on paper, a sheet of glass coated with gelatine and saturated with the sensitising solution is squeezed into contact with a bromide print, the gelatine will be rendered insoluble, and can then be inked up with collotype ink and printed from as usual in a press. The advantage of this process is that the original print can be re-developed and used for making other collotype plates without the intervention of light, nor is it necessary to reverse the negatives.

\* \* \*

#### Curious Water Reflections.

Everyone is familiar with the effect produced in a photograph taken against the sun and over the sea when the surface is rather low down. The result is a kind of lane of dazzling white specks, extending from the foreground to the horizon, and if these specks are closely examined with a magnifying glass, very varied effects can be observed. If we look upon the specks as images of the sun reflected from various water facets existing among the ripples, numerous problems present themselves, and are well worth study. In a great number of cases the specks are rhomboidal in shape, and this is the form that we have generally noticed, and usually expect to see. Within the last few days, however, we have seen some photographs in which the specks are quite a different nature. In the mid-distance they are circles with interior caustics. In other words, they more distinctly show astigmatic coma. In the foreground a very exaggerated kind of astigmatic coma is produced, the caustics develop long wings, and the effect is very much that of a number of white collar-studs floating on the water. The first suggestion will probably be that the astigmatism must be caused by the lens, but this happens to be a well corrected anastigmat that under ordinary tests will show anything like the amount of astigmatism obvious in the specks. Moreover, other photographs showing rhomboidal specks without any astigmatic effects have been produced with ordinary rectilinears capable of giving a large amount of astigmatism. The inference is that the lens has nothing, or practically nothing, to do with the matter, so that the solution of the problem is to be found in the formation of the water facets.

\* \* \*

#### An Interesting Speculation.

This suggests that in the study of the formation of water ripples and facets, we can learn a good deal with regard to the formation of water ripples and facets. Without photography they cannot well be examined at all, so possibly there is a new field of research open to photographers. It is, however, equally possible that someone has already exhausted the field, but we are not aware of any work done on these lines. The astigmatic effects admit of fairly easy explanation if we make the assumption that the water facets are convex and so form little convex mirrors; but if this explanation is the true one, then it would appear that the water formation must have been unusual, for the rhomboidal specks, which are so much more common, cannot be explained in the same way. They suggest the existence of either plane or concave facets of a rhomboidal



pe. Up till now we have not given much attention to subject, as we have generally assumed that specks of a more or less rhomboidal form were always to be found. The perfectly formed little aberration images with sharply defined caustics are quite new to us, hence it is likely that other forms exist that we have never noticed. If any readers have negatives showing such aberrations, we shall be very glad if they will kindly let us have prints for examination. We shall then be able later to report on the effects observed. It is unsafe to speculate on a few results alone, for safety lies only in a multitude of observations.

\* \* \*

#### Parallax.

In a recent patent specification concerning a camera for three-colour work, in which camera three lenses are arranged in triangular fashion, the following curious statement is made: "Owing to the law of parallax a camera with its three lenses is always in focus—that is to say, no focussing is required, as the camera can only be used for objects situated beyond a definite point, varying with the focal length of the lenses used." At first this is unintelligible, but possibly the writer's intention was better than his mode of expression. The term parallax is, however, so frequently misused that we feel obliged in pointing out definitely that there is no "law of parallax" that will serve to keep a camera in focus. Parallax, properly so-called, is an expression defining the difference in the apparent position of an object caused by changing the point of observation, and any such difference is described as a parallactic difference. Thus parallax has a part in vision, for the apparent position of an object varies according as we look at it with the right eye or the left. It also comes in in stereoscopy, for there is of necessity a parallactic difference between a pair of stereoscopic views. Therefore there are also parallactic differences between the three images produced by a triple lens camera used for three-colour work, for which reason such cameras are generally in disfavour. It is obvious that if the differences are considerable the three images will not agree sufficiently to permit their being bound up or ordered in register. They will not register any better than a pair of stereoscopic images produced in similar conditions, and, in fact, two of the images may be used to make a stereoscopic slide.

\* \* \*

#### Distance of Parallax.

There is, however, a saving clause on which the patentee is evidently relying. You cannot produce a pair of images giving stereoscopic relief if the object is distant and the lenses close together. There will be insufficient parallax to show any obvious difference, and to gain enough parallax for stereoscopic purposes you must either increase the separation of the lenses or go much nearer the object. Therefore, you put the three lenses of a three-colour camera very close together and keep well away from the object, one can avoid any unfortunate stereoscopic differences and obtain three images that will register with very approximate accuracy. If, however, any near foreground objects intervene these will not register, and the defects of arrangement will become manifest. It is, then, fairly evident that what the author of the specification meant something like this: Owing to the effects of parallax a camera can only be used for objects situated beyond a definite point varying with the focal length of the lenses. It does not follow that parallax will not exist; it is only necessary that it should be reduced to such a small amount as to be imperceptible.

#### SOME BACKGROUND MATTERS.

It is often a matter of surprise that many portrait photographers make so little variation in their backgrounds. The remark does not apply very much more to the middle-class men than it does to those of the higher class. It must, however, be admitted that well-painted backgrounds are, of course, somewhat expensive, and when one has a stock say of from six to a dozen, even in a good business it cannot be afforded to replace them very frequently. Our immediate object, however, is not to call attention to the frequency with which one may observe a background of some peculiarly aggressive outdoor scene appearing in a photographer's window, but to make one or two remarks on the employment of the plain or graded background which we are glad to see is largely replacing those of the scenic variety in the great majority of studios. There is the idea, we fear, among the less experienced of photographers that they have only got to assume the use of the shaded type of background, and forthwith their work becomes comparable with that of So-and-So, who has made such a reputation for himself by discarding all kinds of rural and marine scenery behind his sitters. Yet it is a fact that the misuse of the plain or graded background is almost as generally evident as the atrocious anachronisms which have been perpetrated with the assistance of the background of the curtain, pillar, and vase type. And, indeed, the portrait photographer ought to see at once that a fixed gradation in the pigment of the background does, indeed, expose him to dangers which he is free from in the case of a perfectly plain background, and our suggestion is that the effects of light and shade should be studied by the aid of a ground of this character, and a further step then taken when a better understanding has been arrived at as to how the grading of the background will assist the natural action of the studio lighting. If, for example, a full-sized background be placed a good distance behind the sitter, and at an angle towards the light, one portion of it will be more strongly lighted than the other, and consequently will be lighter in the picture. The top corner can, naturally, be shaded with the roof blinds or curtains. In this way a graduated background is obtained that will be in unison with the lighting of the sitter. Again, by reason of its great distance from the sitter, considerable atmosphere is secured in the picture, and, conversely, if the background is sloped away from the light, the shading will be reversed. All this is quite easy, yet too many neglect this method and employ permanently shaded backgrounds, and too frequently in such a way that they do not harmonise with the lighting of the sitters.

We have been assuming, in what we have just said, that full size backgrounds are employed; but in the case of bust portraits and vignettes, smaller ones, and with clouded effects, are frequently used, and are of some advantage since, in the case of vignettes, they save the printer some trouble; but, as a rule, there is a great monotony in them, as there must be when only one or two stock backgrounds are possessed. For bust portraits or vignettes only small backgrounds are necessary—6 ft. by 4 ft. 6 in. is ample—and we would advise the photographer to prepare a background suited to the sitter in shape and other respects. A material is to be had of any length up to about 5 ft. wide, under the name of carpet paper, at any of the large furnishing warehouses, at some 3d. or 4d. a yard, and a couple of yards is sufficient for one of these backgrounds. The paper may be had in two colours—one about that of ordinary brown paper, and the other of a lightish grey. Both are useful for our present purpose—the former for bust portraits, and the latter for vignettes.

If we have one or two light wooden frames made, sav

6ft. by 4½ft., with a couple of cross pieces at the bottom as feet for them to stand upon, we can readily make a variety of paper backgrounds suitable for any subject. Each frame, of course, will do for two backgrounds, and it goes without saying that each side of the paper can be utilised. The latter can be fastened on the frames with a few drawing pins, and so can be quickly removed and replaced by others when required. The raw material being so inexpensive, a special shading might even be done for each sitter to suit the colour of the dress of the sitter, whether it be light or dark, and generally to the advantage of the portrait. The carpet papers have a certain amount of tooth, and will retain fairly well any colour that may be rubbed upon them.

For the colours, those sold at the oilshops in powder answer every purpose, and are of quite a nominal price. Those which will be most useful are drop black, burnt umber, and burnt sienna, and common whiting. With an admixture of these a great variety of tints can be made, which can be kept in stock for use when required. They are applied by simply rubbing them on the paper, dry, with a duster or piece of rag. In this way it is very easy, after the sitter is seated, to modify the background by applying a little lighter, or darker, colour, whenever an improvement can be effected, as it is only the work of but a few seconds.

Here we have been dealing with shaded or clouded effects, such as are usually introduced in vignetted pictures. These, however, are not so much in demand as plain bust or half length portraits. But extemporary backgrounds can be easily made by similar simple means to greatly enhance these pictures. Most of us are familiar with the famous Richmond drawings, or Richmond heads. The beauty of these portraits was due in great measure to

the backgrounds, which consisted of hatched, or cross-hatched, lines—light near the face, and more or less bold and strong round the figures. Practically these pictures were vignettes. With these paper backgrounds as described, it is quite an easy matter for anyone to put on some hatched lines similar to those seen in the Richmond pictures. For the bolder ones a stick of charcoal is all that is required. For the less bold, dark brown dark grey common chalks, such as those used by "pavement artists," are very suitable. After the work has been done the effect can be softened anywhere if shading is desired with a duster or a finger, after the manner of the pavement artist, who may be named as an illustration of the rough work that is required. Although it is mentioned how softening of the lines can be done, it is not desirable that they should be softened at all, or only very slightly. The peculiarity of the Richmond backgrounds is that it is all hatching and cross-hatching, fine and open in the lighter portions, and crossed and crossed in the darker parts, especially towards the lower portion of the picture. It goes without saying that the work can be quickly modified when the subject is seated before the background, an operation which will probably impress the sitter with the care which the photographer is taking to obtain a good picture.

The object of these notes, we would again say, is to point out that many portraits may be greatly improved by more attention being paid to the backgrounds, more particularly those of the head and bust type. If a plain background be only slightly relieved with something in the shape of the hatching and cross-hatching of the Richmond heads, the portraits will be far more artistic, and more satisfactory to the sitter, while the reputation of the photographer will probably be enhanced at the same time.

## VIEW-ANGLE AND FOCAL LENGTH IN PICTORIAL WORK.

An editorial statement in THE BRITISH JOURNAL of July 26 gave me great pleasure; for the statement was made "Ex Cathedra," and is therefore beyond all question and criticism:

"From the pictorial point of view, the ideal focal length for use with quarter-plates is 10 in."

It is true that this dogma is immediately qualified, and a short focus lens advocated for hand-camera work; but this short focus lens is recommended on the distinct understanding that only a portion of the film is to be used in the subsequent enlargement, thus maintaining the pictorial narrow view-angle.

Well, as far as the pictorial drawing in the photograph goes, it does not matter whether a 10-in. lens be employed on a quarter-plate, or a 5-in. lens be used on a portion of the film measuring 2 in. by 1½ in., and afterwards enlarged two diameters; for the view-angle of the two pictures will be identical, and provided the photographers stand at the same station point, the perspective in the pictures will also be identical.

### A Pictorial View-Angle.

With the exception of those who photograph for scientific purposes, I fancy every photographer, whether he be professional or amateur, portrait taker or view maker, aims at pictorial effect, desiring to obtain a pretty picture; but of these very few appear to realise the importance of the view-angle.

The view-angle included when using a 10-in. lens on a quarter-plate is an angle of 23 deg.; and exactly the same view-angle would be included if one were to employ a 5-in. lens on a portion of the film 2½ by 1½ (with the intention of subsequent enlargement), or if a 20-in. lens were used on a whole plate. Of course,

this is not the only pictorial view-angle, for sometimes a wide angle must be employed to include the desired subject, as in architectural work; and sometimes, when the distance is beautiful and important, a narrower view-angle is desirable: but for most landscape work, whether commercial or otherwise, a view-angle of 23 deg. will be found to be quite satisfactory:—

Now if a 5-in. lens and a 10-in. lens were used from the same station point, it would be found that the 5-in. lens included twice as much in the picture as the 10-in. lens included; and also it would be seen that the 5-in. lens drew all objects half the size that the 10-in. lens drew them: but in actual practice the man with the 5-in. lens would not choose the same station point as he who worked with the longer focus lens. In actual practice both these photographers would desire to depict a certain prominent object, such as a cottage, or a group of fishermen, a clump of trees, a certain size in the picture; and therefore the man with the 5-in. lens would choose a station point nearer the principal object. Consequently, although each photographer would draw the cottage the same size, the user of the 5-in. lens would depict the distant hills only half the size of those in his comrade's picture.

This is more important than it may appear at first sight, for it is the principal object of interest which sets the scale of the picture that is depicted in the rest of the picture; and if the distance be drawn too small, it will appear dwarfed and insignificant, and give an impression that it is smaller and farther away than it is in reality. It is easy to test this fact by examining the photographs of known places in a railway carriage or view



m: in nearly every case, provided these photographs be  
ained calmly and critically, it will be found that they con-  
an entirely false impression of the places which they are  
aded to depict; the lofty cliffs of Newquay appear low and  
t, the noble mountains of Scotland and Wales insignificant  
uninteresting; lakes and bays appear too wide and empty.  
only where the scenery is crowded and confined that the  
r view-angle is an advantage, since it makes the more distant  
ts appear further off and less overwhelming; but even here  
se impression is given, and the place which looks so beauti-  
in the photograph will prove disappointing when viewed in  
ty.

### Long-Focus Lenses.

suming that a view-angle of about 23 deg. is desirable in  
ictorial work, the question before us is this: shall we  
oy a 10-in. lens in our quarter-plate camera, or use a  
mary 5 in. lens and enlarge a portion of the film?

every practical photographer knows, the employment of a  
long focus lens in an ordinary hand-camera is impractic-  
owing to the difficulty of securing the object of interest  
ne sharpest possible focus, and also because the foreground  
distance are apt to come too much out of focus. But at the  
of questioning an "ex cathedra" decision, and incurring  
major excommunication, I venture to suggest that a 10-in.  
in a reflex camera is quite within the realms of practice,  
that the two form a happy combination.

ter some five years' experience of reflex cameras fitted with  
lenses, I ought to know the subject from a practical stand-  
t; and I can say that I have found the theoretical objection  
such lenses lack sufficient depth of focus at the larger  
ures to be purely theoretical. Of course, those who wish  
photograph a group of fishermen in sharp focus, and at the  
time render each rope in the rigging of the distant fishing  
ks equally distant, would find a 10-in. lens at  $f/8$  unsatis-  
f; but anyone who seeks that aerial perspective which  
tained by softening the distance and blending the details  
e distance into soft masses of light and shade will find a  
focus lens an unmixed blessing.

ind, I am not speaking of fuzzy work, for no one desires  
ness and cleanness in the original quarter-plate negative  
than I do; but I desire the same quality in my photo-  
hs that I find in all I see, for when I look at some object  
ature and focus it clearly with my eyes, I find that my  
n blends the more distant objects into broad masses of half-  
s so that they may not disturb me, nor distract my atten-  
from the object at which I am gazing.

actual use, I find that when the principal object is some  
nce from the camera, so that a horse would give an image  
t half an inch high, a 10-inch lens can be used at  $f/5$ , with-  
making the distance too fuzzy; and the sharp foreground  
ng against a softened distance stands out clear and distinct,  
st the softened distance goes back into its proper plane.

quality is lost when a 5-in. lens is employed.  
ith larger figures in the foreground, it is usually desirable  
top down to  $f/7$ , but the longer I use these long focus  
s and the more experience I acquire, the less need do  
d of stopping down.

hen as to the objection that it is sometimes difficult to get  
enough away from the object to be photographed—and in  
ing this I am simply tempting the powers to hurl anathemas  
excommunication at my head—it may be difficult at times,  
it is worth the trouble it involves. Take any group of  
rmen or peasant women with a 5-in. lens, and you have a  
p of wooden figures, with sheepish grins and empty heads—

even children seldom stand the ordeal; take them with a 10-in.  
lens, and, as you wait your time, pretending to focus and so on,  
you will find their faces grow natural, their muscles relax, and  
their poses become natural.

The chief objection to a long focus lens is the bulk of it, and  
the weight of it, and the cost of it; and I acknowledge that this  
is a very practical objection. Probably, if I were to buy a new  
lens, I should follow the advice I gave a friend, and sacrifice  
some of the aperture, and an inch of the focal length, and buy  
a little 9-in. lens working at  $f/7.7$ .

### Short-Focus Lenses.

I have nothing to urge against short focus lenses, as long as  
the editorial counsel is followed, and the view-angle is kept  
narrow by only enlarging a portion of the film. But perhaps I  
may be allowed to offer a few suggestions founded on personal  
experience.

If the ordinary hand-camera be employed, and the image be  
sought and the picture arranged in the tiny finder supplied with  
the camera, it is generally useless to think of enlarging only a  
portion of the film afterwards; for not one in a thousand, with  
that dainty little image before him, will be able to mentally  
pick out a portion of that image to form his picture. Again,  
if the picture be arranged on the focussing screen of a camera  
fitted with a short focus lens, the camera will instinctively be  
brought near enough to the principal object to make it appear  
large and important on the focussing screen; and when a por-  
tion of the negative is enlarged it will be found that the ultimate  
size of this principal object is simply overwhelming. No, if  
either the finder or the screen be employed in the composition  
of the picture, in most cases the whole of the negative must be  
enlarged if the result is to be satisfactory.

If the advice given in the editorial columns is to be followed,  
the man with the ordinary quarter-plate camera, who proposes  
to enlarge a small portion of the film, will find three courses  
open to him. He must either have a new finder which includes  
a narrow view-angle fitted to his camera; or he must mask the  
edges of his focussing screen, and compose his picture on the  
remaining space near the centre; or he must use some view  
finder, which is quite separate from the camera, for the purpose  
of selecting and arranging his picture, and only employ the  
finder on the camera for the purpose of centring his subject.

I have never tried the first course, as I find the brilliant  
little picture in the bright finder somewhat deceptive and mis-  
leading; but I have found the masking of the edges of the  
focussing screen, so that an oblong aperture measuring 2 by  
 $1\frac{1}{2}$  in. is left in the middle, excellent; if a small square readin-  
glass be employed to focus with, a very good idea of the effect  
of the picture, when it has been enlarged, may be obtained.

The third alternative is perhaps the most satisfactory: a  
sheet of stout cardboard measuring 6 by 5 in. is obtained, and  
an oblong aperture 3 by  $2\frac{1}{4}$  in. is cut in the centre, so that the  
remaining card forms a wide frame; a piece of string is attached  
to the inside edge of the frame, and a knot tied at a distance  
of  $7\frac{1}{2}$  in. from the card. In practice the frame is held parallel  
to the face, and the knot placed against the cheek-bone to give  
the distance. By raising the frame slightly the effect of a rising  
front may be ascertained. The photographer must not forget  
to stoop down to the height at which he will hold his camera.

Whatever method may be adopted, there is no doubt that in  
most cases the ideal view-angle for pictorial work is similar to  
that which is included when a 10-in. lens is used on a quarter-  
plate.

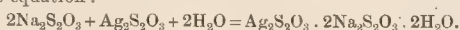
A. J. ANDERSON.

at the Ashby Police Court last week Frederick W. C. Page,  
tribed as a photographer, of no fixed address, was charged with  
ing six bagatelle balls, value 21s., the property of Geo. Barnett,

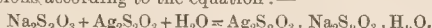
licensed victualler, Measham, on April 25 last. The Chairman said  
there were twenty-six previous convictions against the prisoner, who  
would be sentenced to three months' hard labour.

# THE COMPOSITION AND PROPERTIES OF THE SALTS FORMED IN THE FIXATION OF BROMIDE AND CHLORIDE PLATES.

In our previous studies on the use of the fixing-bath we have shown that the quantity of silver bromide dissolved by a given weight of sodium thiosulphate (hypo) does not correspond with any of the recognised formulæ for the salts supposed to be formed. It is assumed that the silver halides dissolve in hypo with the formation of the same double salts as are formed when silver nitrate and hypo are used. The salts formed differ according to whether one uses an excess of, or insufficient, hypo. In the first case it is assumed that there is a combination of three molecules of thiosulphate and two molecules of halide, according to the equation:—



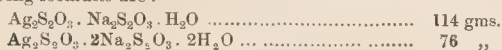
In the second case that the two salts combine in equimolecular proportions according to the equation:—



We have tested the salts formed in fixing plates and paper to see whether they actually have the composition supposed.

## Silver Bromide.

If in the dark 15 and 45 per cent. solutions of hypo are saturated with freshly precipitated and washed silver bromide, 63 grammes of silver bromide are required for 1 litre of 15 per cent. hypo solution, whilst the quantities calculated for the following formulæ are:—



In the case of a 45 per cent. solution of hypo the quantity of silver bromide is 205 grammes per litre—that is, about three times as much as with the 15 per cent. solution.

The solutions thus obtained were filtered, and the undissolved residue analysed after the soluble salts had been removed by repeated washing. This residue was found to be pure silver bromide, the excess of the silver halide which was added to the hypo. This result is opposed to the accepted hypothesis of the formation of the salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot \text{H}_2\text{O}$ . As this salt is but slightly soluble in water, it should have been found mixed with the excess of silver bromide. Further, the solution when filtered remains clear: no insoluble salt is deposited. We tried to isolate the double salts contained in this solution, first by fractional evaporation at low temperatures, and also by the addition of an equal volume of alcohol. In the first case small quantities of silver sulphide were thrown out of solution, and could be removed by filtration as they were formed. When the solution was sufficiently concentrated, the pearly-white scales which were deposited were collected by drawing off the mother liquor, washed with a very small quantity of water, freed from moisture on a plaster tile, and dried at 105 deg. Fahr.

If the mother liquor is evaporated, a second, and even a third, quantity of crystals can be obtained, having the same appearance as the first.

Instead of evaporating the solution, it can be mixed with an equal volume of alcohol. There is then obtained an oily separation, which collects at the bottom of the liquid and soon sets to a crystalline mass.

The separation of this oily liquid can be avoided and well-defined crystals obtained, if the solution is first mixed with sufficient alcohol to form a permanent cloudiness and a few crystals of the substance then thrown in. On violently shaking and adding more alcohol to complete the precipitation and allowing to stand for some hours, a fine crop of crystals will result.

The crystals thus obtained should be collected, drained,

washed with alcohol, dried on a plaster tile, and then finally in a drying chamber at 140 deg. Fahr. The product, as well as that obtained by fractional evaporation, was analysed, and the sulphur, soda, and silver therein estimated. For this purpose it was heated in closed tubes at 446 deg. Fahr., with concentrated nitric acid, so that the silver was converted into nitrate and the sulphur into sulphuric acid. The products were then evaporated after adding hydrochloric acid, so that the nitric acid escaped and the silver precipitated as silver chloride, and weighed. The sulphuric acid was estimated as barium sulphate and the soda as sodium sulphate.

The following is the percentage result of this analysis:—

	Fractional evaporation of 15 per cent. to 40 per cent. hypo solution saturated with silver bromide.			Precipitation of the saturated solutions with alcohol.	Results calculated for—	
	1st Fraction.	2nd Fraction.	3rd Fraction.		$\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot \text{H}_2\text{O}.$	$\text{Ag}_2\text{S}_2\text{O}_3 \cdot 2\text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}.$
Sulphur.....	28.5	28.2	28.2	28.3	25.99	28.2
Silver .....	31.7	31.8	32	31.6	42.85	31.76
Sodium .....	19.6	13.4	13.4	13.5	9.12	13.53
Water of crystallisation .....	5.3	5.3	5.3	5.3	8.5	5.3

These results show that, in spite of the excess of silver bromide, only the salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot 2\text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ , which is very soluble in water, is formed, and that the salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot \text{H}_2\text{O}$  not formed, as is usually assumed.

This salt appears as white pearly glistening scales, of very sweet taste, which are very soluble in water (about 60 per cent. at 60 deg. Fahr.). The solution diluted to 1 : 1,000 is slowly decomposed with the formation of very finely divided silver sulphide, which makes the solution brown without any precipitation.

The concentrated solutions up to 5 per cent. are stable, and can be heated to 212 deg. Fahr. without silver sulphide separating out. Yet this decomposition takes place if the solution is boiled for a long time, and in the light the solutions slowly deposit silver sulphide.

Above 5 per cent. the solutions deposit—with increasing rapidity and quantity the more concentrated they are—well formed transparent crystals, which are insoluble in water. These were analysed after being freed from every trace of mother liquor by repeated washing. As nitric acid only slightly attacks them, the analysis was made with bromine water.

The following were the results:—

	Calculated for $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot \text{H}_2\text{O}.$			
	...	...	...	...
Sulphur ...	25.37	...	...	25.39
Silver ...	42.78	...	...	42.85
Sodium ...	9.10	...	...	9.12
Water of crystallisation 3.56	...	...	...	3.5

This compound, insoluble in water, has then the composition of the double salt, which has hitherto always been assumed to be formed by the action of silver nitrate on an insufficient quantity of sodium thiosulphate. It also possesses the properties which have been ascribed to this substance, its characteristic insolubility in water, its instability in heat. It blackens at 104 deg. Fahr. with the formation of silver sulphide. This substance appears, therefore, to be formed by the action of water



the salt, which contains 2 molecules of sodium thiosulphate and 1 molecule of silver thiosulphate.\* This does not appear to be formed when a 15 per cent. solution of hypo is saturated with silver bromide, for one litre of this solution only requires 63 grammes, and not 76, which would correspond to the salt in question.

The solution obtained appears from the calculation to correspond to a double salt which is formed by the action of 5 molecules of silver bromide on 9 molecules of thiosulphate. This compound is without doubt unstable and exists only in solution, as it is only possible to isolate the salt corresponding to the action of 2 molecules of silver bromide on 3 molecules of thiosulphate.

#### Silver Chloride.

We have ascertained that when a 15 per cent. solution of hypo is saturated with precipitated silver chloride in the dark, it can (contrary to when the bromide is used) dissolve exactly the quantity which corresponds to the formation of the salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot 2\text{Na}_2\text{S}_2\text{O}_3$ —that is, 58 grammes of silver chloride for 150 grammes of crystallised thiosulphate.

If the solution with the excess of silver chloride be filtered, the silver is deposited gradually in the course of time considerable quantities of a compound in large transparent, very regular crystals, which are insoluble in water and possess properties very similar to those assumed for the double salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{S}_2\text{O}_3 \cdot \text{H}_2\text{O}$ .

The analysis of this substance, after repeated washing with water to remove every trace of the mother liquor, gave the following results:—

	Found.	Calculated for $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ .
Silver	24.36	24.6
Sulphur	40.99	41.1
Sodium	8.75	8.81
Water of crystallisation	6.7	6.9

This compound, therefore, contains one molecule more water than the double salt formed when silver bromide is used. If an aqueous solution is precipitated with alcohol, as described for the bromide, there is a separation of white plates which are a mixture of two substances.

The substance is not completely soluble in water, and there remains considerable crystalline residue. The analysis of this residue gave:—

	I.	II.	III.
Sulphur	32.3	31.6	—
Silver	38.3	37.7	39.7
Sodium	10.7	—	—

It will be seen that the composition is not constant, and is

This decomposition partly takes place when one tries to purify this salt by dissolving it in water and precipitating with alcohol. A compound is then obtained in white scales, which are only partly soluble in water, and which is probably a mixture of the two double salts of the following composition:— $\text{S}_2\text{O}_3 \cdot \text{H}_2\text{O} \cdot 2\text{Na}_2\text{S}_2\text{O}_3$ ,  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ .

intermediate between the two compounds isolated when silver bromide was used. Alcohol precipitates, in the case of silver chloride, a mixture in variable proportions of the salt which is formed of 2 molecules of thiosulphate and 1 molecule of silver thiosulphate and that formed of equal molecules of the two thiosulphates.

If the insoluble part of this mixture is separated by filtration and purified by repeated washing, a body is obtained in small transparent crystals, which from its composition and properties may be considered as  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ .

The same substance is also obtained if the mother liquor from which these crystals are obtained is tested. The properties of this solution coincide with those of a solution of the double salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot 2\text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ . This double salt could be isolated in a pure state. If one tries to precipitate it from an aqueous solution, or to obtain it by evaporation, there is always obtained a compound only partly soluble in water, and the insoluble  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot \text{H}_2\text{O}$  is found in the residue.

#### Summary and Practical Conclusions.

It appears from the foregoing that the solution of silver bromide and chloride in thiosulphate does not give the same double salts. These compounds are, indeed, in both cases double thiosulphates of silver and sodium, but their composition is very different from that which has hitherto been supposed. They appear to be the same whether a 15 per cent. or a 45 per cent. solution of hypo be used.

In the case of silver bromide it may be assumed that the saturated solution contains a double salt composed of 5 molecules of silver bromide and 9 molecules of thiosulphate. This salt, which only exists in solution, precipitates on evaporation or precipitation with alcohol a double salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot 2\text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ , which, in sufficiently concentrated solutions, is gradually decomposed into the double salt  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot \text{H}_2\text{O}$ , which is insoluble in water.

In the case of silver chloride the hypo solution is saturated with a quantity of silver halide which exactly corresponds to the composition of  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot 2\text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ , but the saturated solution deposits an insoluble salt of the formula  $\text{Ag}_2\text{S}_2\text{O}_3 \cdot \text{Na}_2\text{S}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ . Finally, from this solution there can be isolated the two double salts, which can be separated in the case of bromide.

Although these results lead to a conclusion differing from that which has hitherto been assumed, they nevertheless confirm the danger of using the fixing bath till saturated with silver salts. There is danger of the formation of insoluble and unstable double salts, which may be formed directly with the silver chloride deposited on the image so that it cannot be removed, or indirectly and deposited generally in the film.

It is important, therefore, in fixing plates and papers to avoid using the fixing solution until it is saturated with the silver halides.

A. AND L. LUMIERE.  
A. SEYEWETZ.

## KEEPING TABS ON YOUR BUSINESS.

[Causes of leakage of business and expedients for improving things are strong points with the American photographers, but not all of them can write about the particular ways and means as does Mr. Pirie MacDonald, of New York, who, in the "Photographer," has been telling his colleagues exactly how he keeps his clients warm to the task of making up their minds as to proofs which at first may not immediately please them. Mr. MacDonald's method, as described in the following article, is, after all, an application of the card index.—Eds. "B.J."]

Twelve years ago a man stopped me on the street and said that he would be glad to pay his account if I would send him a bill. That night, during the long black watches, when business becomes a nightmare, I dug up another case of a man whose money I did not remember getting, but whose pictures had been delivered.

When I searched the books the following day no trace of a charge could be found, and immediately thereafter was developed a most desperate case of "blue funk."

In those days suspicion used to take on violent form much more easily than it does now—probably because I knew less, and thought I knew more, than I know that I know now. At any

rate, I got busy in an effort to stop the leak that looked as though it spelled "Ruin," and to try to get all that was "a-comin' to me."

On thinking the matter over very carefully I found that there was another fault that should be overcome at the same time—that, after making a set of proofs, and because the sitter forgot about them, or was only partly interested, or the proofs were not sufficiently satisfactory, the order was never booked. I found that it was only spasmodically that we looked the matter up, and that the spasms were infrequent and irregular, and that many times the proofs had been sent so long before we discovered it that it seemed like impudence to attempt to revive interest in the affair, and much more to force an issue.

About that time the card systems were first being exploited, so it was natural to turn to cards for the solution of the "charging" difficulty—to make out a card every time a sitting was booked—to put it with all the other orders until the work was delivered—then to mark it "Charged" when the charge was made, and then—and not until then—to put away the card. It would be a reminder every time it was handled, and as it, with the others, would be looked over every day, the delivery without charging would be discovered within twenty-four hours; and, as the card would be taken out of the set when charged, only live matter would be handled. Not like the register, where it would be buried with a lot of "proof out," "in work," and "delivered," but only with live accounts.

As a similar arrangement would have to be made to keep track of "proofs out," it seemed as though the office work would increase in volume tremendously—though the results attained would each warrant the extra work, it was necessary to keep the labour item down in order to make the most money, so we devised a card which would get rid of the necessity for a register, and be at once a register, a record of "proof out," and a sure check on "uncharged deliveries"—and here it is:—

#### THE RECORD CARD.

No. ....	Name .....	Date .....
Address .....		
Order .....	\$ .....	
.....		
.....		
Finished .....	Total .....	
Delivered .....	Cash Cr. ....	
.....		Balance .....
.....		
.....		

You will notice the usual space for negative number, date, name and address, order, price, total, cash credit (deposit), date of order, date finished, date of delivery, and the space for rubber stamp to denote "paid" or "charged"—in fact, everything that the register gives.

The way to work it is this: When a sitting is made the card is filled out with the name, address, and date—some folks fill the order in at the same time—we do not, for we always hope that they may be induced to eventually believe that they want more than they think they want when they sit—and we always stand open to an endeavour in guiding them toward that belief.

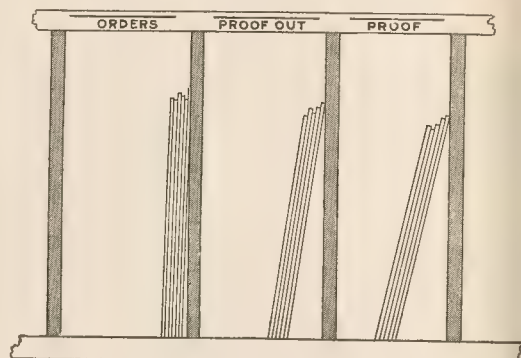
When the card is filled out put it in a pigeon-hole in the desk marked "proofs" (see diagram), and there the card stays until the proofs are sent out—though honesty impels me to state that proofs are sent out as rarely as possible, for we feel that a little chat in the studio enables us to assist materially in selecting the best proofs, and prevents the customer overlooking certain proofs that they otherwise might not have noticed! However, when the proofs are sent out the card is placed in the next compartment "proofs out" (see diagram).

This is the little hole that has the prize—this is where you make money out of what would otherwise be of the scrap heap. When a man or woman has had a sitting they have proved that

they have some interest in photographs—it should be easy to sell to one who is already started—then why advertise to people who have no interest in pictures when the labour and money can be used on people who have already told you that they want pictures—people who know you—who have been in your place and who know just what you are doing—who know your prices and styles—and have had confidence enough in you to come to your studio?

Sure enough, it is easier to get them to buy than to educate a stranger—cheaper to make a resitting than to make a brand new customer—and remember that people leave your shop either as "boosters" or "knockers"—if they do not just exactly like the proofs—even though it is their own fault, it is better for you to spend a little more on them—sell the full order and make "boosters" out of them.

Use up what you have on hand before you cut into new material. Many photographers cry about lack of business, where, if they would finish up what they have started they would be busy at all times—more profitably—and with more satisfaction to themselves and their customers—for your customers respect a man who is "on the job."



I loathe waste, and when a person has gone so far as to have a sitting and you fail to satisfy, and sell to them, it is waste!

Nearly everybody asks, "But how do you get them in again? what do you write to them?" Though this page is not a "Photographers' Ready Letter Writer and Compendium of Polite Correspondence," I will give you an outline of how to do it. At the end of the first week we write to the effect that "We imagine that they must have been busy, as the proofs have not been returned, and we know that they are in a hurry for the pictures—we let us know what they want and we will use all expeditiousness and will not let their delay affect the delivery." Then three days later we write that, "As they have not yet found time to come in with the proofs we will be glad to send someone to them about their order if they will appoint a time." This usually brings a response, but if it should not, within a week a letter is sent saying that we are beginning to fear that the proofs are not wholly satisfactory or the order would have been placed—and though two or three of the proofs are splendid pieces of workmanship, we realise that expression is a matter of individual fancy—and if it is not just what they want we will be glad to make another sitting—won't they come and tell us about it, etc.

In nine cases out of ten this third letter will bring them again—and gives us the chance we want—for with the proof before us we can readily make such changes in a new sitting as will satisfy the customer. Of course, that is what we want to do—really please the sitter—it is not so hard to do when you know what they want—and pictures can be sold when they really please.



the third letter does not do the work at once, someone is to see the party, and the matter is closed one way or another. If a small order is accepted from the most satisfactory customer, or an appointment for a resitting is made, or the whole is closed—to the satisfaction of the sitter. Better be generous enough to mark the card "no order" than let the letter drag. Clean things up as you go along—it makes you better and you know where you stand—and all this within a few weeks—you keep them warm all the time, with no chance of cooling off.

Just write up your last month's business and work the details through on this plan, and see whether it does not help for the trouble.

After the order is placed, fill out the card as you would in a register and place it in the "order" compartment (see diagram), and there it stays until the pictures are delivered. When charge is made or the money is paid the card is filed in the filing cabinet.

Think of the command you have over your business while

you are sitting at your desk with the orders all in one pigeon-hole in front of you—only the live orders. If the package is too large, the shop is not working up to the business, and needs pushing. If the bunch is too small the sales are running behind, and more hustle must be made for new business. The "proofs out" need crowding. If you watch the size of the package you will always find it too large or too small—something always needs pushing, and what we Americans like is to know what to push—we have plenty of it, but it is hard to tell just what is the right thing to hammer—and the "order" cards are a sure and constant indication—it tells you every day, either "push in" business or "push out" work.

It is all so simple and easily done that anyone can do it, and the scheme has the great advantage of putting to one side everything that is finished and keeping on hand only the cards that tell of the work in hand—you do not have to look over endless and confusing columns to find out about an order, for you have only as many cards as you have orders unfinished.

PIRIE MACDONALD.

## WATER-COLOURING OF PHOTOGRAPHS.

The following article, which we quote from the "American Amateur Photographer," in continuation of that which appeared in the "B.J." March 29, 1907, affords instruction in the use of water-colours for the chromatic finishing of photographic prints. The previous article is the same author dealt with wash-colouring with aniline dyes.—Eds. "B.J."]

In the previous article it was my purpose to present a colouring method by which anyone unfamiliar with painting as an art could use the various mineral colours now upon the market and produce good results. Briefly stated, this class of colouring is known as "wash painting," and while it is true that the majority of the so-called hand-coloured photographs are wash-painted, because it is easier and requires less skill, still it has remained for the true artist to produce something finer, a picture that will give him credit for his knowledge as to the proper uses of water colours and the methods employed in their application. Knowing that one's artistic tastes are apt to have led him into the two channels of artistic expression, water-colours and photography, it is my purpose in the following article to show how the combination of them is capable of producing results of great artistic merit. It is therefore to the photographer who knows something of water-colour painting in the ordinary acceptance of the term that I speak.

### Taking the Photograph.

If you intend to produce really artistic and well-appearing coloured prints you must begin with that idea at the very start of the picture-taking process—namely, the plate and its exposure. I take for granted you well understand the fundamental rules of composition, proper exposure, development, etc., and I will only add a few hints regarding these special stages of the work.

1	2	3	4	5	6
7					

Subject	New Jersey Farm
Exposure $\frac{1}{2}$ sec.	Stop f-8
Tree trunks	- 5-6
Tree foliage	- 2-3-10
Fallen leaves	- 4-2-3
House	- 5
Roof	- 13
Sky tints	- 6 (light) 5
etc., etc.	

Select a subject that you think will colour well, some quiet little woodland bit, for an example, with soft, pretty foliage, and marked variations of colour. An orthochromatic plate for this purpose will be found the most satisfactory. Stop down the diaphragm and lengthen the exposure to ensure good detail. Try, if possible, not

to procure too dark shadows or extreme high-lights, but work for half-tones.

Before packing up your impedimenta and moving to the next place, jot down in a note book provided for the purpose the colour of the principal objects in your picture, such as sky tints, etc. If you wish to be more exacting in regard to procuring as nearly as possible the original colours of the subject, the following method will be found extremely helpful, and which the accompanying diagram serves to illustrate.

Let No. 1 and No. 2 be two leaves of your note-book, the first being the "Colour Reference," the second a separate memorandum for each individual picture. If one understands the mixing of colours the above method may be seen at a glance to facilitate long and cumbersome descriptions.

I advise the use of pyro as a developing agent, as it, without doubt, gives a better negative for platinum printing. Develop for detail and not misty effects.

### Printing.

A fine quality of platinum paper is to be preferred, above all others, for this class of colouring, as the texture of the paper most resembles that used in ordinary water-colour work, and is capable of greater artistic results. A medium rough surface will be found more easy to work upon than a smoother grade.

Print until the shade corresponds in depth to that of an ordinary uncoloured photograph. Many make the mistake of thinking a print should be lighter in tone. After completing this operation and having procured a print which you think will colour well the next things to consider are the

### Necessary Materials.

An ordinary wooden drawing-board, four thumb tacks, a box of good water-colours, a magnifying glass (for painting fine detail), a porcelain compartment palette, and a glass of clear water will complete the equipment. With your print (untrimmed) carefully tacked upon the board (it is a good plan to have a blotter between), you are now ready, with the help of your colour memoranda, to begin

### Applying the Colour.

Before doing this let me caution you to bear in mind the following facts as you work:—

Determine the source of light by the shadows and manipulate your colours accordingly.

Do not make the mistake of preparing thin washes and merely brushing over the different objects in the picture. For certain kinds

of paint this method is all right, but with water-colours you must use the colours in their full strength and apply them with the same amount of skill and dexterity, as if working upon a plain, white piece of paper! The print must act merely as a suggestion as to where the colour shading must go.

Please bear the foregoing paragraph well in mind; *it is the most important of all!*

Do not brush over the same surface more than is absolutely necessary, if you desire your print not to look "mealy."

Keep the mixing water in the glass as clean as possible, thus ensuring brilliancy of colour tones.

Don't hurry matters by trying to get "sketch effects." Sketchy painting, unless done upon a print especially in keeping, is anything but pleasing.

Pay strict attention to distances and try to vary your colour shades so as to render the proper effect of "atmosphere."

With these "don'ts" well in mind, you may now apply your colours. The first thing to be considered in colouring any landscape is the sky. Beginning at the horizon (brushing over all things that rise before it), carefully blend the proper tints. Now work in the picture proper and relieve the too dark shadows with Chinese white. In sunset effects always add a small amount of the predominant sky colour to the strongest of your high lights, thus rendering greater harmony of colour.

There is perhaps nothing that is so valuable to the colourist as Chinese white for giving brilliancy and snap to a picture. In snow scenes it will be found extremely effective if a little is applied here and there, the result being a delicate shimmer. A line or two upon a clear expanse of water will also prove an added touch of beauty to any marine.

### How to Treat Detail.

While it is most essential to devote your best time and care to the working in of fine detail, do not make the mistake of grouping too much together. Two or three small but nicely coloured flowers along a hedge fence are infinitely more pleasing than a mere mass of merable tiny spots or various colours scattered promiscuously over a great area. In short, what detail you do colour, do it well, and do not have it "spotty."

Masses of green appearing in the immediate foreground can be effectively relieved by a few short perpendicular strokes of light green mixed with Chinese white, giving a suggestion of grass blades.

### Mounting.

After a print has been coloured it will quite likely have a tendency to curl. This can easily be overcome by taking a moderately hot sad iron and ironing the print face down until flat. It can then be mounted on a white, plate-marked (embossed) card, merely touching the two upper corners with a strong paste. To ensure the print lying perfectly flat after this operation, place a piece of paper over the print and hold the iron on to the pasted card until dry. With a picture of this sort it is customary to place a title and your written signature, using an ordinary lead pencil, beneath the print, although this is purely a matter of taste.

In conclusion, I can only add that you keep your eyes open for high-class coloured platinum prints, and study carefully as to how colour has been applied. This you will find will help you greatly.

A few photographers, who are also water-colourists, are, in various parts of the country, devoting all their time to this branch of picture making, and, furthermore, are commanding flattering prices for their hand-coloured prints that are difficult to distinguish from genuine water-colours.

JAMES C. SAVER

## FOCUSSING WITH THE "SWING-BACK" AND "SIDE-SWING."

THE following note by Mr. Felix Raymer, in "The Professional and Amateur Photographer," conveys a practical lesson that may be useful to many:—

A special request has been made that I explain, in an article upon that subject, the use and the manner of using the "swings" on a portrait camera. The asking for information on this subject, I am sure, will voice the feelings of many operators, for if there is any one thing about the camera that many do not understand, it is the use of the "swing." Not only are there many who do not know their use, but many who do not know they are on the camera. Yet their use is of the utmost importance at times.

Before going into the question of their use, we must first know what a properly focussed negative looks like. Some think a portrait should be made as "sharp" and clear cut as possible, regardless of portrait effects. Operators, so believing, often discard their very best negatives, thinking they are out of focus. It is a common occurrence to have such an operator say, "I believe in having everything as sharp as possible, for the people will take almost any old thing if it is only sharp and clear cut." To prove this is not true, I will suggest that the operator claiming it makes six negatives of his next sitter, five of them made as sharp as he can, and the remaining one just a trifle out of focus. Show proofs, leaving it entirely to the sitter to select the one preferred, and, in all probability, he will select the one a trifle off the focus, "because it looks so soft and round." I do not wish to be understood by this as an advocate of throwing all of the picture out of focus, for if there is any one thing I do detest it is the ridiculous stuff made by certain faddists that have to be accompanied with a catalogue so one may know what it is. This class of work is even worse than the black smudgy stuff that was foisted upon an unsuspecting public some few years ago, and which was labelled "art" by a few would-be artists. All I can say for that smudgy stuff is the sitter looked like he had just been snatched out of the middle of Hades and had not had time to wash the "smut" off his face.

Whilst I do not believe in throwing all of the portrait out of focus, neither do I believe in throwing it all into focus. If an operator wants his pictures all in focus he can secure that effect by using any ordinary cheap R.R. lens, working at  $f/8$ , and thus not have to

invest from one hundred to two hundred dollars in a portrait lens. The manufacturers of lenses have, through their portrait lenses, shown the operator what a true portrait effect should be when their lenses are assured to do what they are designed to do. Now if the operator will compare the result of such a lens with that of a small R.R. lens, he can see for himself the proper effect.

One often sees pictures at the conventions that are very fine, with the one exception, they are too sharp and "wiry," thus killing one of the greatest essentials in portrait work—atmosphere. Many times an operator admires a piece of work made by another operator, but he tries to produce something like it, but fails for but one reason, and that is a total lack of knowledge of proper atmospheric focussing.

Now to get at it as plainly as possible, we will suppose we are looking our subject squarely in the face. What feature do we really look at? The nearest eye to us is usually the one we look directly into. We know the sitter has two eyes, but we cannot look directly into but one at a time, and that one is usually the one that is nearest to us. Our direct sight takes in a small circle, of about two or three inches diameter. This takes in the nearest eye, and nose; the balance of the face and head we know to be there, but it is taken in "out of the tail of our eye," as we say. Now it is nothing but natural to look at what we are interested in, and when we are talking to a friend we look him in the eye, and not in the mouth, ear, or chin. Therefore, to make our pictures natural we must attract attention to the part or parts that it is natural to look at. To attract attention it must be done by a concentration of light, and then a concentration of focus at that part. Therefore, we have a concentration of focus as well as a concentration of light; the portrait lens being designed to that very end will produce it unless the operator counteracts their natural results into another result by the use of small diaphragms. Now that we have considered the concentration of focus, we will go into the manner of securing it.

We will suppose our sitting to be a "bust," and the shoulders varying distances from the camera. First, focus on the part of the face on which the light has been concentrated, which is the nearest eye to the camera, taking in a bit of the forehead and nose. Make this little circle as sharp as possible, using the regular focussing attachment. Next, look into every other high-light appearing in



ce, and it will show a lessening of sharpness as it shows a lessening of light. This is focussing in harmony with the lighting. Next look the outlines of the entire figure and head. The outline of the head, the farthest from the camera, will be found decidedly out of focus; so will the nearest shoulder to the camera. Now the usual proceeding to bring these two extremes into focus, followed by the operator who does not understand the use of his lens, is to insert "stop" small enough to bring them into focus. Just there he loses the pictorial qualities of his picture by having changed the focalities of his portrait lens to the focalities of a view or group lens. What he should do is to use the "side swing," turning the ground glass at a side angle, until the two extremes come into focus simultaneously, or as near into focus as the side swing will bring them.

Next examine the base of the figure and the drapery generally. It will perhaps be a trifle out of focus. If so, use the "swing back," turning the ground glass at a perpendicular angle until the base comes into focus, after which use the general focussing attachment, again dividing or spreading the focus. If this plan is followed there will be no occasion for using stops on single figures, thus making it possible to shorten the exposure and, at the same time, secure the true portrait effect.

In focussing on groups follow the same plan as outlined for single figures, focussing first on the centre of the group, next using the "side swing" for the two ends, then the swing back for the top and bottom; then divide the focus or distribute it all over the group with the general focussing attachment, and, last of all, the "stops."

## A NEW COLOUR METER.

[The following paper, on an instrument for the numerical measurement of colour, was read by the inventor, Mr. F. E. Ives, before the Franklin Institute of Philadelphia.]

has long been recognised that a universal colour meter, capable of measuring all colours and expressing them in numerical terms, must be based upon the principle of Clerk Maxwell's "colour box," in which half of a divided field is illuminated with ordinary white light, while the other half is illuminated by an adjustable mixture of the three simplest colours of the spectrum, isolated bands of pure red, green, and blue violet.

Without any alteration Maxwell's colour box could be used for measuring the colours of transparent objects, such as coloured glasses and solutions, placed in front of the aperture for direct light, but it is not adapted for the measurement of the colours of opaque objects. It is also necessarily a large and clumsy instrument, that, instead of Maxwell being of elbow form, several feet in length, and that the adjustments for taking measurements of a complicated character and quite out of reach of the observer at the eye slit.

Although many attempts have been made to devise a colour box type colour meter to meet the various requirements in the industries, none of them has proved successful, and manufacturers have found nothing better for their purpose than a "tintometer," which uses merely arbitrary scales, different and distinct sets of which are made for a large number of trade uses.

The new colour meter is a direct vision instrument, the body of which is about 3 x 4 x 20 inches in size, with all the operating adjustments controlled by screws a few inches from the eye. A low dispersion grating is used in place of the prisms in Maxwell's colour box, and the field is so divided as to be illuminated through a central slit for ordinary light on one side, and through three laterally dis-

covered for protection by the thinnest microscope cover glass, and closed by sliding brass plates which are controlled by micrometer screws. Theoretically, the slits should close from both sides towards the middle; but that is a quite unnecessary refinement of adjustment for this instrument. Each micrometer screw head carries a pointer which moves over 100 divisions of a concentric scale to fully close or open the respective slit, thus reading to 1 per cent. The scale numbers are read off when the two halves of the field match in hue and luminosity, and recorded as 50 R, 20 G, 60 B, or whatever it may be, as a numerical expression of the colour of the object.

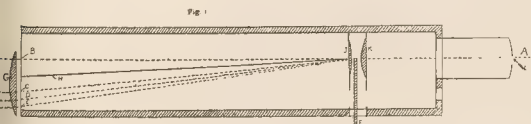
Should the shape of the coloured object be irregular, the insertion of a thin prism in front of the central slit will displace the image laterally, so that a portion at some distance from the edge of the object will come to the inner edge of the divided field, without invading the colour mixture half of the field. Very small transparent objects, such as bits of coloured glass, solutions in flat glass cells, etc., are placed directly in front of the central slit, and thus made to fill the right field.

The use of a grating in place of prisms in a colour meter is believed to be quite new. By no other means would it be possible to make a compact direct vision instrument with a sharply divided field, in which one-half of an image formed by a single objective is obtained directly through laterally displaced slits, and no other means would permit of such simple and convenient mechanism for taking the measurements.

The obvious objection to a grating is that the conventional type of opacity grating throws a great deal more light into the central image than into any of the spectra, and as only one of the spectra is utilised the illumination would be very much more feeble than with a prism; but it is not necessary to use a grating of this type. Thorp demonstrated the possibility, though not the commercial practicability, of making gratings which throw nearly all of the light into a single spectrum on one side, and the writer can make to order gratings which throw more than 50 per cent. of all the transmitted light into the first order spectra. It is a grating of this character which is used in the new colour meter, with entirely satisfactory results. Many things which have had to receive careful consideration may be best understood after a more detailed description of the perfected instrument and its operation has been given.

Fig. 1 is a vertical plane of the optical part of the diffraction colour meter. A, A', is a line drawn through the optical axis; B, is the central slit for ordinary light; C, D, E, the lateral slits for blue, green, and red spectrum rays; F, the grating, covering half of the field; G, a telescope objective which forms an image of external objects and background in the divided field; H, a diaphragm to cut light from the central slit out of the half of the field covered by the grating. The lens, J, is of such focal length as to exactly parallelise rays from the central slit B, and the lens K, to converge them to the eye slit at L, from which the field is seen evenly illuminated.

The slits and mechanism are all on the outside of the case, and adjusted by micrometer screws acting on levers, conveniently close to the eye. The levers are short and rigid, with a lateral extension and support, because they must work without any wobble or back-



covered slits for the three-colour mixture on the other, while a lens placed in front of the four slits forms an image of external objects, which looks like an ordinary single telescopic image divided by a vertical spider line in the eye-piece. The image in the right half of the field is produced in the simplest manner, by light transmitted through the central slit; the image in the left half of the field is formed by a mixture of rays transmitted by the three lateral slits, and in using the instrument as a telescope this half of the field would not appear illuminated at all but for the presence of the diffraction grating, which bends parallel to the axis blue-violet rays from the central slit, green from the second, and red from the third, the mixture matching the ordinary white of the right side of the field. Assuming that the instrument is directed to a surface of standard white, over a portion of which is placed a sheet of coloured material to be measured, it will be evident that by so directing the telescope that the coloured object fills the right field just up to the dividing line the left field can be made to match it, both in hue and luminosity, suitably reducing the apertures of the colour slits. These slits are ruled in a dividing engine, through an opaque film on glass,

lash. The obvious method of construction would be to have the micrometer screws act directly upon the slit sides; but that would bring them too far from the eye for convenience of operation, and would also necessitate the use of special differential scales. The use of levers permits of adjustment for different total apertures by simply sliding the micrometer screw mount along the arm of the lever, leaving the scales all alike. These advantages are of such importance that, although I at first experienced great difficulty in devising and fitting lever movements that would be "dead beat," I persisted, until I believe I have achieved perfect success.

Inasmuch as the setting of the slits must be accurate to 1-100 of a millimeter, it would be unreasonable to expect such fixtures to retain their adjustment, and provision is therefore made for quickly testing the adjustment and perfecting it in a few seconds if it proves not to be right as found. This, I am convinced, is a wise provision to make, whatever the character of the mechanism, and it serves in this case to permit of such important reduction of cost of manufacture as might very well make all the difference between success and failure as a commercial proposition.

The slit spacing is calculated to superpose wave-lengths 43, 53, and 66 on the image of the central slit at the eye slit, when all three of the colour slits are half closed; the measurements are therefore made in definite terms. The absolute aperture of the open slits has been found by trial and error, to make the two halves of the field exactly match on a standard background. This is necessary because the extraordinary brilliant gratings used do not give a perfectly normal distribution of light through the spectrum. This adjustment having been made, a position was found for the bearing of the respective micrometer screws, which made them exactly close the slits when the pointer was turned from 100 to 0 on the attached scales, thus dividing each slit opening into 100 parts, although the absolute opening is alike in no two. That the instrument is in adjustment can be proved by several experiments, one of which is to partly close the central slit, when it will be found that the three pointers must be turned down the scale equally to match the white or lower luminosity.

If the colour meter be now directed to a house across the street, a single image will appear in the field, with a vertical hair line division through the centre, and although the right half of this image is formed through the central slit and the left half exclusively by rays passing through the three lateral slits and then bent parallel to the axis by the grating, making a mixture of red, green, and blue-violet spectrum rays only, at the eye point, the two halves of the field may appear exactly alike to the eye. Directed to an evenly illuminated standard white background, the two halves of the field appear exactly alike, of an even neutral white. The light transmitted by the central slit to the right half of the field is matched in the left half by spectrum red (R) 100, spectrum green (G) 100, and spectrum blue-violet (B) 100.

If, now, that part of the background which covers the right half of the field is covered by a sheet of coloured paper, certain kinds and quantities of the coloured rays filling the left half of the field must be cut off in order to make the two halves match again, and the quantity remaining is a measure of the colour and luminosity of the paper in terms of R, G, and B spectrum rays. Assuming that the scales read R 50, G 20, B 60, this colour can at any time be reproduced by pointing the colour meter at a standard white background and setting the indicators at those figures, provided that at the time it is done all slits exactly close by turning the pointers down to zero, which can be determined by trial in a few moments. If it is now desired to see if a new sample of coloured paper matches the old one, which meantime may have been lost or changed colour by fading or otherwise, the new sample is placed on the white ground so as to appear in the right half of the field, and any difference from the old sample will be at once apparent.

There is an aperture in the case at the left of the eye slit, through which the three colour slits can be seen directly, and watched while opening and closing to see that the movement is smooth, and that they close exactly alike at top and bottom, which they will if the slit sides are in place on their runners and the slit fingers have not been bent. The best way to test the accuracy of their setting for zero is to turn two of the pointers past the zero point (by lifting over the stop) to secure an absolute cut off of light from the respective slits, then turn the remaining screw while looking through the eye slit. The field should just go back when the pointer is turned down to

zero, and then show a trace of light when turned up two divisions of the scale. If it does not, hold the pointer to zero and adjust by turning (with a screw-driver) the inside pin screw. Test the other two slit adjustments in the same way. The adjustments may stand true all day, but temperature changes are liable to affect it. The image of the central slit must also fall exactly in the middle of the eye-piece slit. This can be determined by looking at the eye slit through a small magnifier, provided for this purpose, and if readjustment is necessary, it is effected by a slight lateral displacement of the eye-piece slit.

A point which may be noted about the reading is that the difference between the highest scale number and 100 represents black, and the difference between the lowest scale number and zero represents white. Thus the reading R 50, G 20, B 60, indicates 40 per cent. black and 20 per cent. white, degrading a hue which is three parts of red to four of blue. While considerations of this nature are interesting and have their uses, the simple numerical expression R 50, G 20, B 60, serves every purpose for record and reproduction.

While the description which I have given will doubtless serve to make the operation of the new colour meter sufficiently clear, the subject is far from being exhausted, and I cannot close without discussing briefly some other pertinent matters.

In the first place, in order to make measurements having a high degree of precision, the spectrum colours with which the measurements are made must be taken from the right places in the spectrum and in sufficiently narrow, isolated bands. This is determined by the focal length of the collimating lens, the dispersion of the grating, the spacing of the slits, the width of the colour slits, and the width of the eye slit. In this instrument the spectra at the plane of the eye slit are nearly one cm. long, and so pure that the Fraunhofer D, E, and F lines look sharp under a 2½ in. magnifying glass, while the R slit is one-third open, and the G and B slits half open. Practically, therefore, the degree of purity and isolation of the spectrum colours depend chiefly upon the width of the eye slit, which determines how wide bands of the substantially pure spectra shall enter the pupil of the eye. The eye slit is 1 m.m. wide, and therefore pretty sharply defined bands of spectrum colour are utilised, each not more than one-tenth as wide as the entire spectrum. In determining a standard for this adjustment two factors had to be taken into account—namely, aperture of field and luminosity. The image, the first on account of the yellow spot in the retina, and the second because the illumination may be either too weak or too intense to favour a high degree of accuracy in making observations. The shorter the focal length of the field lens, the larger angle the field subtends to the eye, and the smaller the spectra projected at the eye slit. The smaller the spectra at the eye slit, the narrower that slit must be made to secure a given degree of purity of spectrum hue. The narrower the eye slit, the feebler the illumination. The field subtends too small an angle to the eye, too much of the image falls upon the yellow spot of the retina, which, while it is the best part of the eye for distinct vision, is comparatively insensitive to peacock-blue spectrum rays, and makes a high degree of accuracy of measurement out of the question, especially as the yellow spot varies greatly in size and depth of colour in different individuals. The image on the retina must be large enough to cover a considerable area outside the yellow spot, and this is first of all provided for. If the illumination is too feeble, the sensation of colour is not sufficiently excited, as witness coloured objects seen by moonlight. If the illumination is too intense, it destroys the sensitiveness of the retina; and this is so far true that Sir William Abney requires a rest of the eyes in darkness for some minutes before making eye tests with his colour patch apparatus. With a six-inch focus field lens, 1½ in. in diameter, and 1 m.m. eye slit, the field is large and well illuminated.

In short, to meet practical requirements, certain compromises had to be made; and if they are made intelligently, with a full comprehension of the nature and relative importance of all the factors involved, the result will be, and in this case is believed to be, worthy of acceptance as a permanent standard.

The analysis colours must be just pure enough so that the pure reds, greens, and blues that are met with in the arts and industries can be perfectly matched; the deepest ruby, green, and cobalt glasses, and deep shades of the most brilliant coal tar dyes, particularly the violet purples. There was no difficulty about the purest blues and greens that could be obtained, but in order



match certain reds and aniline violets I had to take my red slit rather towards the end of the spectrum than would be necessary with a narrower eye slit, and then to make the red slit wider than the others in order to make a white of the mixture. The practical efficiency of the combination finally adopted was proved by careful tests with coal tar colours in combinations adjusted to show narrow transmission bands in the spectroscope, but not until the slit fingers had been very accurately fitted and the inside of the case specially lined and diaphragmed to prevent any scattered light from reaching the grating.

The theoretically higher degree of accuracy which might be obtained by sacrificing all considerations of commercial expediency would therefore never be detected in using the instrument for those purposes for which it is designed, and for which it is certainly far more accurate than any device which involves the multiplication of reflecting surfaces to secure increased absorption. In this connection, it may be pointed out that two pieces of pot-coloured glass, the sum of whose thickness is two m.m., have not the same value as one piece two m.m. thick, and the diffraction colour meter will measure the difference by several degrees of scale.

Admitting that one of these instruments is calculated to meet every practical requirement, there remains only the question whether exact duplicates of it can be made with certainty, so that there shall be no doubt about the readings of different instruments being alike. The gratings are all casts from one original, exactly alike, permanent and unchangeable. The slits are ruled on a standard make of ruling engine, with definite settings and feeds, and are also exactly alike, permanent and unchangeable. Other parts are made to gauge, and the only thing that would be likely to introduce any error is want of uniformity in the focal length of the lenses used. They are made to order, and supposed to be alike; if they are not, the error is small, it suffices to see that the extension of the eye-piece is right to make the image of the slit and spectra focus exactly on the plane of the eye slit, and wave-lengths 43, 53, and 66 m.m. the colour slits will then superpose in the middle of this slit, required.

It is necessary to state that because there is a perceptible change in luminosity of each analysis colour in passing from one edge of the eye slit to the other, the field must be viewed with the eye slit passing the pupil of the eye centrally. This is ensured by bringing the eye back to a point where the right and left edges of the field are slightly and equally cut off from view by the edges of the slit. There is still one other point which I must touch upon, though very briefly, and that is the relative facility and accuracy with which different individuals may be expected to make colour measurements with the instrument. Much will, of course, depend upon the practice, but after a few hours' practice pretty accurate measurements could be made and verified by repetition in from one to five minutes, provided that the operator has normal colour vision. Our blindness, even in small degree, is fatal to accuracy. Even the normal eye is very much more sensitive to percentage changes in some colours than others, and it is well to know that small errors are apt to occur by reason of such known facts as that two per cent. of any colour may be added to a perfectly neutral white without being recognised as colour. Such limitations are introduced by the eye, and may be charged up against the colour meter.

The purest colours can be matched the quickest. For instance, a very deep and pure red, obtained by combining screens of aniline red and yellow, is matched by closing the blue and green slits completely, and then moving the "red" pointer down the scale until the luminosities match. It can be done with considerable precision in four or five seconds. On the other hand, if the red is of a slightly orange hue and at the same time not of very high luminosity, it is difficult to get exactly the right minute proportion of green and red to both hue and luminosity match. Pale shades of purple reds are rather difficult, balancing the red and blue with just the right amount of green and in the right quantities to match both hue and luminosity. All kinds of greens, blues, and yellows, strong or weak, are comparatively easy to match.

Something should be said about standard white backgrounds, but have not yet done much with that part of the subject, and will now only state that for transparent objects nothing could be better than a white background when it is raining or foggy.

In conclusion, I would point out that the same instrument, with

sunlight or electric arc focussed exactly on the eye slit, becomes a perfect projection colour patch apparatus, much more convenient than anything heretofore used for that purpose. I have, however, devised a modification still better adapted for that particular purpose, with increased illumination by use of both right and left spectra, and this device will be the subject of another paper.

F. E. IVES.

## Photo-Mechanical Notes.

### Etching Metal Plates.

A PATENT has been taken out by Johann Axel Holmstrom, of 3, Via Palestro, Rome, in reference to a method of etching articles of metal, etc. The article is mounted in a holder and submerged to a suitable depth in the etching liquid contained in a vessel, and a movement of the article in reference to the liquid then takes place in a direction at, preferably, right angles to the surface to be etched. The claim of the specification (No. 28,679, 1906) is:—The method of etching consists in the article to be etched, carried in a holder, being submerged in the etching liquid, the article or the liquid or both being then moved in such a direction that the liquid strikes the surface of the article preferably at a right angle.

An increased pressure of the liquid against the surface to be etched is effected during the relative movement between the article and the liquid, which pressure results in the generated gas bubble being removed from the surface and in the liquid acting more effectively and rapidly, at the same time the advantage is gained of a rubbing action between the article and the liquid, which action is desirable, especially on the plates. Further, the article being suspended freely in the liquid, eroded particles, especially if the surface to be etched is directed downward, can sink to the bottom of the vessel and consequently do not gather on the article, preventing access of the liquid to the same, as in the case of etching operations, in which the vessel is placed on the bottom of a rocked vessel, in which case eroded substance gathers on the surface delaying and interfering with the etching operation.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made between July 29 and August 3:—

CAMERAS.—No. 17,467. Improvements in or relating to photographic cameras. Reginald Herbert Payne, 111, Hatton Garden, London.

PLATES AND FILMS.—No. 17,463. Improvements relating to iso- or orthochromatic photographic plates or films. Thomas Macwalter, 322, High Holborn, London.

X-RAY SCREEN.—No. 17,577. Improvements in and relating to apparatus for X-ray screening and stereoscopic photography. Frank Barrett, 1, Nassau Street, Dublin.

CINEMATOGRAPHS.—No. 17,597. Improvements connected with cinematograph exhibitions, partly applicable to other purposes. Thomas Ernest Raymond Phillips, 15, Water Street, Liverpool.

LENSES.—No. 17,624. Improvements in objectives for photographic purposes. Rudolf Steinheil, 6, Lord Street, Liverpool.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

CINEMATOGRAPH STANDS.—No. 24,952. 1906. The invention, which relates to the bases or supports for cinematograph apparatus, consists of a base of two side bars connected by cross stay-bars, the slide bars being grooved to receive the edges of the base of

the projecting lantern forming part of the apparatus. This lantern is adapted to be clamped in position by one of the side bars having a little free play on one of the cross stay bars, and being tightened against the flange of the lantern by a nut screwed on the end of the stay bar. A block or base plate is provided to slide upon some of the cross stay bars and serves to carry the cinematograph, suitable means being provided for clamping the block in any required position. Such means may comprise a bar designed, when rotated, to force one or more plates or grippers into contact with the stay bars, on which the block slides. Leo Vamin, 27, Powell Street, Goswell Road, London, E.C.

### New Trade Names.

**RYTOL.**—No. 294,399. Chemical substances used in photography. Henry Solomon Wellcome, trading as Burroughs, Wellcome, and Co., Snow Hill Buildings, London, E.C., manufacturing chemist. July 6, 1907.

**SEPIANA.**—No. 294,375. Prepared paper for photographic purposes. Ilford, Ltd., Britannia Works, Roden Street, Ilford, London, E., manufacturers of photographic plates, papers, and films. July 6, 1907.

### Analecta.

*Extracts from our English weekly and monthly contemporaries.*

#### Exposures for Outdoor Nude Studies.

As far as practical photography is concerned (write Messrs. E. B. Vignoles and P.-S. Greig in "The Photographic News"), there is but little to note. The exposures necessary to get good gradation in flesh tones in sunshine on an open beach, using plates of 200 H. and D., 1/25 sec., with  $f/8$  at mid-day, will be found none too much, and among sand dunes this exposure may safely be doubled. Particularly is this the case when the beautiful effects of back lighting in sunshine are to be secured. Be careful not to carry development too far. Much may be done with a thin negative, but an over-dense negative is hopeless, especially for enlargements.

#### Reflex v. Scale-Focussing Hand-Cameras.

As there has been considerable discussion lately (writes Mr. Bertram C. Joy in "The Amateur Photographer") on the respective merits of reflex and scale focussing cameras, the experience of one who has used three or four types of the latter, and has had a reflex in use for two years, may be of some interest. For landscape work there are one or two more important advantages. It is possible in quite a few minutes with a reflex to examine a likely picture on the screen from ten or fifteen different points of view, a most tiresome business with a stand camera. Of course, when the best position is found, there is no reason why a tripod should not be set up and a lengthy exposure given if necessary. Then, again, it is surely easier to compose your picture when regarding it the right way up than if it were upside down, and moreover, the more erect position of the body when focussing with a reflex on a tripod is very much less tiring. In portrait photography no valuable time is lost while inserting the dark slide, as, of course, the slide can remain in focussing. The most formidable objections raised against the reflex appear to be the initial expense, excessive weight, and the fact that the camera with its hood erected is rather liable to attract inconvenient attention. The first is unanswerable, except by suggesting that the best is perhaps the cheapest in the long run. The second objection, in the case of larger sizes than quarter-plate, also holds good, and personally I do not see the possibility of much reducing the weight of a 5 x 4 reflex. The third objection is, like the first, unanswerable, and it requires considerable tact to work among a crowd of people without attracting undue attention, and possibly spoiling an otherwise good picture. With due regard to these objections, however, I should think it very unlikely that any user of a good reflex would willingly go back to the scale-focussing system. I am pretty certain I shall not.

### New Books.

"Photographisches Rezept-Taschenbuch." By Paul Hanneke. Pp. 176,  $6\frac{1}{2}$  x 4. Berlin: Gustav Schmidt. M2.25.

This collection of formulæ is smaller than a good many similar works, but none the worse for that, since its preparation has evidently been carried out with due regard to the provision of convenient reference book for practical work. For such a task Herr Hanneke, as editor of our contemporary, "Photographische Mitteilungen," and a member of the scientific staff of Act Gesellschaft für Anilin Fabrikation, is well qualified, and, as a result, we are spared the repetition of formulæ which have a *raison d'être* above others, and are therefore only a source of mystification to those consulting such a volume. The volume deals with the usual formulæ of developers and solutions for the treatment of negatives, of backing mixtures, and varnishes. Collodion and collodion emulsion processes are dealt with, as also the various printing processes. Herr Hanneke's book should be a welcome addition to the photographic formularies.

### New Materials.

Permanent Vitrified Copper Enamels. Made by the Autotype Company, 74, New Oxford Street, London, W.C.

We have been favoured by the Autotype Company with the opportunity of inspecting a number of ceramic photographs, such as they are prepared to execute for the photographic profession, in whose hands the company very rightly hold, a profitable return is obtainable from the supply of this beautiful and permanent form of photograph. Our long experience of the Autotype Company in the pigment process of photographic printing should be sufficient guarantee of the excellence of their work, in what is, perhaps, the most perfect application of such processes; but we may, nevertheless, record our admiration of the technique of the enamels we have seen. The company offer three stock sizes, each being obtainable either circular or oval, of colour either red chalk, photo brown, or warm black. The larger sizes, 1½ in. and 2 in. in diameter, are particularly well suited for presentation purposes, and are supplied from a negative of size at the prices of 12s. 6d. and 15s. respectively. If from a plate a charge of 2s. 6d. is made. The enamels are prepared on a copper base, and exhibit in the specimens before us the retention of all quality of the negatives which is characteristic of a good ceramic photograph. A portrait of this class, if offered to a customer such a way as to impress its special features, should be a frequent source of profit to photographers with anything like a connection for good use may be made of the fact that nothing short of wilful destruction can impair the beauty of the portrait. The Autotype Company, we would add, have prepared a convenient circular showing the exact sizes and shapes of the enamels.

#### CATALOGUES AND TRADE NOTICES.

THE CHARLES URBAN TRADING COMPANY, LIMITED, in their price list for August, give detailed particulars of their specialties in bioscopes and animated picture accessories, together with a summary descriptive of their latest film subjects.

MESSRS. EMIL WUNSCH, A. G., of London and Dresden, send a copy of their latest price list, which contains particulars of the most recent novelties in photographic apparatus. The hand cameras manufactured by this firm appear to be specially worthy of note, they combine the features most desirable in this class of instruments together with light weight, at moderate prices. The "Wunsche" series of telescopic metal tripods can be adapted for use with classes of cameras, and, being light in weight and folding into a compass, are specially suited to the needs of the tourist or cyclist.



**A LONDON AGENT'S BANKRUPTCY.**—At the London Bankruptcy Court, on Tuesday last, the public examination was appointed to be held of James Stroud Nunn, residing at 18, Clifton Road, South Norwood, S.E. In the course of the proceedings it transpired that the debtor described himself as a photographer's assistant and director of Satino, Ltd., Nunn and Co., Ltd., and The Mid Surrey Vacuum Cleaner, Ltd. He commenced business in September, 1905, at 11, Queen Victoria Street, E.C., under the style of The Mid-Surrey Vacuum Cleaner Company, holding a licence from the petitioning creditors for that purpose. He borrowed £35 from Mr. Farrow, chairman of Farrow's Bank, to enable him to make a start, and afterwards he borrowed further sums from that gentleman. In July last year he started another business at the same address as manufacturers' agents, under the style of J. S. Nunn and Co., and Mr. Farrow agreed to finance that business for him to the extent of £1,000 on the security of the future book debts and the stock. The only part of that business that prospered, however, was the photographic branch, and further capital being required for that department, Mr. Brooks, the manager, expressed his willingness to put money into the concern, provided it was made into a separate business. The result was that in February last a company was registered, under the title of Satino, Ltd., which took over from the Nunn Company the photographic branch of their business. The Nunn Company received £328 (£1 shares) in Satino, Ltd., and a debenture for £500, representing the absolute value of the stock, etc. The debtor became a director of

Satino, Ltd., without fees, but he received £2 per week as an officer of the company. Among the stock sold to Satino, Ltd., was a parcel of Falla Gray gaslight photographic paper, the invoice price of which was £35. He estimated that he owed about £500, and attributed his failure to the action of the petitioning creditors in withdrawing the licence under which he carried on his business. The examination was ordered to be adjourned.

**MASTER AND SERVANT.**—A somewhat unusual claim for wages by St. Albans employees came before the City Bench last week. Mr. A. H. Brown, of 4, King's Road, St. Albans, sued Mr. J. R. Sykes, of Sidcup, Kent, for £1 12s. 3d., one week's wages. Mr. Sykes, he said, was the manager of the Cerio Photographic Company, carrying on business at Kingsbury Works, St. Albans, and with registered offices in Aldersgate Street, London. Some time ago it was proposed that some of the employees should go on half-pay, because the works were to be shut down for a few days. Afterwards, however, it was agreed to pay them two-thirds while the works were shut down, and to subtract the difference between half-pay and two-thirds from the full pay when they began work again. The full wage agreed upon was 35s. per week. Complainant claimed that there was £1 12s. 3d. still owing.

Cross-examined by Mr. S. M. Robinson, who appeared for Mr. Sykes, witness admitted that there had been no work turned out since the arrangement regarding two-thirds pay. Mr. Robinson said this was a limited liability company. Some time ago an official receiver was appointed, and everyone was dismissed except five men. There had been an arrangement made whereby two-thirds pay should be given until the works should be re-opened. But the works were never re-opened, and the complainant therefore had no claim. Even if he had a claim, explained Mr. Robinson, he was suing the wrong man, for Mr. Sykes was not his employer, but Mr. Gunery, the official receiver.

Mr. Sykes, the works manager, said that on June 20, the debenture holders of the company appointed a receiver. Notices were posted up all over the works stating that the receiver had been appointed. After lengthy consideration, the magistrates came to the conclusion that the case must be dismissed. Mr. Toulmin said he thought Brown had been wrongly advised. Three other cases, standing in the names of J. P. Taylor, J. W. Mann, and William Gernat, who also sued Mr. Sykes for wages in connection with the same arrangement, were dismissed by the Bench, on the ground that the wrong person had been summoned.

**BERNARD COOPER, LTD.** (Photographers, London).—A debenture, dated July 19, 1907, to secure £125, charged on the company's undertaking and property, present and future, including uncalled capital, has been registered. Holder, Mrs. M. M. Hadfield, 155, Fellowes Road, Hampstead.

**THE PHOTOGRAPHIC CRAZE.**—A young man, of respectable appearance, admitted, before Sheriff-Substitute Davidson, at a pleading diet, the County Buildings, Glasgow, on Tuesday last, the theft of six cameras, a number of dark slides, four plate adapters, and five packets of film envelopes with films, from a shop in West George Street, between the month of February and July 8. Mr. Marshall, writer, who appeared on behalf of the accused, said his client had borne a good character. He was three years in his present employment, and twelve years in his previous situation. He was engaged as a photographer in a large public works, where it was his duty to take photographs of the machinery, etc., and he became a photo enthusiast. He took part in several competitions for photography, and received many awards in the form of gold and silver medals. His passion for the camera had led him to commit the offence. He had not sold any of the articles mentioned in the charge, all of which had been recovered by their owner, who was very anxious that the accused "should have a chance in life for his poor wife's sake," and suggested that he should be dealt with under the First Offenders Act. His Lordship said he could not regard the thefts as a first offence, considering the period between the months mentioned in the charge. He passed sentence of three months' imprisonment.

#### NEW COMPANY.

**S.P. SYNDICATE.**—August 1. £525 (500 £1 ordinary and 1,000 6d. deferred). Manufacturers of and dealers in the composition known as "Synoloids," chemicals, photographic and scientific appliances, and apparatus, etc. No initial public issue. First directors (not less

than three nor more than seven) to be appointed by signatories. Remuneration 5 per cent. of the total number of shares which the company shall be entitled to receive in respect of the promotion by of any new companies or assistance by it in the formation thereof, whether such shares shall be fully or partly paid, divisible. Directors ceasing to hold office before the receipt of such shares shall not be entitled to any remuneration for their services.

## Correspondence.

\**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed our correspondents.*

#### METOL POISONING.

To the Editors.

Gentlemen,—For the benefit of "A. T.," in "Answers to Correspondents," in the "B.J." of August 9, and for the good of fellow workers, I would like to state how my father and myself cured ourselves of the terrible metol poisoning. We did it in the following way:—First, having got a small gas stove, we placed a pan of water on it, and into this we put our fingers, then lighted the gas and let the water boil with our fingers in it. By doing this we were able to stand a greater heat, and by that means scalded the poison out. We did it night and morning. Trusting you will be able to make use of this and hoping that it will be the means curing several of my fellow readers who suffer from the effects of metol, I remain, yours truly,

T. L. HAMPSHIRE,  
25A, Spring Grove Street, Huddersfield.  
August 8, 1907.

To the Editors.

Gentlemen,—It is surprising to me that we do not hear of more cases, such as appear under "Answers to Correspondents" this week with reference to the above. I have commented upon the matter various times, but, am afraid, without offering any suggestion of remedy. Recently I had the thumb and forefinger of my right hand in a most deplorable state as the result of some dark-room operation when my rubber gloves had got mislaid, and I used those two members in the nude, so to speak. I had thought of taking photographs of them on an exaggerated scale to demonstrate the effects, but was too busy trying to heal them with poultices and subsequently cold cream. I have discovered, however, that it is possible to use the bare fingers with these powerful developers and avoid the painful results by the comparatively simple method of very thorough washing of the hands after the work. Many persons will be constantly rinsing their hands under the tap, under the impression that they are doing all that is necessary, not to mention the fact that the fingers will be probably dried upon a towel, clean to the eye, but most probably far from chemically clean. This mere rinsing is of no use whatever. I am particularly sensitive to metol effects, but if I take care to wash my hands very thoroughly in hot water, with plenty of good soap and a stiff brush, using after this important operation a towel which is beyond reproach, I experience no ill effects; but the washing may be very thorough, equal to at least six average washings, to put it strongly.

If we use bichromates we get stains clearly visible and removable by plenty of washing in alum solution, and subsequent thorough washing. If we get the fingers stained with iodine we know what to use, and we set to work, and are not satisfied until the stain is dissipated and the hands clean once more. The developer complain of leaves no visible stain, but it does its fell work just the same, and all the more freely, because we may decide that the simple washing is sufficient. Obviously we want to discover something which will act as an antidote to this poisonous effect. I think if a few victims were to make trial something might be discovered to help matters. I have referred to the very thorough wash with hot wa-



soap and brush, vigorously indulged in, just as though a visible stain was to be removed. An aid to this cleansing is the addition of the hot water of a few drops of liquid ammonia (which may be fumed), or any of the water softeners sold commercially; borax powder therefore may be used. I am inclined to believe also—though I might find it difficult to explain the reason why—that a rinse of fingers in a sulphite of soda solution prior to the soap and water, helps.

It is certain that the metal stain, as I think we may call it, is removable by washing, also that the operation is assisted by the water being made slightly alkaline with the ammonia, or soft with the alkali compounds. What can be suggested now to further simplify the cleansing?  
J. PIKE.

#### PEDLAR OR ——— ?

To the Editors.

Gentlemen,—The leading article in your last issue is exactly one of those which we expect from the old "B.J.," but if your view is correct and is upheld in one of the higher Courts it will be a most serious matter for those firms that cater for this particular class of business. It must, on the one hand, either force the peddling firms entirely to cease their itinerant importunities or incur the expense of legal habitation for a month. Would the latter then be sufficient to deter the firm from peddling? It is not the small man that hurts.

It is the large firm with a big central establishment that can afford to produce work at a low price that hurts. Truly, gentlemen, you are somewhat hard on some of us, when you say that we are less skilled craftsmen than the peripatetic tinker or trimmer. One can only imagine that you were thoroughly imbued with the unconsciously absorbed principles of the author of "Art and the Camera," who, to quote your own words, "has never a suitable word" for the professional photographer. Or else you are misled—this is a true Scotch word—the old tale, "Punch's." I am, about the Italian organ-grinder, who would not speak to the meat man, because the latter was a tradesman, and he was a professional. Any way, I am grateful to the old "B.J." for the article, and our head constable has had a marked copy from Edinburgh.

"A DEIL I' THE FECHT."

Without any desire to belittle photographers (we hope our correspondents will give us the credit of this much), we think we were not stepping the mark when we said that the canvassing photographers, as craftsmen, are, many of them, inferior to peripatetic knife sharpeners and chairmenders, who are usually very well up in their business. Our contention was, and still is, that if a pedlar's licence is proved to be necessary to the canvassing trade, a very desirable check will be administered to the proved dishonest and wilfully fraudulent practices of such trade, which practices, without a shadow of doubt, have injured photography as a whole.—Eds. "B.J."]

THE BLENHEIM CLUB has recently acquired a spacious and well equipped studio for the use of members at 53, Pall Mall, within a few minutes' throw of St. James's Square. Access by members may be obtained at any time between the hours of 10 a.m. and 10 p.m., by applying to the porter at the Blenheim Club.

PHOTOGRAPHY BY WIRE.—Mr. Thomas H. Norton, the United States Consul at Chemnitz, in a report to the Washington Bureau of Manufacturers, says that much attention is now laid in Germany to the remarkable measure of success which has attended the application of Professor Korn's invention for the transmission by means of photographic reproductions over long distances. His latest experiments show that nearly as satisfactory results are secured by the use of the ordinary telephone wires as on lines especially constructed for the purpose, the only difficulty encountered on telephone wires resulting from calls on adjoining wires. These cause the formation of zigzag lines on the reproduced picture at the receiving end, which are easily corrected by retouching. Alterations in intensity by ringing on or ringing off, as well as during conversations over adjoining wires, are without effect. It is further stated that the wire employed for photographic reproduction can simultaneously be utilised for telephonic conversation.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

#### PHOTOGRAPHS REGISTERED:—

Frederick Tom Blackburn, 17, High Street, Bndleigh Salterton. *Photograph of The Arch, Ladrham Bay.*

Herbert John Jackson, Fern Cliff, Stoneleigh Road, Kenilworth. *Photograph of La Milo (Miss Pansy Montague) as "Lady Godiva," taken at Coventry, August 7, 1907. The photograph was taken in the street and the background taken away.*

VARNISH.—Would you be kind enough to give me a recipe for making a varnish that will rise from a glass support with a gelatine print to protect same from moisture?—A YOUNG READER.

The best varnish for the purpose is collodion. Rub the glass plate over with French chalk. Then coat it with enamel collodion, and when that has thoroughly set, place the plate in water until all greasiness disappears from the film. Then bring the wet print in contact and squeegee together. When dry and stripped off, the collodion will come away with the print, and will perfectly protect it from moisture.

REPAIRS.—About a year ago we bought the above business. The lease (repairing) is for fourteen years, with three years to run. It was transferred from Mr. ——— to us by the landlord, and the rent is £65 a year. Recently we noticed that the woodwork of the studio is quite rotten in many parts, and it is in a really dangerous state. We have been to the landlord about it, and he says it is no affair of his, and that we must do the necessary repairs. As the rotting must have been going on for years before we took the place, and as something must be done at once, as we are afraid that the side of the studio will be blown in with a heavy wind, can we do what is necessary and deduct the cost from the next quarter's rent?— ——— AND Co.

No, you cannot. As you have the place on a repairing lease you will have to do all the repairs, and if the lease is on the usual terms you will have to leave the premises in tenable repair on its expiration. Persons when they take over leases should duly consider the state of the repair of the premises at the time, and the responsibilities they incur, and make due allowance for them before closing the transaction.

COLOURING.—Could you tell me what to use on glossy bromide postcards so as they will take water-colours—something that will give them a tooth?—MORRIS.

If you wish to get a tooth, you can obtain it by rubbing the surface over with an ink eraser—but, of course, that will injure the gloss. We would advise you to employ the colours that are specially sold for this class of work, as with them the print requires no preparation. They are to be had from any of the large dealers.

SPIRIT SENSITISER FOR CARBON TISSUE.—Some little time back you spoke very favourably of a new spirit sensitiser, sold by the

Autotype Company. Do you consider that tissue sensitised with it is as good for commercial work as that sensitised in the usual way? Our business in carbons, portraits, is mainly cabinets and panels. If this sensitiser is as good as the ordinary it would at times be a convenience to us. Your kind reply will be esteemed by — and —.

From our experience with the sensitiser we consider that it is quite as good. Indeed, we may say that tissue sensitised with it works better than that sensitised in the ordinary way, when the latter is dried under at all adverse conditions.

**DISTORTION.**—I am sending you five portraits, large heads, which have been rejected by sitters. I think you will admit that they are good photographs, yet the customers will not have them. They find no particular fault with them, only that they do not like them. I should not have troubled you over these five pictures except that I have so many re-sits with large heads, which I do not get with other sizes. Can you suggest the reason?—**ONE YEAR IN BUSINESS.**

The reason the portraits are unpleasing is that they are "distorted," or, rather, that the perspective in them is very violent. This is due to a lens of too short focus being used for taking the pictures, so that the camera had to be placed very close to the sitter. If you use a lens of double the focal length of the one employed for these portraits you will find the pictures will give greater satisfaction. Large heads taken with a very short focus lens scarcely ever give satisfaction, either to the sitters or their friends.

**APPRENTICESHIP.**—Three years ago I took a young fellow, aged nineteen, as an apprentice for three years, at a progressive salary. The indentures were properly drawn out by a friend engaged in a first-class solicitor's office, but they were not stamped. Now I have taught the young chap the business, and he has become a really useful hand. The other day he told me that unless I doubled his wages he would get another place, which he said he could do, as the indentures were not stamped. I believe he has had the offer of a berth at another photographer's near by. Will you please tell me what legal proceedings I should take in the event of his leaving me, as he might do an injury to my business?—**NORTH COUNTRY.**

You can do nothing. As the indentures were not stamped they are not binding on either party. The man is merely a weekly servant, and can leave at any time on giving a week's notice. Even if the indentures had been stamped the apprentice could not be compelled to serve after he had attained the age of twenty-one.

**WET COLLODION.**—During the last two winters I attended a good number of lantern shows, and was much struck with the superiority of wet collodion commercial slides over those produced by amateurs on gelatine lantern plates. The former were all more brilliant and clearer than the latter. I have been reading the articles that have appeared in the "Journal" during the last few weeks, and write to ask you if you consider the wet collodion process is too difficult for an amateur to take up for making lantern slides with a fair promise of success?—**LANTERN.**

Certainly not, if you follow the instructions carefully. You should bear in mind that, until the advent of dry plates, amateurs had perforce to work the wet collodion process for all purposes, even taking views away from home, yet they produced excellent results. In working the wet collodion process the chief essentials are extreme cleanliness in all the operations, and neatness in working. You must not be discouraged if your first few essays are not perfect successes.

**METOL POISONING.**—For the past year I have been using metol or metol-hydroquinone for my negatives, as I find the former brings out more detail than I can get with any other developer with snap-shots. Now I am suffering badly from the metol. My case is just the same as has been so often described by other sufferers. Can you tell me the best and surest cure?—**R. J. COX.**

The best and surest cure is to abandon the use of metol altogether, then Nature will quickly work a cure. Much metol poisoning might be avoided—indeed, entirely—by neatness in working. There is no necessity for more than just the tips of

the forefingers and thumbs to come in contact with the solution and they are not likely to be injured. It is only when the developer gets on the backs of the fingers and between them, on the backs of the hands, that trouble arises. If you must continue to use this developer, you had better wear india-rubber finger-stalls, and take care that the solution does not come in contact with the naked flesh.

**A DISPUTE.**—I beg again to seek advice on the following, and shall be glad if you will find space in this week's issue of your valuable columns. A man came to me some time ago and asked me to go to a place some five or six miles away from here to take some photographs of the interior of his billiard hall. I quoted him 10s. 6d. for six negatives. He agreed price was right. Then he wanted to know what I would do him a gross of postcards for, and I quoted him 12s. 6d., as he informed me he would want a set of them. I did this work for him, and asked him if I may take another set from different positions, and he assented. When I saw these latter negatives he liked them better, although the first negatives were taken to his order and under his own personal supervision. As his order was then completed off first lot, could not be at the loss to print another from last negatives. I would not pay for them for some time, and I had repeatedly set in my account. However, just recently he sent round to me a note, stating that he could not settle this account in its present form, stating at the same time that he had not had the negatives and therefore was not going to pay for them. As these negatives were of no use to me I took them round to him, and told him he might have them if he cared to pay or buy them outright. I take it there was not such a good sale for these cards as expected, and therefore he refused to accept the negatives, I left them on his table, where he had placed them. He asked me to take them from him, but I would not. Later he brought them round to my shop and threw them on the door-mat, and the consequence was they became all broken up. What can I do with such a man?—**M. H. J.**

The question is, Did you quote him for photographs or negatives? If the latter, he may be able to make you deliver the thing though there is a good case for the defence that he never asked or stipulated for negatives. We advise you to sue him for the amount of your account, based on the first lot of negatives. The second set does not affect the matter, so far as we can see.

**DAGUERREOTYPES.**—(1) We have had a whole-plate positive on glass (Daguerreotype) brought to us to be restored. Can you give the name of a competent man who could undertake this? (2) The probable cost of restoring it?—**C. J.**

(1) E. W. Foxlee, 22, Goldsmith Road, Acton, W., to whom apply for an estimate as to cost, which in any case is not great.

**OPERATOR.**—If you were engaged at 28s. a week you are entitled to that salary up to the time your notice expires. If you make no arrangement as to your railway fare being paid we do not think you can recover anything for that. You will have to leave according to the fortnight's notice at its expiration.

**C. C.**—One ounce of strong hydrochloric acid in 100 oz. of water will usually remove the colour from a pyro-metol stained negative, and we have not found it to return to the extent which your letter suggests, although it is quite true that a stain discharged with an acid bath is quite liable to return. We should recommend that you try the clearing solution headed "Sodium Hypochlorite" in the "Almanac," on page 965, using an extra quantity of the bleaching powder in the alkaline state. If made acid, suggested in the latter part of the paragraph, with oxalic acid there is greater danger of the image being at the same time reduced. Another plan which we have found of service in case of stain is to use a mixture of a very strong hypo solution and glycerine, using sufficient of the latter to keep the mixture fairly syrupy. If this is brushed on to the negatives, and they are allowed then to stand in the air for an hour or two, it will be found on washing that the stain has disappeared.

**ARTIFICIAL LIGHT.**—The favour of a reply to the enclosed query in this week's "B.J." will greatly oblige. I am at present doing midget photography by artificial light—i.e., incandescent gaslight. But as I wish to improve the present work, and as



take three-quarters, full-lengths, and groups, I shall be glad of a little advice and suggestions from you. You will see I enclose samples of busts, groups 2 and 3, and three-quarters of children. This is my limit. I cannot get anything decent beyond this. The trouble is the light. At present I can only use gaslight (as per enclosed sketches), the electric not being in these premises, otherwise, I daresay, this would see me out of my difficulty. I tried an extension of lights on the present apparatus, by placing an extra nine or ten underneath the apparatus. So I practically had lights on to the floor. But this did not light up the full-length figures properly, and groups not at all, in both cases making a nasty glare in the faces. So I give you particulars of how I have the light and work it, and do you think it is possible to arrange it differently with any good results? I have only a cheap lens (10s. retail price) that I take the enclosed with it. I use pyro-soda developer, "Warwick" extra-rapid plates, exposure three to four seconds, and use a trifle more soda than pyro. I have eighteen ordinary incandescent mantles, Bray's XXX (not enclosed in chimneys). But I don't quite get the full benefit of light, I know, as some of them don't quite hang perpendicular, consequently the mantle is not all lit. 1. Do you think the present apparatus can be arranged differently and altered, etc., so as to take three-quarters, full-lengths, and groups properly? 2. Also, what class of lenses do you advise for three-quarters, full-lengths, and groups, from midget work up to  $3\frac{1}{2}$  x 2 size? 3. Also, what class of lens to take postcard work in three-quarters, full, and groups? 4. What is your opinion respecting gas and electric? 5. Please state approximate cost of both lenses—really good instruments. You see I must have a short, very short, focus, combined with speed, and yet I want one to give roundness and good definition. My photographs have a flat look, and consequently take a lot of retouching. But perhaps this is caused by the present lighting.—C. EDWARDS.

1. Unless you can replace the four ordinary burners in the top row by incandescent we do not see that you can improve the apparatus at all. The work you send us is most of it too flat. We should say there is too much reflected light on the face. While you require all the light you can get on the lower part of the figures, you are evidently getting too much on the shadow side of the face. We should advise you to use a reflector pivotted like a looking-glass at its centre, so that the upper part may be pushed back, while the lower is pushed forward, or to use a less white material for the upper part of a fixed reflector. 2. We presume your present lens has an aperture of  $f/8$  at most, probably not that. If you can afford it, a large-aperture modern lens working at  $f/4.5$  or  $f/5$  would give you the same results with one-third to one-fourth the exposure, or with a second or two's exposure would probably enable you to secure groups. You will find prices in any large list, or in full in the "Almanac." The focus for a  $3\frac{1}{2}$  x 2 plate should be about 4 inches, which would allow you 8ft. from sitter to camera when taking a full-length figure upright on the plate. Such a lens will cost you about £4 10s. to £5. 3 and 5. A similar lens or postcard size would cost about £5 10s. or £7, and should have a focus of about 6 or 7 inches. 4. An enclosed arc lamp is of course very much better for your purpose (the groups) than incandescent gas.

NEGATIVES.—Will you kindly describe a quick and safe method of drying negatives? I am working on negatives for enlarging, and have a lot of trouble with spots and markings.—A. H. FLETCHER.

We prefer to mop off all surplus moisture from the film side with a piece of old soft cambric, and allow the negatives to dry spontaneously in a warm room (say some three or four feet above a gas stove), which they will do in a couple of hours. A quicker method is to immerse the washed negative in 10 per cent. formalin for fifteen minutes, rinse, pour almost boiling water over it, and dry before a fire. The method of soaking in two baths of methylated spirit (in each for about five minutes) is more expensive, and, owing to the mineral matter in the spirit, produces scummy markings in the negatives.

RIGHT.—Would you kindly advise me how to go about copy-

righting negatives? I have had a good run on theatre work, and I wish to reserve the copyright on all my work, and do I draw any royalty on all sales of reproductions?—EDWARD SUTTON.

Is it possible that you have never read the frequent replies to this query in our columns? You must deposit one print of each subject at Stationers' Hall and fill up the form of registration. You cannot, of course, describe yourself as the proprietor of copyrights in photographs for taking which you were paid. The copyrights in these cases belong to your customers. You had better study the article in the "Almanac" for 1906, or the "Notes on Copyright" in the "Handbook" of the P.P.A., of which body you should be a member.

MARKINGS ON NEGATIVES.—I enclose some untuned prints, showing distinct white patches on the right-hand side. Would you favour me with your expert opinion about them? My opinion is that some chemical (?) action has caused the marking, as in every case it occurs in the same slides on the side where cloth covers the pull-out panel of dark slide. This is somewhat out of the ordinary fogging difficulties.—C. W. SILENCI.

It is not uncommon to find fogged bands on a plate in the case of new dark slides, due very often to the traces of the polish on the woodwork, or cement used for the hinges. A day or two's exposure of the opened slides to light and air will usually remove the cause. One or two of the prints appear to be fogged from such a cause.

PHOTO FIXER.—We cannot say by inspection, except that the salts consist chiefly of hyposulphite of soda. A chemical examination would be required to identify any other constituents.

APPRENTICESHIP.—I was engaged with a photographer as apprentice for two years, salary to be paid monthly. Payment was very irregular. At the end of the time he asked me to stay on. As the work was congenial I did so. I was general assistant, doing most of his landscape work (one of the principal sources of his income), developing, operating when he was away, and assisting with the books, etc. Unfortunately I allowed matters to drift until my salary was several months in arrear. At the end of last year he became bankrupt, and the question is:—How many months' wages am I entitled to? His trustee has offered two months; but I believe the Act reads that all those engaged in professions, shopkeepers, clerks, etc., are entitled to four months', artisans and workers in trades, at weekly wages, are entitled to two months'. It may seem somewhat presumptuous to class myself as engaged in a profession, but I cannot afford to lose a few pounds, if I can help it.—W.

If you were engaged at a yearly salary, payable monthly, you are entitled to four months' salary. If, however, you were engaged at a weekly salary, payable monthly, you will only get two months' wages. Much will depend upon the terms of the engagement. You can claim the amount of salary in arrear over the two or four months as the case may be, but for that you will have to stand in with the other creditors.

SENSITISED HANDKERCHIEFS.—Can you inform me where I may obtain sensitised silk handkerchiefs through your "Answers to Correspondents" column?—ARISTO.

No such things are on the market. You might apply to the Platinotype Company. They might possibly supply some to your order. But we suspect you will have to prepare them for yourself.

PHOTOGRAPHS ON IVORY.—1. I shall be extremely obliged if you will kindly inform me where I can purchase small quantities of ivory for miniatures, and the best method of sensitising same for printing a brown image. 2. Also, where can I get some transparent colours that are permanent. I have tried several makes of these, and find that they are all aniline colours, which fade very rapidly indeed. I have had some coloured prints in the window (which faces the north) for about a fortnight, and every trace of colour has vanished. This is a serious thing to me, as I sell a lot of them every week.—MINIATURE.

1. Ivory in small quantities is to be had of all artists' colourmen. The best method of producing photographs on ivory is by the double transfer carbon process. All silver processes stain the ivory. 2. The most stable colours we know are those

sold by the artists' material dealers. Many of them are transparent, though not to the same extent as those made with coal tar colours, which are really dyes.

**WET COLLODION QUERIES.**—As I occasionally employ the wet collodion process I have read with interest "The Wet Collodion Process in Practice." I do not, however, quite understand the section on "Developing Dishes," p. 536. I should be glad to know where such "wave baths" may be procured for small sizes, for notwithstanding the well-known expedients of re-bathing the plate in silver bath before developing, spirit in developer, variously lipped pourers, I constantly spoil plates by not getting a regular uninterrupted flow of the developer over the whole plate. I should have feared that with the described "well" dishes there would be apt to be too great a quantity of developer in proportion to the remaining silver solution on plate.—**PHOTOPHIL.**

The heading is an error. It should have been "sensitising" dishes, as the context shows. The wave baths alluded to are made by Mr. R. White, the "Sliplin Manufacturing Compay," West Ealing, W. By following the instructions you should have no difficulty in getting the developer to flow evenly over the plate.

**BROMIDES.**—1. Can you inform me if a bromide print, treated to thorough washing and fixing, is likely to be more permanent than a P.O.P. well fixed and washed? 2. Also, is it possible to harden and prevent blisters by adding some chrome alum only to the plain hypo bath, or to give an extra chrome alum bath instead of pulv. alum?—**S. E.**

1. Certainly the bromides are more permanent. 2. Sulphite of soda should be used as well as chrome alum in a hardening fixing bath. A suitable formula is that on page 964 of the "Almanac," which is not much too strong for bromide prints.

**G. S.**—We suggest that plates require a little more bromide in the developer to keep them quite bright. A plate which develops quickly, as these do, often needs a little extra bromide. Developer which is above the normal 60 temperature, will also give rise to flatness.

**ENLARGEMENTS FROM HARD NEGATIVES.**—To obtain a soft bromide print from a hard negative, the practical way is, as I believe, to give a liberal exposure and diluted developer, and the colour of the enlargement so made is either a pale grey or greenish. Could the above colours be altered to an improved black and white without seriously losing the gradation of the print, and if so, please state in your paper how?—**B. AND C.**

It is difficult to get a good black when using a weak developer; but the best results in our experience are obtained with a hydroquinone developer, or, better, hydroquinone-eikonogen, as follows:—

A. Hydroquinone .....	40 grs.
Eikonogen .....	120 grs.
Soda sulphite .....	480 grs.
Citric acid .....	20 grs.
Water .....	20 ozs.
B. Soda carbonate cryst. ....	60 grs.
Caustic soda .....	50 grs.
Potass bromide .....	5 grs.
Water .....	20 ozs.

Use, A, 1 oz.; B, 1 oz.; water, 2 ozs.

An unpleasant tone is often improved by a short immersion in a toning bath of:—

Gold chloride .....	1 gr.
Soda acetate .....	20 grs.
Water .....	5 ozs.

Or by placing in:—

Potass bichromate .....	10 grs.
Hydrochloric acid .....	5 minims.
Water .....	1 oz.

And re-developing with amidol.

A preliminary weak bath of bichromate (10 grs. per 20 ozs.) applied for a minute or two before development will soften the

print, but the process requires some little practice. A brief note should be given to the print between the bichromate and developer, and the former should not be allowed to act for longer than the prescribed time, two to three minutes.

**ERRATUM.**—An error occurred in one paragraph of the article "Wet Collodion" of last week. Ether "of 820" should be "of 720."

**CIRCULATING LECTURES.**—Messrs. C. P. Goerz announce that they have several new illustrated lectures available for loan to photographic societies, for which they are now booking dates. Full particulars may be obtained on application to the above firm at 1, Holborn Circus, London, E.C.

**THE BUSINESS OF T. Naylor and Sons**, manufacturers of photographic apparatus, has been purchased by Mr. Edgar Scamell, from July 26, and will in future be carried on by him at No. 4, Hanway Street Works, Hanway Street, W., instead of at No. 13 as formerly. The old name of the firm will be retained.

**SCOTTISH SCENERY.**—A book of views typical of Scottish scenery which the descriptive letterpress is printed in both English and Esperanto, is issued by Messrs. Higgin and Co., of Rothesay, in commemoration of the third Esperanto Congress which is now being held at Cambridge, with a view to providing with an intelligible guidebook those who speak this neutral international language. The illustrations are from photographs by Valentine and Sons, of Edinburgh, and the whole forms an interesting souvenir of the places treated in its pages. Copies may be obtained from the publishers, Messrs. Higgin and Co., Rothesay, Scotland, price 6d. each, by post 7d.

**THE THORNTON-PICKARD ANNUAL COMPETITION.**—This competition, which, unlike many others, is an annual event, presents a feature this year in the shape of a special class for enlargements. Cash prizes to the amount of £100 are offered for pictures taken with the Thornton-Pickard cameras and shutters, in some cases the negative also being required. There are seven classes, embracing all kinds of work, and the entries will be judged by the directors and officers of the Thornton-Pickard Manufacturing Company, Ltd., whose decision will, in all cases, be final. Entries close October 1st. Entry forms and full particulars will be sent free on application to the firm at the above address.

**THE "RAJAR" CAMERA**, offered monthly by Messrs. Rajar, Ltd., of Moberley, Cheshire, for the best print on "Rajar" P.O.P., has been awarded to W. James, Esq., Meadowside, Truro, having been judged the best received during July. The paper on which the print was made was purchased from Mr. E. C. Argall, 9, High Cross, Truro.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—The secretarial duties in connection with the above association are now carried out by Mr. Ernest Human, 43, Whitta Road, Manor Park, Essex.

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## The British Journal of Photography

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## SUMMARY.

Two German workers have recorded their experience with ozobrome. It reduces the strength of the pigmenting solution when working on flat originals; another finds collodion prints excellent in bromide work. (P. 634.)

A new flash-powder of very great photographic activity has been made out by Dr. Novak, of Vienna. Comparative measurements of the new mixture and of others are given on page 631.

We reproduce the circular of a firm making a specialty of "speculative outdoor photography." (P. 630.)

Several high-speed photographs of motor-cars are said to be appearing in the American press. (P. 629.)

Mr. Welborne Piper has worked out a method of using bromides in oil printing. (P. 643.)

The Brothers Kearlton demonstrated last week the success of their work in cinematographing timid birds at close quarters. (P. 630.)

Mr. Frank Bishop has retired from an active share in Marion and Co., Ltd. Mr. Gerald Bishop is now managing director. (P. 646.)

Mr. B. J. Edwards is no longer connected with the firm of B. J. Edwards and Co. Mr. E. J. Wall, F.R.P.S., is now technical manager. (P. 641.)

The further hearing of the Chertsey canvassing case is reported on page 645.

Some hints on "Studio Construction" appear on page 635.

Anastigmat lenses, cinematography in colours, mountants, and photographic apparatus are among the patents of the week. (P. 641.)

We give some further notes as to the selection of a view-angle in other reference to Mr. Anderson's article of last week. (P. 630.)

M. Lumière and Seyewetz have recorded the results of experiments on the loss of sensitiveness in plates on being wetted. In general it is slight, though varying with different plates. (P. 632.)

A popular account of the manufacture of the modern anastigmat commences on page 638.

## EX CATHEDRA.

### A Word Wanted.

The receipt of a booklet entitled "Screens and Safe-lights" from Messrs. Wratten and Wainwright, to which we refer on another page, is a reminder of the want of a word to indicate the light-filter used in the dark-room lamp. "Screen" and "light-filter" itself have been so much employed in connection with the filtration of light which reaches the orthochromatic plate at the time of exposure that these words may very well be retained for this signification. But "safe-light" is self-explanatory, and though it may be a practical misnomer at times, it will at any rate be an unmistakable term, and likely to be of service in the constantly greater use which is being made of light-filters of all kinds.

\* \* \*

### A New Flash Powder.

The paper by Dr. Novak, which we translate on another page, contains, it will be seen, particulars of a new flash-light mixture which the measurements show to be in advance of any other formula in the production of a highly photographically active flash. The new cadmium-magnesium mixture is closely approached by that of thorium and magnesium, obtainable commercially as the "Agfa" powder. This latter, according to Dr. Novak's measurements, is but very little behind the newly recommended compound, whilst it has a greater speed of combustion. The figures in the table are instructive, as showing the great differences which exist between flash-powders of the various formulæ, although the list might well be made complete by the addition of a perchlorate mixture, and of the mixture of potassium chlorate, antimony sulphide, and magnesium, which has long been used as a safe if rather smoky powder. The author points out that the danger of spontaneous combustion which exists in the case of a cadmium-nitrate powder containing a trace of acid may be completely obviated by preparing a nitrate containing a proportion of basic salt, the retention of free acid being then chemically impossible.

\* \* \*

### Faked Motoring Photographs.

Mr. C. H. Claudy, in our Philadelphia contemporary the "Camera," calls attention to the photographs which have appeared in the American motor press, in which some suggestion of high speed has been obtained by purposely distorting the photograph of a stationary motor, so as to imitate the result of using a narrow-slit focal-plane shutter at a high speed on a rapidly moving object. The results of this faking process, as the writer points out, are easily recognisable from the fact that the background, if allowed to remain in the photograph, also suffers the same distortion. Usually, too, anachronisms in the

unsharpness of the alleged moving parts of the car are to be seen in these faked pictures of a stationary car. In one particular instance a car, in a photograph which assumes to be that made with the car at the high speed necessary to give rise to the distortion effects, completely fills a 10 by 8 print, and is critically sharp in some portions. It should not be difficult for a non-technical editor to distinguish between the illegitimate and genuine photographs.

\* \* \*

**Nature Cine-matography.** The small company of journalistic and other friends of the brothers Kearton which assembled at the Institute of Journalists last Friday afternoon witnessed a marvellous demonstration of the success which has crowned the endeavours of the Keartons to apply the cinematograph to the record of the life of their timid bird subjects. Having done all that is humanly possible in the way of ordinary photography, the use of the cinematograph at close quarters possessed every element of difficulty which could be put in the path of the naturalist-photographer. How the Keartons have silenced the working of the cinematographic camera so as to be able to use it within a few feet of their sitters is a matter which they leave to the conjectures of their audience, but that they have succeeded beyond their own hopes was evident from the realistic series of films which were projected on the screen. No doubt the methods of field craft which have inspired the property cow and tree have been employed to isolate the taking instrument in a sound-proof receptacle, but however that may be—we are merely guessing—the fact remains that the lecture audiences of the country have now the opportunity of listening to Mr. Kearton's lectures with the accompaniment of a form of illustration beyond which it is impossible to go very much further in the presentation of reality. We hope this triumph of photography will meet with a degree of appreciation equivalent to the immense pains which must have been bestowed upon it.

\* \* \*

#### Invitation Sittings for the Masses.

The example of the society photographer who draws business his way by the method of offering a sitting for nothing has been followed in numberless ways in humbler walks of the profession, but we have rarely seen an announcement so frank as that of a firm in the North of London, which has been distributing from house to house a circular letter in these terms:—

DEAR SIR, OR MADAM,—We respectfully wish to call your attention to this class of Photography. We have now added to our Business an experienced staff of Out-door Operators, and all work is guaranteed of the same high-class quality as delivered from our establishment. Our operator will be in your neighbourhood within two days from the receipt of this circular. We would wish you and friends to be in the foreground of Photograph when taken, so as to give the Picture the desired effect. We do not make any charge whatever for taking the Photograph. We do not require any cash deposits. We trust you; and should the Proof Photograph when submitted to you prove to your satisfaction, we shall be pleased to execute your esteemed orders.

Accompanying this document was an envelope marked "From Official Department." We have nothing to say about the bona-fides of the firm responsible for these overtures. For all we know the business is a perfectly genuine one; in fact, we can only conclude, from the method of conducting it, that it is a reputable piece of business enterprise. Yet we cannot help feeling that such a state of things is lamentable, and repulsive to photographers struggling to follow their craft in the dignified but, we fear, hopelessly old-fashioned way of ten years ago. This "speculative outdoor photography," as its

exponents themselves refer to it, is still another example of the cleavage of the photographers at a middle point into two classes—those putting good work and a certain degree of business restraint before all else, and those who put these matters from them. The middle-class photographer to his own undoing, is left like Kipling's "Tomlinson" not good enough for one or bad enough for the other.

\* \* \*

#### Patent Office Fees.

Those who read the reports of the proceedings in Parliament are fully aware that a new Patents Act has been under discussion for some little time past. One day last week, in a printed reply to Mr. Barnes, Mr. Lloyd George, the President of the Board of Trade, stated that the Patent Office fees have yielded a good profit of late years. Yet he could not see his way to reduce them, in view of the increase in the office expenses. He added that it would not be to the interest of the poor inventor to substitute for the present fees those chargeable in the United States, as that would benefit the comparatively small number of successful inventors at the expense of the others. In America the fees amount to £7, the patent remaining in force for seventeen years, whilst in the United Kingdom the fees total up to £5 at the end of the fourth year. However, we may add that for the full period the fees amount to something like £100. In the reply above quoted, it is mentioned that only 4 per cent. of British patents remain in force for the full term of fourteen years. If this estimate applies to patents for all inventions taken in this country, it is pretty clear that the average, if taken in connection with photography, would be still less than that. Comparatively few of the completed photographic patents have the fifth year's renewal fee paid upon them; indeed, a very large proportion of the applications for patents published in our columns weekly never go beyond the provisional stage. It appears to be the habit of many persons, when they have a new idea, or what they imagine to be new, to rush to the Patent Office and lodge an application for a patent, without duly considering if it is likely to bring them anything in return for even that small outlay. In very many cases the return is nil.

#### VIEW-ANGLE AND FOCAL LENGTH.

We are very pleased to see that our note of July 26 on "Long v. Short Focus Lenses" has elicited an approving and very interesting article from Mr. A. J. Anderson; there is, however, a point of some importance that has not been touched upon either by Mr. Anderson or ourselves, that is, the reason why the ideal view-angle is so small. Art does not acknowledge any laws that have no scientific basis, or, as some would perhaps rather say, no logical foundation; hence, if it is true that a ten-inch lens includes an ideal picture angle on a quarter-plate, there must be some reason for it. There is, in fact, a very simple and sound reason. Such a view-angle includes about 23 deg., and that is just about the angle that we can command with our two eyes without turning the head and without conscious effort. In studying pictures, every one instinctively adopts the position from which he can see the whole with the smallest possible trouble. If the whole picture cannot be taken in, in what people call "one glance," it is seen more or less at a disadvantage—very much at a disadvantage if the picture happens to have a very simple theme, for turning or moving the head practically cuts up the picture into bits, whereas one wants to see it as a whole. As a matter of fact, an angle of 20 deg. is about the ideal, while the maximum



possible angle is about 28 deg. These are the actual picture angles—that is, the angles subtended by the horizontal width of the picture. Taking the width of a quarter-plate picture as 4 in., a 10-in. lens subtends an angle of 28 deg., an 8-in. lens an angle of 28 deg., and an 11½-in. lens an angle of 20 deg. The last is therefore the best angle, while 10 in. is a very good average focal length, and 8 in. is really the minimum that should be used. For ourselves, we use a long-focus lens whenever possible, but on a snap-shooting expedition we prefer a 5-in. lens. Subsequent enlargement, for the simple reason that with that lens we can deal with any subject that presents itself, whereas, as Mr. Anderson admits, a long-focus lens is not always convenient. It is not possible to take every subject at just the ideal angle, and a wide angle is at times desirable for other than pictorial reasons.

It is just possible that some may conclude from what has been said that a narrow picture angle is essential in a picture that claims to be a picture. This is far from being the case. There are subjects with which wider angles are necessary for purely pictorial reasons. A painter naturally considers 60 deg. to be about the limit, but he employs such a wide angle as this for exceptional effects, and such subjects for the most part are quite unsuitable to photography. From the nature of photography it is impossible to deal in any satisfactory manner with complex subjects. Simplicity of subject is the key to success in pictorial photography, while a crowded subject is altogether unmanageable. On the other hand, the photographer can deal most successfully with complex subjects if the photographer is foolish to expose a plate upon a subject of which the desirable picture angle varies with the subject, wide angles generally going with complexity and narrow angles with simplicity. Therefore, the photographer is naturally led down to narrow angles. The exception to this is to be found in the case of architecture. Here the architect is the artist, his adjustment of the parts of the complex whole is perfected, and neither painter nor photographer is at liberty to interfere with it, hence both

are on the same footing so far as selection of angle is concerned.

Another point touched on in Mr. Anderson's article is the use of the view-finder. If one is going to use the whole of the picture included on the plate, an accurate finder is very necessary, otherwise some important part of the subject is sure to be cut off. In such a case the reflex camera scores beyond all others. But if it is intended to utilise a portion of the plate one need only use the finder to centre the view, and the boundaries of the view can be adjusted after, upon the negative or print. As regards the composition of the view, it always appears to us to be a mistake to settle this with the aid of the image seen in finder or on the ground glass. In photography, composition depends entirely upon the selection of the point of view, and in our opinion it is not only more instructive, but better in all respects to settle this by direct observation of the subject. We prefer to be without a camera altogether when studying points of view, and when the various most likely points have been selected we only use the finder or the focussing-screen to see how the subject will fill the plate, or the portion of it that we intend to use. For this purpose a simple rectangular frame, such as that described by Mr. Anderson, is not only as satisfactory as, but in our opinion superior to, any other form of finder. Hand-camerists would probably produce a greater number of likely pictures if they paid less attention to the finder picture and more to the subject itself, and if they used the finder simply for the purpose of centring the view and ensuring that the whole of it is well within the limits of the plate. If enlargement is to be resorted to, the actual size of the image (within reasonable limits) is of little importance; but as a rule we fear the majority of people pay more attention to this relatively unimportant matter than to anything else. They use the finder to see if they can get nearer the object and secure a larger image, whereas they ought rather to use it to see if they can get further away without making the scale too small.

## FLASHLIGHT MIXTURES.

The following report of experiments made in the Vienna Institute of Graphic Arts by Dr. Novak; to whom photographers are indebted for several similar investigations, may be studied by makers of these compounds rather than by the amateur user, in whose hands the manufacture of such products is attended with no little risk.—Eds. "B.J."]

Points require to be taken into consideration in producing a satisfactory flashlight mixture:—

The amount of light, possessing photographic activity, produced.

The rapidity of combustion.

The amount of smoke produced.

Ordinary practical tests suffice to show the great differences that exist between the various mixtures in respect of these properties. The author's object, therefore, has been to employ methods of greater accuracy in examining various mixtures as regards their photographic activity and speed of combustion, in order to provide a more exact numerical comparison of the preparations.

The photographic intensity of the flash was determined with a tube photometer<sup>1</sup>, in which ordinary gelatino-bromide

plates were exposed. The measurements were thus obtained in candle-meter seconds<sup>2</sup> (H.m.s.), the Hefner amyl-acetate lamp being taken as a unit.

Three ground-glass screens were fixed in front of the sensitometer: the flash was fired at six metres distance by an electric igniter, and each sample examined contained 1 gm. of magnesium.

The measurement of the time of combustion was done with Rheden's apparatus<sup>3</sup>.

Regarding the preparation of the flashlight, it may be noted that the separate substances were finely powdered singly and mixed with the magnesium powder on a piece of glazed paper. Such a precaution is, of course, necessary in all cases on account of the explosion of the mixture which may take place through rubbing or shock.

<sup>1</sup> A candle-meter-second is the chemical effect of a Hefner amyl-acetate lamp in one second at one meter distance.

<sup>2</sup> Photographische Korrespondenz, 1903, p. 115.

<sup>3</sup> Photographische Korrespondenz, 1903, p. 428.

The following table gives the results of the determinations. It should be noted that the mixtures of magnesium with zinc nitrate and with cadmium nitrate have not been previously examined:—

Mixed with 1 gm. (15 grs.) of magnesium powder.	Relative photographic intensity on gelatino-bromide of silver.	Time of combustion in seconds.
	H.M.S.	
Potass permanganate ( $\frac{1}{2}$ gm.) .....	173,000 .....	·12
Potass nitrate 1 gm. ....	36,000 .....	·07
Barium nitrate 1 gm. ....	60,000 .....	·07
Strontium nitrate 1 gm. ....	84,000 .....	·105
Thorium nitrate 1 gm. ....	281,000 .....	·220
" " $\frac{1}{2}$ gm. ..	332,000 .....	·230
" " $\frac{1}{4}$ gm. ..	358,000 .....	·24
Zirkon nitrate 1 gm. ....	237,000 .....	·24
Ceric nitrate 1 gm. ....	173,000 .....	} Burns slowly in about 1 sec.
Zinc nitrate 1 gm. ....	173,000 .....	
" " $\frac{1}{2}$ gm. ....	282,000 .....	·250
Cadmium nitrate, slightly basic, 1 gm. ....	399,000 .....	·270
Molybdic acid 1 gm. ....	20,000 .....	·300
Ammonium molybdate 1 gm. ....	86,000 .....	} In about 1 sec.

Perfectly dry materials were used for all the preparations. In the case of one mixture, that with the cadmium nitrate, it was noticed that a trace of nitrous or nitric acid in the preparation rendered the mixture liable to spontaneous combustion; which took place usually a few minutes after making the mixture. If, however, a few drops of soda solution are added to that of the cadmium nitrate, so as to produce a slight precipitate, the result, after evaporation, was a mixture which is slightly basic, and gives rise to no spontaneous combustion.

Of the various mixtures, that which gave the greatest photographic intensity is that containing cadmium nitrate. Next in order comes that with thorium nitrate. It is further seen

from the table that the light obtainable varies with the proportion of thorium nitrate, the most favourable proportion being

Thorium nitrate .....	1 part.
Magnesium .....	2 parts.

Ceric nitrate is useless as an oxidant in flash powders, as too slow in burning. It may, however, be useful as a time on account of its high development of useful light. The combustion could be easily prolonged still further by the introduction of suitable inert bodies. The author hopes to report the results of experiments in this direction.

A very luminous flash is obtained from the mixture of zinc nitrate ( $\frac{1}{2}$  part) and magnesium (1 part); but the mixture containing molybdic acid and ammonium molybdate has no practical value.

In reference to the time of combustion, the compounds of potassium or barium nitrate burn the quickest. The time of combustion of the cadmium and thorium powders is about four times as great, but practical tests have shown that the latter speed is fully sufficient for successful exposures, while the mixtures have the great advantage of providing nine times the "photographic" light of those with potassium nitrate.

The greater or less development of "smoke," so important in practice, was found to run pretty much according to the amount of light that the greater the light the less the smoke. The mixtures of potassium nitrate gave the greatest amount of smoke, and those with thorium or cadmium the least.

The properties of the mixture of magnesium and basic cadmium nitrate (1:1) have not been previously published, but are worthy of notice on account of their favourable character from the practical standpoint—that is to say, great luminous intensity and very little smoke.

It should be mentioned in conclusion that the light emitted by the cadmium-magnesium mixture produces a continuous spectrum in addition to the familiar magnesium lines.

FRANZ NOVA

## ON THE ACTION OF WATER AND OF DEVELOPING SOLUTIONS ON THE SENSITIVENESS OF GELATINO-BROMIDE PLATES.

It has been noticed that plates impregnated with water or developing solutions have their sensitiveness to light diminished in proportion varying with the particular plate. This fall in sensitiveness can be produced by moistening the plates with the liquids as well as by immersion of the plates during exposure. We set ourselves to examine this phenomenon in order to discover what practical results it would lead to as regards the better illumination of the dark-room, as well as to ascertain the effect of the hydrometric condition of the air on the sensitiveness of photographic plates. Two series of tests were made, one dealing with the general sensitiveness of the plates, and the other with their sensitiveness to different parts of the spectrum. An electric incandescent lamp was used in the first, daylight in the second. The experiments were carried out with the following plates:—

Rapid Emulsions.—Lumière "blue label."  
Lumière Ortho A.  
Lumière Ortho B.  
Lumière panchromatic.  
X rose label.  
Y American.

Slow Emulsion.—Lumière red label.

### The Effect on General Sensitiveness.

The influence of the temperature of the developer and of the time of development on the experiments was eliminated by exposing at the same time as each plate was examined a dry check plate coated with the same emulsion. This exposure was made in one and the same vessel divided into two compartments, one of which contained the dry check plate, and the other the plate immersed in the water or the developer. The sides of the vessel thus holding the two plates were opaque, and the upper part could be closed entirely or partly by means of a shutter, by means of which a series of increasing exposures could be made by exposing successively the different portions of the plate. The plate was thus divided into a number of bands, one of which had not been exposed at all, whilst the others had received exposures increasing in the progression, 1, 2, 3, etc.

Each brand of plate was examined as to its behaviour in the following liquids:—

A.—1. Immersion in water only followed by normal development in diamidophenol.

2. Immersion in diamidophenol developer, followed by development in the same solution.



—1. Immersion in plain water, followed by development in roquinone and a carbonate.

Immersion in hydroquinone-carbonate developer, followed development in the same solution.

—1. Immersion in plain water, followed by development in  $\alpha$ -acetone.

Immersion in the pyro-acetone developer, followed by development in the same solution.

In a second series of experiments the plates, instead of being exposed under the layer of liquid, were simply moistened with brush soaked in water or the solution.

The results of these two series of tests were identical. They were such that in the case of using an incandescent electric lamp as illuminant, the loss of sensitiveness is practically the same both water and developing solutions—that is to say, that the loss is due to the absorption of light by the layer of liquid covering the plate.

The Sigma plates and the blue label plates suffered an appreciable loss of sensitiveness. The Ortho A plates, the slow plates (label), sustained only a weak reduction of their sensitiveness, whilst the Ortho B plates and the panchromatics appeared to retain practically all their sensitiveness.

The phenomenon is most marked in the case of the Sigma plates, the sensitiveness of which became one-quarter to one-fifth that of the unwetted plates. This fact has allowed of our developing without fog plates of the Sigma brand, which had been normally exposed by immersing them for a few seconds in water. The dark-room was lighted by a yellow incandescent lamp of 16 candle-power placed at a distance of three yards from the dish. The plate was examined twice, the first time two minutes, and the second time three minutes, after the commencement of development. Blue label plates exposed under the same conditions, as well as all the other plates, excepting those of slow speed, gave a very appreciable fog.

#### Influence of the Quantity of Absorbed Water on the Loss of Sensitiveness.

The maximum fall in sensitiveness (due to moistening with water) taking place in the case of the Sigma plates, we endeavored to determine in the case of these plates:—

1. The quantity of water necessary for the loss in sensitiveness to begin to be appreciable.

2. The quantity of water needed to produce the maximum loss in sensitiveness.

For this purpose we exposed Sigma plates under a bell in an atmosphere saturated with moisture, and compared their sensitiveness with check plates which had been allowed to remain in an atmosphere for times varying from two minutes to five hours. We found that at a temperature of about 60 deg. Fahr. the loss in sensitiveness became appreciable after about half an hour in the bell, and reached a maximum (one-quarter to one-fifth the original sensitiveness) when the action of the damp air had been continued for about four hours. On determining the relative weights of water which a plate absorbs after a time of half an hour and of four hours in an atmosphere saturated with moisture the following figures were obtained:—

Water in a plate 13 by 18 cm. ....	128 gm.
Water in a 13 by 18 plate after half an hour in atmosphere saturated with water .....	1,334 gm.
Water in a 13 by 18 plate after four hours in atmosphere saturated with water .....	288 gm.

#### The Influence of Dryness on Sensitiveness.

It seemed advisable to determine whether part of the loss of sensitiveness produced by absorption of moisture is permanent, or if on desiccation in the air the plate regains its original sensitiveness; also whether drying at 212 deg. Fahr. or by prolonged exposure over sulphuric acid produces any increase of sensitiveness. In the first case the plate regained its original sensitive-

ness. In the second case no increase of sensitiveness above the normal could be noticed.

Name of Plate.		Nature of Moistening Liquid.	Various Regions of the Spectrum.					
			Violet.	Blue.	Green.	Yellow.	Orange.	Red.
Sigma		Water	to	As for violet.	Total loss	NIL.	NIL.	NIL.
		Diamidophenol developer	to	As for violet.	"	"	"	"
		Hydroquinone	to	As for violet.	"	"	"	"
		Pyro acetone	to	As for violet.	"	"	"	"
Blue Label.		Water	to	As for violet.	As for violet.	NIL.	NIL.	NIL.
		Diamidophenol developer	to	As for violet.	As for violet.	"	"	"
		Hydroquinone	to	As for violet.	As for violet.	"	"	"
		Pyro-acetone	to	As for violet.	As for violet.	"	"	"
Lumière Ortho A.		Water	to	As for violet.	As for violet.	As for violet.	NIL.	NIL.
		Diamidophenol developer	to	As for violet.	As for violet.	As for violet.	"	"
		Hydroquinone	to	As for violet.	As for violet.	As for violet.	"	"
		Pyro acetone	to	As for violet.	As for violet.	As for violet.	"	"
Lumière Ortho B.		Water	to	As for violet.	As for violet.	As for violet.	As for violet.	Total loss.
		Diamidophenol developer	to	As for violet.	As for violet.	As for violet.	As for violet.	Total loss.
		Hydroquinone	to	As for violet.	As for violet.	As for violet.	As for violet.	Total loss.
		Pyro-acetone	to	As for violet.	As for violet.	As for violet.	As for violet.	Total loss.
Lumière Panchromatic		Water	to	As for violet.	As for violet.	Total loss.	Total loss.	Total loss.
		Diamidophenol developer	to	As for violet.	As for violet.	Total loss.	Total loss.	Total loss.
		Hydroquinone	to	As for violet.	As for violet.	Total loss.	Total loss.	Total loss.
		Pyro-acetone	to	As for violet.	As for violet.	Total loss.	Total loss.	Total loss.
Plate X (Rose Label).		Water	to	As for violet.	As for violet.	NIL.	NIL.	NIL.
		Diamidophenol developer	to	As for violet.	As for violet.	NIL.	NIL.	NIL.
		Hydroquinone	to	As for violet.	As for violet.	NIL.	NIL.	NIL.
		Pyro-acetone	to	As for violet.	As for violet.	NIL.	NIL.	NIL.
Plate Y (American).		Water	to	As for violet.	Total loss.	NIL.	NIL.	NIL.
		Diamidophenol developer	to	As for violet.	"	"	"	"
		Hydroquinone	to	As for violet.	"	"	"	"
		Pyro-acetone	to	As for violet.	"	"	"	"
Lumière Slow		Water	to	As for violet.	NIL.	NIL.	NIL.	NIL.
		Diamidophenol developer	to	As for violet.	NIL.	NIL.	NIL.	NIL.
		Hydroquinone	to	As for violet.	NIL.	NIL.	NIL.	NIL.
		Pyro-acetone	to	As for violet.	NIL.	NIL.	NIL.	NIL.

#### Experiments on Orthochromatic Sensitiveness.

In these experiments the solar spectrum was photographed in a spectrograph, and the various plates used, as in the previous series of tests. The results of these exposures are contained in the table subjoined. They show that for a given liquid there are, in certain cases, notable differences between the action of white light and that of particular spectral regions.

It will be noticed that variable losses of sensitiveness are obtained with the different developers used to wet the plates when daylight is used, although in the same conditions but using incandescent electric light the differences are very much less.

#### Conclusions.

From the results above described the following conclusions may be drawn:—

1. Gelatino-bromide plates experience a fall in sensitiveness when wetted with water or developer, but regain their initial sensitiveness on drying. They do not, however, assume a greater degree of sensitiveness on complete desiccation.

2. The loss of sensitiveness varies with the plate. It is most marked in the case of the Lumière Sigma plates.

3. The loss of sensitiveness varies, for the same plate, with the different regions of the spectrum to which the plate may be exposed. It is most marked in the green and yellow.

4. The above facts can be advantageously applied in the illumination of the dark-room.

A. AND L. LUMIÈRE.  
A. SEITZETZ.

## CONTROL IN THE OZOBROME PROCESS

(A Paper in "Photographische Korrespondenz.")

THE ozobrome pigmenting solution, as has been mentioned in the many articles on the subject, consists essentially of a mixture of potassium ferricyanide, potassium bromide, and potassium bichromate. The chemical processes which are performed by these chemicals are somewhat as follows:—The ferricyanide acts as a strong oxidising body on the silver image, converting it, in the presence of potassium bromide, into silver bromide, and being itself reduced to potassium ferrocyanide. This latter body undergoes an immediate re-oxidation to ferricyanide by means of the bichromate, which is thereby reduced to chromium oxide. This latter then acts as a hardener of the pigment film in a method similar to that which occurs in the carbon process. There is thus formed a certain definite proportion of hardened bichromated and pigmented gelatine according to the quantity of silver in the original bromide print, and it is noteworthy that the strength and gradation of the silver print fixes the final ozobrome result. The latter can, it is true, be varied within certain limits as regards its intensity by the pigment selected; nevertheless, with a special selection of pigment, as is the case in the ozobrome process as commercially offered, the equivalent of the silver print in carbon is obtained.

In general, the ozobrome process is worked by the transfer method on account of the fact that the original bromide print being upon baryta paper, the latter becomes slightly brittle during the various operations, and requires an after-bath of glycerine in order at the end to get the print to lie flat. If, however, specially prepared bromide paper is used in the original instance, there is no necessity whatever to transfer the print, although in this case, as is well known, several carbon duplicates cannot be obtained from the same print.

The development of the ozobrome print takes place just in the same way as that of ordinary carbon copies, the chemical tanning of the gelatine being precisely analogous to that of the light in the carbon process. It is usually well not to exceed the time of immersion in the pigmenting solution recommended in the directions, namely, two minutes. This time is found fully sufficient for even the most vigorous bromide prints. A longer time gives somewhat stronger ozobromes, but a period of immersion of three to four minutes is liable to cause fog or partial insolubility of the gelatine film, with the result that extremely hot water is required for the development. A shorter time of immersion than two minutes is equally inadvisable, as the complete decomposition of the silver in the print does not then take place, and therefore the shadows (particularly) of the ozobrome suffer. It is obvious that a certain proportion of ferricyanide is necessary for the conversion of the silver image, and since the solution is only available through absorption of it by the pigment paper, it is easy to see that with too short a time of immersion the bleaching process may not be complete in the case of prints of more than the usual vigour. The result of this would be that the shadows appear flat in contrast to the half-tones, in consequence of the tanning of the film not having been proportional to the amount of silver in the bromide. Curling of the pigment paper on immersion in the ozobrome solution can be avoided by softening the paper for one minute, not longer, in water at 60 deg. F., and then, after allowing the water to drain off, immersing in the ozobrome solution. It is well if this procedure be followed to use a rather stronger ozobrome solution for the same time of immersion, or to immerse for about half a minute longer. As a rule, it will be found that in the case of pigment paper which has been packed flat there will be no need to take precautions as to curling, provided that the paper has not been kept in too

dry a place. Previous softening has the result that the pigment film does not adhere so well to the support, and on development in warm water may very easily become detached.

It is important to ensure the pigment paper being brought quickly into contact with the silver image, while the latter lies on a glass plate, without inclusion of air-bells. As the chemical action of the bath takes place at once on the wet bromide print it is easy to see that veil and dark or light patches will be the result of working too slowly, and if the pigment image moves after having been squeegeed to the bromide, double outlines are the natural consequence. In some directions which have been given by various writers on the ozobrome process, it has been suggested that the two prints should be laid together under water, the pigment tissue having been previously immersed in the ozobrome solution, and that they should be brought into contact below the liquid and then removed and squeegeed. The writer's experience, however, is that the method suggested above is preferable, as it avoids irregularities due to the diffusion of the ozobrome bath from the pigment film.

The strength of the bath and the time of immersion are very important points in making ozobrome prints. It may be taken that two to three minutes is a normal time of immersion in the standard bath—i.e., five times diluted—recommended for the process. The strongest pigmenting solution which can be usefully employed is 1 to 3, and the weakest 1 to 6, these figures representing the proportion of water added to the commercial solution. Pigment prints of great softness are obtained by using stronger solutions for the normal time. On adopting a longer time of bathing, the prints become still softer, but fog frequently occurs, and the development is rendered more difficult owing to partial insolubilisation of the pigment film, making the use of hotter water necessary. Greater contrasts and greater clearness of the high-lights are obtained by using a more dilute solution for the normal time.

The two extremes concentrated solution and long immersion and dilute solution and short immersion should be avoided as far as possible.

It may be well to summarise those variations which can be made in the practice of the ozobrome process in the following short table:—

Silver Prints.*	Strength of the Ozobrome Solution, temperature 60 deg. F.	Time of Immersion
Strong, tending to hard ... ..	1:3 .....	2 (1½)
Too strong, but with good half-tones ... ..	1:5 .....	3 (2)
Normal, i.e., with good gradation and great strength... ..	1:5 .....	2½ to 3 (2)
Somewhat flat, lacking strength in the shadows ... ..	1:6 .....	4 to 5 (3-4)

NOTE.—It is assumed that the pigment tissue is softened by immersion for one minute in water before placing in the ozobrome solution. If immersed dry into the solution, the shorter times of immersion given in parentheses in column 3 should be used.

A time of immersion of 1½ minutes can obviously scarcely be given in the case of a very dry pigment paper which has not been previously softened, and attention should be paid in working the process to the proper state of the pigment paper before immersion. In the case of pigment tissue previously softened in water it is possible to adopt a time of immersion of any desired degree of brevity.

\* Gelatino-chloride and chloro-bromide prints give as a rule softer ozobromes than bromides of similar strength; but it should be remembered that any print the image of which consists of metallic silver may be used for the ozobrome process. The vehicle of the silver print appears also to have little influence on the preparation of ozobromes, since a print made on "Rotary" matt collodion paper, washed, fixed, and again washed but not toned, gives entirely good results as the original for ozobromes.



In the case of ozobromes which are treated in a strong solution, 1 in 3 of the pigmenting bath, and are given a fairly long time of immersion—e.g., three minutes—but nevertheless do not come out with sufficiently soft contrasts, it is advisable to first immerse the silver print itself in water for a few minutes, soak it in a 1 per cent. solution of alum for two minutes, allow the latter to drain completely away from the print, and then bring the print into contact in the usual way, the pigment print having been immersed for two minutes in a 1 to 5 ozobrome bath in this way, prints of excellent clearness and softness are obtained. Similar results may be achieved by addition to a 1 to 6 ozobrome solution of a little alum solution. About 5 c.c.s of 10 per cent. solution of alum is the correct quantity to add to about 100 c.c.s. of the bath. These methods of control may prove useful in those cases where previous treatment or control of the silver prints cannot be undertaken.

Slight veil or fog on the ozobrome prints can be dispersed by rubbing water over them or throwing it over the prints with the hand or with a wad of cotton wool lightly applied with pressure to the prints. More pronounced fog results, as above observed, from too long immersion in solutions of too great strength. The addition of alum makes the pigmented film, especially that on the surface, partially insoluble, whereby a slight veil is formed even in the highest lights. It should be borne in mind that a very weak veil of this kind should always be present, just as it should be in ordinary carbon printing. The tanning action of the alum exerted not only on the pigment film, but also on the bromide print, prevents great penetration of the ozobrome solution, with the result that a print in similar relief, and therefore of greater softness, is the result.

The time of contact between two prints is directly dependent

upon the hardening (aluming) of the silver print. I have found that even for very strongly hardened prints fifteen minutes is fully sufficient; it is only necessary to see that the solution does not evaporate from the paper, and if the latter and the pigment tissue are placed between two glasses, it may be left over night and perfect prints afterwards developed. In the case of prints which have hardened by age it is frequently found that the half-tones come away. In such cases, it is well to unhardened the prints in a bath of 3 per cent. acetic acid, afterwards washing thoroughly from ten to fifteen minutes, and then hardening afresh with 3 per cent. alum solution, with a further washing of fifteen minutes; such prints can be placed in water and brought into contact with the "ozobromed" pigment tissue.

In carrying out the above unhardening process, it is advisable to go over the print with a soft brush or tuft of cotton wool to remove air-bells in each stage; without this the latter are apt to appear in the finished print in the form of white spots.

In the case of ozobromes for which bromide prints are being specially made, it may be sometimes convenient to remember that the ozobrome can be prepared before the print has been fixed. In this case the developed print is rinsed, hardened for ten minutes in alum solution, and washed for ten minutes without access of light. It is then placed, according to the ordinary methods, in contact with the pigment paper and developed in warm water. In working by the non-transfer process, fixation should be given in any case in order to remove the bleached bromide image, and therefore the whole of the silver bromide is removed from the print. This method, which can be used also in the cases of collodio and gelatine printing-out papers, is often advantageous in preparing ozobromes.

OTTO SIEBERT.

#### OZOBROMES FROM COLLODION PRINTS.

The above notes of Herr Siebert may be supplemented by the following from the current issue of the "Photographische Mitteilungen," describing the writer's experience in the use of collodion

prints as originals in the ozobrome process.]

In order to be successful in the use of collodio-chloride prints as originals for the preparation of ozobromes, the collodion paper could be printed somewhat deeper than usual and the free silver thoroughly washed out. The prints should not be toned, nor for the same reason should the self-toning papers be employed. The prints are simply fixed, again washed, and are then ready for use in the process. In fact, it is not necessary to fix the prints; they may be used in the pigmenting process as soon as washed. A dilution of the purchased ozobrome solution, with five times its volume of water and a time of immersion of the pigment tissue of two minutes therein, will be found about the correct standards to employ when

working from collodion prints. The time of contact with the pigment tissue may average about twenty minutes. Equally good results may be obtained on glossy and matt paper, but it is advisable to use a safe edge in order to secure the adhesion of the pigment print to the collodion surface when the non-transfer form of the process is worked.

Aristo, albumen, and casein papers have not proved so satisfactory as originals for ozobromes. They are capable of good results, but at times the reproductions are not satisfactory. The irregularity probably arises from the different degrees of resistance of the films of these papers to the penetration of the ozobrome solution.

FRITZ WENZEL.

## HINTS ON STUDIO CONSTRUCTION.

Those who regularly read, as I do, the replies to queries given in the "Answers to Correspondents" column of the "British Journal" will have noticed the number of questions that relate to the construction of studios, the kind of blinds best for them, the colour the studio should be painted inside, etc. Some practical hints, therefore, on the subject by an old hand in portrait photography may possibly be of use to others younger in photography. Apparently many of the queries emanate from those who have had but limited practical experience in the profession; they cannot adapt themselves to circumstances without aid, or they would not require enlightening on the simple matters to which their queries relate.

Judging from some of the queries and from advertisements of businesses for sale, in which a studio with a north light is made a feature of, it would seem that the idea is somewhat prevalent with many that it is only in the studio with a north light that good pictures can be taken. If that is the case, no greater fallacy exists. The only advantage I can conceive in a studio with a north aspect is that the light is generally more uniform throughout the day

than in any other. For that reason inexperienced or unskilful workers may be enabled to produce better results than they would otherwise do. With a northern aspect also the sun gives less trouble than with others, but experienced hands know quite well how to deal with that as circumstances arise. I have even heard of very eligible premises, as regards business, being rejected for others in a far less suitable place, merely because a studio with a north light could not be erected there.

The aspect of the studio is quite of secondary importance as compared with the business position. The excellence of the work depends entirely upon the photographer who works it. During my quarter of a century in portrait photography, a good part of which was in the collodion days, I have worked in studios with aspects of nearly all the points of the compass, except the north. I never had the experience of working with a north light. The nearest approach to it has been north-east and north-west. Once I worked for a time in one with a due south light, and I may say that, amongst what I consider the best pictures I have produced, were those taken in the south-lit

studio. The light was very variable, it is true, but that is of little moment to anyone who understands his business.

### Studio Types.

*En passant*, I may remark that the late Mr. Valentine Blanchard, as well as the late Mr. Adam Salamon, whose portraits created such a *furor* for the effects in their lighting about the early 'seventies, preferred a south light to work in, and had their studios constructed with a south aspect. One of the advantages of a south light is the great variety in lighting that can be obtained with more ease than in many others. The light also is stronger, and enables shorter exposures to be given, no mean advantage in winter. Incidentally, it may be mentioned how the studio above referred to in which I worked was built. It was of the lean-to form. The side light, which was fairly high, was glazed with ground glass, the roof with plain glass. This was fitted with two sets of blinds, on spring rollers; those next the glass were white, and the others black. The side was fitted with black curtains running on rods. With this simple arrangement I obtained pictures with great variety in the lighting, and they gave great satisfaction to the sitters.

For two years my work was done in a studio with an all-top light; there was no light at all below 9ft. from the floor, yet satisfactory portraits were obtained in it. Fortunately, the studio, or, rather, room, was large, and by means of reflectors the top light was, to a great extent, converted into a side one. However, this kind of studio is certainly inconvenient, and is by no means to be recommended if circumstances will permit of any other being constructed. In many instances, as in this, the photographer is restricted to certain aspects, and also by restrictions with regard to the Building Acts, also by the by-laws made by local authorities, so that the best has to be made of the existing circumstances. "The coat must be cut according to the cloth."

The most general forms of studio at the present time are the ridge or span roof and the lean-to, and both are good. The former can usually be lighted from both sides, and the latter, of course, from one side only. Hence with the latter, unless both ends of the studio are used for sitters, all must be lighted on the same side. Hence there is a great sameness in the lighting of the portraits. With the span roof it follows that either side light, provided it is not obscured by other buildings, can be used as occasion may require. Two studios in which I worked for some years were of the ridge roof form, and ran north and south, so that the sitter, when placed at the south end, could be lighted with either east or a west light, which was a great convenience. In the earlier part of the day, when the west light could be used, there was no trouble with the sun. Neither was there in the latter portion, when the east light could be employed. Such studios are very convenient to work in, but space and surrounding conditions are not always available.

### The Lean-to Studio.

A very favourite form of studio at the present time is the lean-to form, and, on the whole, if both ends are utilised for the sitters, this is the one to be preferred. For general work it is desirable its length should not be less than 25ft. to 30ft., and its width 13ft. or 14ft. This will permit moderately large groups to be posed, and lenses of fairly long focus being employed, so that good perspective is obtained in the pictures. With short studios the sitters have to be placed very close to the background, and, as a consequence, there is no atmosphere between them. Hence the sitter looks more as if he were stuck on to the background, or even let into it. Short studios also necessitate the use of short focus lenses, so that perspective becomes violent, and the pictures convey the idea of distortion. Most of those who take large heads, where the lens has to be placed 6ft. or 7ft. from the sitter, find that this class of pictures, as a rule, does not give the same satisfaction as do smaller ones taken at a greater distance.

### The Proportions of Glazing.

Here are good proportions for a studio for general work, whether of the lean-to or ridge form. It may be well to say here that it is undesirable to have more glass than is really necessary, as this tends to make the studio unduly hot in summer and unnecessarily cold in winter. We will consider one, say, 27ft. long and 14ft. wide. The height of the roof at either end, and 4ft. at the sides may be opaque, solid. The wider the studio the more at the ends may be made opaque, and the narrower, the less. The height from the floor to the eaves may be 8ft. 6in. to 10ft. from the floor, inclusive of about 3ft. of skirting next the floor. This may be glazed with plain glass, or, if the studio is much overlooked, with fluted glass, as that does not obstruct the light, and yet cannot be seen through. The height from the eaves to the ridge may be about 6ft., and that will give a good slope to quickly carry off rain, and thus help in preventing the water finding its way through. A very suitable glass for the roof is what is known as rolled plate. It is thick, obstructs but little light, and is not likely to be damaged by hailstorms. The glazing need not be carried up to the ridge by a couple or three feet, then the roof can be made more easily, and kept, watertight. Also, the blinds or curtains, whichever are used, can be made more easily fixed, so as to exclude light.

The framework of the building is best of iron, as that is not affected by the weather in the same way that wood is, and for this reason the roof can be kept in a watertight condition. On the other point should be kept in mind in designing a studio—namely its ventilation. Ventilators, that can be opened and closed as required, should be placed in the highest part of the studio, and it is also a good plan to have others at the lowest portion, so that a cool current of air can be admitted at the bottom, and the heated air pass out at the top.

WM. MICHELL.

## A TRIUMPH OF RECORD PHOTOGRAPHY.

[The following notes by Mr. E. S. Curtis, of Seattle, U.S.A., which appear in the "Photographie Times," describe a photographic undertaking which is almost without an equal in respect of the time devoted to it and the thoroughness with which the camera has been applied to recording the features of a dying race. It is possible that Mr. Curtis's remarkable Indian pictures will be seen in England.—Eds. "B.J."]

You ask me to tell you something of my work that would be of interest to photographers. I question anything in connection with it or information in regard to it being of much help to my fellow photographer, unless it would be to convince him that his life is one of comparative ease and comfort. To begin with, for every hour given to photography two must be given to the word picture part of this record of the vanishing Indian. True, many of the hours given to the writing are those of the night time, and the light is not a 32 candle power stand lamp, but most likely two or half a dozen tallow candles fastened with their own wax to a scrap of plate or grub box. The everlasting struggle to do the work, do it well and fast, is such that leisure and comfort are lost sight of. To the oft-asked question, "What camera or lens do you use?" I can only reply, "I could not tell to save my soul; it is enough for me to know that I have something that will make pictures and

that it is in working order." And as to chemicals, I have almost forgotten that they are a necessary part of photography. With us it is seven days in a week, twenty-four hours in each day, and thirty-one days in most months. We sleep when we cannot work, and here is one place where we are most particular. Our beds must be as comfortable as human ingenuity can make a camp bed, for while we do rest we want to rest well. Most likely the roof to our apartment is the sky blue dome, but to sleep in the open is real rest.

### An Outfit Weighing one Ton

The field season of 1906 was nine months long, beginning in the mountains of Apacheland, with snow still in sight, and long before the season ended we were snow-bound in the mountainland of the Hawalapai. The field party for the season was, firstly, Justo, our Mexican cook; two helpers, who could best be called ethnologists,



ing the lore, logic, and history of the people, one of whom as my stenographer; and myself, I doing the photography. Being three of us at work, there had to be three interpreters, and, of course, we secured from each group with which we were working. During the season we have worked with fourteen languages and no end of dialects. Our camp equipment, weighing from a hundred pounds to a ton, depending on distance from a source of supplies; in photographic and other equipment there were several cameras, a motion picture machine, phonograph for recording, a typewriter, a trunk of reference books, correspondence files running over a year of business affairs, as, being always on the move, it is necessary to keep up my regular correspondence in connection with the work, its publication and the lectures all from the Tents, bedding, our foods, saddles, cooking outfit, four to six horses, such was the outfit. Some one has to boss the job; usually it falls to me. Everything must be kept on the move that no thing is lost. Teams have to be bought, supplies secured, both country and photographic, arrangements made for getting and sending. On long stretches the whole outfit has to be shipped. At times the nature of the country does not permit of waggon travel, and the train has to be made up and managed, or, perhaps, it is water transportation, boats to be bought or built, and, when secured and loaded, must be handled, be it rough or smooth water, and, withal, the thing that must never be lost sight of, the purpose of the work—its nature and word history of the Indian and his life. But at times the handling of the material side of the work almost causes one to lose sight of art and literature.

#### A Year's Touring of 60,000 Miles.

During the field season of 1905 sixty thousand miles of railroad were used. The totals of 1906 are not yet made up. And come the elements. The rain pours down. What was an arid plain when you made your evening camp is soon a lake. Perhaps in the darkness of the night you have been compelled to gather your camp gear and carry it to higher ground; or, perhaps, it is a fierce storm striking your camp, and if strong enough it will either blow you to the ground or whip them to shreds. And then comes the storm. No horse can travel against it. If *en route*, you turn out your waggon to one side to furnish as much of a wind-break as possible, throw a blanket over your head, and wait for its passing. It may be two hours or it may be ten, and when it is over your equipment is in sorry shape. Nothing can keep it out. Trunks, plate box, plate holders, motion machines, food—everything is sifted full of this fine powdery sand. Hail-storms will come down on you and whip your camp into tatters. At another time it may be the heat, so intense that a furnace seems cool in comparison. I have a keen recollection of a ten-day trip through desert and mountains, when each day the thermometer registered more in the shade, and water was more precious than gold. On the other hand, it may be snowstorms and cold that will lead you to forget that you were ever warm. We have just passed through one. We went into the high mountains with a hunting party of Indians. Soon the snow began to fall, and when it snows in the mountains it does that, and nothing else. When the snow reached our waggon hubs we decided it was time to retreat. The road, hard to find at any time, was lost in the snow. Mountain peaks and land marks were invisible in the falling, drifting, swirling of white. The horses floundered and fell, regained their feet, struggled on, only to give out completely and lay down in the snow. Food ran low, and we had the added misery of hunger along with the bitter cold. At another time a stubborn driver rushed his horse team down a bank and into a fresher torrent, where, in the fragment of a minute, all you could see of that waggon was its top, and a muddy stream for a quarter of a mile was strewn with the wreckage. From a half dozen cameras scarcely one could be fished up out of that wreck, and plates—well, the shortest time to get a new supply was ten days and a trip to cost hundreds of dollars. Another day the pack mule, with my only camera fastened to its back, slipped and rolled down the canyon a mile. The camera was spread out on the mountain side, seeming to be nothing but a piece of canvas. Twelve hours' steady, patient work, and it was patched so it could be used. But such a sight! No camera worker has ever saw anything quite its equal. On the outside it was a mass of ropes, bound and twisted in every direction, to hold it together.

All this has not happened in one season. There have been nine of them, each having its good share, and yet I have not spoken of the people with whom we have to deal. Each tribe or village is like unto no other, but all have their full share of superstition and secretiveness, to say nothing of stubbornness. Each tribe visited is a new situation to be taken up and mastered, and that quickly. Every phase of their life must be noted, and, as far as possible, pictured, and the gathering of this lore, logic, and myth must go hand in hand with the picture making, as, without the knowledge of their life, ceremony, domestic, political, and religious, one cannot do the picture work well.

#### Snowstorm Portraiture.

How do I manage the portraits and the handling of the life? In every way. Conditions cannot be changed. I must fit myself to them. Some of the portraits can be made in my tent, which is a fair sized one, made for photographic work. Many more are made in the open, in the soft light of the morning or the intense glare of the mid-day sun. The subject secured, it matters not the time or conditions. The picture must be made. My fine picture of Alchasa, the Apache chief, was made in the strong light of the mid-day sun, the background a juniper tree. The picture of Red Cloud, the Sioux, was made in strong sunlight, on the open prairie. The particularly fine one of the Jicarilla chief was also made in the strongest glare of open sun, and the background a red blanket. A certain fortunate picture caused the question, "How did you get that beautiful soft effect?" It is easy to answer. The picture was made in a blinding snowstorm, and the falling snow between the lens and the sitter caused the semi foggy effect. The results were satisfactory, but the doing of it exceedingly uncomfortable.

My mood to-night seems to have been to tell of the difficulties and hardships. Do not think that this is the only side of the work. For every hour of misery I could tell you of one of delight, and the most stormy days have had glorious sunsets, and for every negative that is a disappointment there is one which is a joy, and for every page of these trials I could write you countless ones of the beauties of Indian land and Indian life.

You may ask how long the field work will last? When the Navaho does not know the answer he says, "Whooh," which is, perhaps, the only answer. This I do know: that for six years more the work will be driven to the limit of human endurance. After that there will be a little more leisure.

#### A De Luxe Publication.

The Curtis publication of the North American Indian will consist of twenty volumes of text, and bound in with the text of these twenty volumes will be fifteen hundred of the small pictures, each one of the fifteen hundred being a full-page photogravure of the best quality. Several of the photogravures in each volume will be hand-coloured plates of ceremonial subjects. The book in size will be a page 9½ x 12½, three hundred or more pages in each volume. The paper used will be the best quality imported hand-made paper, a paper that will be as lasting as can be made. As a supplement to the twenty volumes there will be twenty portfolios, each containing thirty-six of the large pictures 14 x 17, or in the complete set there will be seven hundred and twenty large pictures. These also are to be of the very best photogravure work. Every care will be taken to make the book the very finest sample of the bookmaker's art.

Mr. Frederick Webb Hodge, of the Smithsonian Institution, and editor of the "American Anthropologist," will be the editor of the work. President Theodore Roosevelt will write the Foreword Introduction. It will be published in parts, each part being complete in itself, as it will treat of certain tribes. It is proposed in the complete work to take up all the tribes, both in pictures and in text, of our North American Indians, who are yet in a primitive condition, picturing every phase of their life.

Mr. J. Pierpont Morgan's assistance in the work is in the form of an advance subscription to twenty-five sets of the work, this fund to be subject to my draft at the rate of \$15,000 a year. Most of these copies will be presented to foreign individuals and libraries. The use of this fund entails no restrictions or even suggestions in handling the work, I being simply supposed to do as I have in the past—work to the best advantage for the welfare of the work and publication.

EDWARD S. CURTIS.

## THE GENESIS OF A MODERN LENS.

[In the following first instalment of an article from our contemporary the "Central Zeitung für Optik" a clear idea is given of the steps through which a modern high-class lens passes from the glass-works to the camera. Expressed, as it is, in popular language, Herr Büniger's paper should prove deserving of study by those interested in their optical tools.—Eds. "B.J."]

DURING the last fifteen years there has been a wonderful advance in the construction of cameras generally, and hand cameras in particular, but the advances in lens construction have been greater still. The expenditure of intellect, trouble, and care involved in the production of the present-day anastigmat is known and appreciated by the initiated. To the layman there is apparently more value in the bright brass or nickel fittings, the bright red bellows and polished woodwork of a camera, than in the less pretentious looking lens, and the novice is astonished to hear that the latter in many cases costs far more than the rest of the outfit. Photographers, however, have become accustomed to the high prices of their lenses, and neglect the cheapest trash. Those who go in seriously for photography always choose good apparatus and lenses. Everyone knows from magnifying and opera glasses how cheap optical goods can be, and he who does not know the difference between ordinary and the higher optics may well wonder why five or six pieces of glass in a mounting cost so much. And yet the price is fully justified.

The facts as to the method of making a modern anastigmat are but little known to the public, and sometimes not even in commercial circles. Even now it is possible to hear a dealer say: "When an optician sits down and begins to grind, he cannot say beforehand that he will make an objective which will act in such and such a manner, or shall be specially fitted for a particular class of work. It is in most cases—chance." It would be a bad thing for optics if this were the case. If a dealer says this, what must the public think?

These articles are intended to sketch in simple language the genesis of the modern anastigmat, and in such a manner that even he who runs may read—and learn. As regards the theory and practice, only so much will be dealt with as is necessary to give a clear conception of the facts. It would entail, too, considerably more space than can be given to it.

### Making the Raw Glass.

The difficulties begin quite at the beginning, in the manufacture of the raw glass. The old opticians, with Fraunhofer at their head, made their own glass. As this was done only in a small way, and the science of glass manufacture was but in its infancy, the number of glasses differing in their constants was small, and, naturally, the glasses could not be compared with those prepared in the special glass works of to-day. The greatest success in recent years in this particular direction has been the pioneer work of Dr. Schott, who, in conjunction with and at the suggestion of the late Ernst Abbe, made the first special success in glass smelting. With a subsidy from the Prussian State, the well-known glass smelting works of Schott and Genossen were founded in Jena. To the new glasses of this establishment are we indebted for the possibility of making our modern anastigmats, and by altering the fluxes their optical constants were so altered as to fulfil the new requirements of the theoretical optician.

Optical glass, whatever its refraction and dispersion, must before all things be as free from faults as possible. That is to say, it must show no bubble, wavy streaks, lumps, or other imperfections. Further, the whole piece must be homogeneous in the strictest sense of the word.

### The Manufacture of the Glass.

The constituents of the glass are melted in clay vessels, the so-called "pots." According to its composition, the glass shows subsequently higher, medium, or low refractive index and dispersion. In the pots, which are slightly conical, the glass is heated far above its melting point and rendered quite fluid. Gases and other impurities are given off. The liquid mass is now well mixed, with constant stirring, in order to make it homogeneous. The throwing of a raw potato into the fluid mass helps the avoidance of bubbles.

When all is thoroughly mixed the cooling is begun. This must be effected with great precautions, and only very slowly. The homogeneity of the glass, after well mixing, depends entirely upon a slow and gradual cooling. If the glass cools down too quickly, it contracts unequally and stains are caused, which give rise to unequal refraction. In order to obtain this homogeneous cooling, the glass is cooled down very slowly a hundred degrees at a time. Such a cooling down as this often takes two or three months. Finally, when the whole mass has cooled down, the pot with its contents is broken. The irregular pieces thus obtained are cut into square plates. On two opposite sides of these plates two narrow windows are polished so that the whole of the interior of the plates can be examined. The sides are covered with an opaque crust, and this examination permits the rejection of the useless pieces.

The price of the glass differs according to its composition and the difficulty of manufacture. The newer crown and flint glasses, which are mostly used for anastigmats, vary between fifteen and thirty shillings per kilo (2½ lb.).

### The Optical Constants.

In order to determine the optical constants of the melt, pieces of a given angle are cut from small pieces. With these prisms a very exact spectrometric measurement is made with a spectrometer. These measurements are based on Fraunhofer's discovery of the dark lines in the solar spectrum. It is well known that white light is not homogeneous, but that it can be split up into rainbow-like spectral colours.

The five principal spectral colours are red, yellow, green, blue, and violet. Newton (1666), who first proved the composition of white light from the spectral rays, gave the number of the principal colours as seven, for he included orange and indigo in addition.

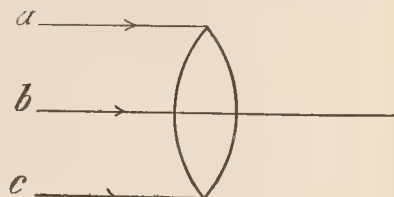


Fig. 1.

the above. Yet these play but a minor part, though all the colours gradually blend one into the other. The Fraunhofer lines, or strongest of them, are designated by the capital letters A to H. The lines A and B lie in the red, C in the orange-red, D in the brightest part of the spectrum, the yellow, E in the green, F in the bright blue, G in the dark blue, and H in the violet. By means of a spectrometer the refractive index of these lines is accurately determined in the glass to five places of decimals. The refractive index is referred to that of air, which is taken as unity. These measurements are performed in the glass works, but opticians usually determine them also for themselves.

Well determined types of glasses have been worked out, which are always made. Yet, in spite of the same ingredients being used, the constants of successive melts are always slightly different.

Before the manufacture can be begun, the calculations for the lens must be made. These calculations are the most difficult part of the process, and cause endless trouble and work.

### The Faults of Lenses.

In order to obtain a clear idea of the difficulties and the range of the calculations, we must first consider the faults of a single lens. In Fig. 1 we have a biconvex lens and a luminous point at an infinite distance, such as the sun, the rays from which we may call



der as parallel. The rays *a* and *c* are the limits of the beam, and the middle. At the same time *b* is the axis of the lens, about which it is centred. It is quite clear without further explanation that *b* passes through the lens absolutely without refraction. All other rays, as soon as they strike the surface of the lens, suffer refraction, and according to a given law. This deviation is caused by the difference in the molecular power of the two media—in this case air and glass.

The angle which the incident ray makes with the normal, shown by the dotted line, to the first surface is *x*, and the angle which the refracted ray makes with the same normal is *y*; then the sine of these two angles *x* and *y* is always in constant ratio =  $\frac{\sin. x}{\sin. y} = n$ .

This amount is always designated *n* when the first medium is air. The refraction, deviation, or bending of the ray from its original path then equal to the difference between the two angles, and *x* - *y*.

The refracted ray strikes the second surface of the lens, and suffers a second refraction according to the same law, and then continues its way till it cuts the central ray or axis of the lens. At this point is formed an image of the luminous point—in this case the sun.

This point lies, in this case, at the focus of the lens. The distance from the lens to this point is called the focus of the lens. Now, the nearer the ray is to the central ray or axis, the smaller is the incident angle—that is, the angle between the ray and the normal, or *x*. The result is that *y*, the angle of refraction, is also smaller. As the deviation is less, the ray, after passing through the lens, cuts the axis of the lens later than the marginal ray, Fig. 3. The foci of the marginal ray *B* and that of the ray *B* nearer the

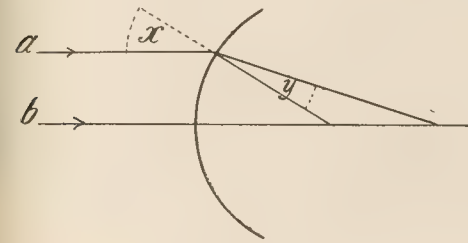


Fig. 2.

s do not lie in the same plane, and the latter is further from the lens than the former. We thus see that the greater the incident angle the greater the refraction and deviation, or marginal rays have shorter foci than axial rays; yet the refraction always follows the same law  $\frac{\sin. x}{\sin. y} = n$  constant.

This defect is due to the fact that lenses are portions of spheres, and is called "spherical aberration." With a single lens this defect cannot be obviated, but only reduced to a minimum by the choice of suitable radii of curvature.

The rays which we have hitherto considered have been assumed to be parallel. Naturally, and especially in photographic work, non-parallel rays have to be considered, for all objects are at an infinite distance, and do not lie on the axis of the lens. We must differentiate, therefore, between rays from points within the axial plane, but which strike the lens at a more or less large angle with the axis, and those which, lying outside this angle, also strike the lens at a definite angle. These oblique and acute angle rays, within and without the axial plane, coming from a finite and indefinite distance, are actually the causes of astigmatism and coma—want of definition. Obviously, this fault cannot be obviated in a single lens, but only reduced to a minimum.

Up to the present all the rays we have been considering have been monochromatic, or of one colour. This convenient assumption, however, is not an actual fact.

Let us consider a single bi-convex lens, and let a ray of white light fall on it. This, as soon as it has passed the front surface, will split up into a number of coloured rays (Fig. 4). At the second surface of the lens this process will be continued, and consequently

increased, so that from a luminous point we have a coloured and indistinct image. In order to explain this, we must assume that light must be propagated, like sound, by wave motion. There is no other satisfactory explanation. As with sound, the shorter wave motions are shriller, so light, according to its colour, has shorter and longer waves. All known refracting media have the property, through their molecular power, of refracting the shorter wavelengths more than the longer. For instance, the red ray is deviated less from its path than the violet, and, as with a single lens—that is, a lens of only one kind of glass, and possessing only two radii—every colour has its own focus—that is to say, the images produced by the different coloured rays do not lie on the same plane. Thus appear the coloured halos in the image—the lens is chromatic.

For a long time this fault had to be put up with; it was obviated to a certain extent by using instruments of very small aperture, with the result that they were very poor in their power of admitting light. For this reason reflecting telescopes were used.

The first achromatic lens was made by the English mechanic and optician, Dollond, about the middle of the eighteenth century. Newton, a century before, had denied the possibility of making achromatic lenses. Through defective experiments he came to the conclusion that achromatism could only be obtained by absorbing the excess of refraction, and that only thus could the colour of any excess of refraction be obviated. The result was a system which was neither positive nor negative, but a plane.

About a century later the mathematician Euler again dealt with the achromatic lens. He made calculations and communicated with Dollond, who made some fruitless experiments. A few years later Klingenstierna, a Swede, experimentally proved the possibility of

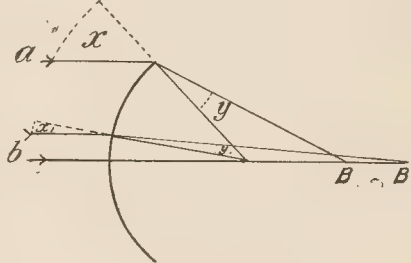


Fig. 3.

achromatism. He used a combination of two prisms, and showed with these deviation of white rays without colour dispersion.

Dollond, as soon as he heard of this, again began his experiments, and soon gave to the world his achromatic lens. It was made only by trial and error, for at that time the method of numerically estimating the optical constants of a glass were not known. In spite of this, Dollond's lenses gained great approval and proved very good in practice.

As soon as Fraunhofer discovered the black absorption lines in the spectrum, in 1814, the optical constants of glasses could be enumerated, and the mathematicians could calculate out their formulae. In spite of this, for years many opticians worked purely by trial and error.

So far we have only learnt the defects of spherical and chromatic aberration, and only touched on astigmatism. To follow this subject up completely and learn the deformations that it causes would lead us too far astray in a superficial sketch such as this. There are other faults also, but these are the three principal ones.

The different coloured spectral rays are differentiated according to their intensity and activity into two main groups, the visual and photo-chemical or actinic. The visually luminous rays are those which lie in the yellow of the spectrum. If, therefore, an instrument is to be corrected for visual work, the calculations are principally confined to this part. As a matter of fact, a telescope is corrected for C and F, or C. D, and F, or D and F, and it is said to be visually corrected.

With a photographic lens, however, it is different. Here we have to deal with the photo-chemically active rays in the violet end of the spectrum about G. A lens may be only corrected for these rays,

but for general photographic work it would be useless, as one would have no control as to the sharpness of the image on the plate. Such correction is only used for astro-photographic objectives, with which the infinitely distant heavenly bodies are photographed, and the focus, having been once determined, is kept constant.

Optical correction enables us to see the image on the ground glass and the actinic correction ensures the sharpness of the image of the plate, which later takes its place. Thus photographic lenses are corrected usually for D and G.

LUDWIG BUNGER.

(To be continued.)

## THE DISTRIBUTION OF LIGHT IN GRATING SPECTRA.

(A Paper in the "Astrophysical Journal," Vol. XXI., 2.)

HAVING had occasion recently to plan for the construction of a short-focus spectrograph of fairly large dispersion in the visible region, the question of gratings versus prisms came up. Plenty of data regarding prisms are to be found in Kayser's new treatise in spectroscopy, but little or nothing seems to have been published regarding gratings, the only statements made being rough guesses. It seemed worth while to make a study of the distribution of the light (monochromatic) in the different spectra of a typical grating.

The apparatus which my assistant, Mr. Pfund, arranged for making the measurements was very simple, and the whole thing was accomplished in half an hour. The grating selected was a fairly typical one, the central image, rather dark and of a brownish colour, indicating that no very marked selective action for certain colours was present, and the first-order spectrum on one side extremely bright. The measuring apparatus, or photometer, consisted of a pair of Nicol prisms (one mounted in a graduated circle), a small piece of silvered glass, and a bright and uniform sodium flame. The silvered

obtained are recorded in the following table, eight spectral images being measured:—

Fourth Spectrum	Third Spectrum	Second Spectrum	First Spectrum	Central Image	First Spectrum	Second Spectrum	Third Spectrum	Fourth Spectrum
0.073	0.057	0.20	0.81	0.16	0.98	0.096	0.032	0.01

The numbers given are the squares of the sines of the angles, and represent the intensities of the image as fractional parts of the light transmitted through the first nicol. The intensity of the first spectrum on the right is as great as the sum of all the others together with the central image (0.94), which amounts to saying that half of the total light reflected is found in one spectrum.

It is frequently stated that a nicol reduces the intensity of unpolarised light by one-half. The reduction is obviously greater than this on account of the reflections at the two oblique surfaces, and to a slight extent by the balsam film. In the present case the surfaces of the prism were slightly dull, and I doubt if the intensity of the transmitted light was much over 40 per cent. of the original intensity. Calling the intensity of the soda flame 100, we get the intensities of the spectra by multiplying 40 by the fractions given in the table. The sum of these intensities (eight spectra and central image) is 75.6

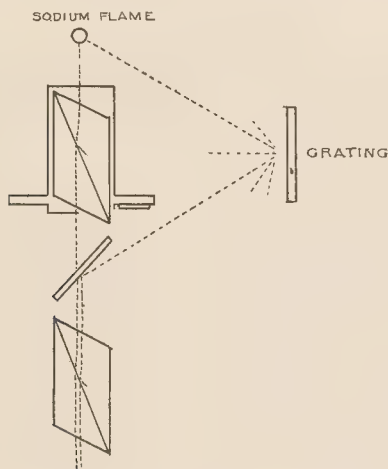


Fig. 1.

glass can be made by dissolving the varnish from the back of a piece of modern mirror, and polishing with rouge. It is mounted vertically at an angle of 45 degrees with the axis of the nicols, and covers the lower half of the field (Fig. 1). The soda flame is immediately behind the polarising prism, and the grating stands to one side, as shown in the figure. By turning the grating the central or any one of the lateral (spectral) images of the flame can be viewed in the silvered mirror immediately in contact with the image of the flame seen through the nicols, and by turning one of them the intensities can be accurately adjusted. We first set the graduated nicol in the zero position, and then turn the other nicol to the position of extinction. The intensity of the restored light for a given angle measured from the position is proportional to the square of the sine of the angle. The central image can be located easily by watching for the reflection of the flame in the unruled portion of the surface. The results

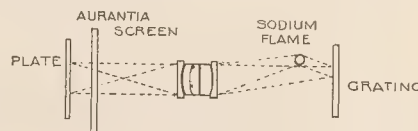


Fig. 2.

which agrees fairly well with Rubens' determination of the reflecting power of spectrum metal for yellow (70 per cent.). This indicates that the ruling of the surface interferes in no way with the total reflection, which is what might be expected. The interesting point is that half of the total light is found in one spectrum. If specular reflection reflects 70 per cent., this means that we have 35 per cent. of the light in the first-order spectrum, or about one-third of the original amount.

To determine whether or not this was the case, I arranged a photographic lens, soda flame, and the grating in such a way that the lens pictured by the direct image of the flame and the first order spectral image side by side on a photographic plate (Fig. 2). A ray filter of aurantia was placed in front of the plate, to eliminate the action of the blue and green rays from the Bunsen flame, which would be present in the direct image, and absent in the spectral image. The spectral image was exposed thirty seconds, and the direct ten, and on developing it was found that the images had almost exactly the same intensity, showing that no error of any considerable amount had been made in the photometric work. Of course, the same intensity distribution might not, and probably would not, be found for other colours, but the results obtained with sodium light give a fair idea of what may be expected of an average grating.

The difficulty of ruling satisfactory gratings of very short focus (on meter or less), combined with the fact that only short lines can be



ed, makes it appear probable that for work of certain kinds better results can be expected with large plane gratings combined with chromatic lenses. Two flint prisms of 60 degrees would give us about the same average dispersion, and the intensity would be a little more than double that given by the grating, since two prisms in this description transmit 75 per cent. of the light, according to Koenig's table given in Kayser's "Handbook." The measurements which I have recorded were made merely for my own information, without any idea of publication. As they may prove of some interest to others, it has seemed worth while to put them on record. I have, of course, said nothing about resolving powers in considering the different types of dispersion pieces.

R. W. WOOD.

#### LECTURES AT THE R.P.S. EXHIBITION.

The following is the programme of lectures to be delivered at the Royal Photographic Society, during the forthcoming exhibition of the Royal Photographic Society:—

Thursday, September 19.—"With a Hand Camera to the Niagara Falls," H. O. Klein, F.R.P.S. Saturday, September 21.—"Eight Hundred Miles up the Nile," R. Falconer Jameson. Monday, September 23.—"South Africa in 1906," Harold W. Atkinson, M.A. Tuesday, September 24.—"In the Land of the Vendetta," Rev. T. T. Gage, F.R.G.S. Saturday, September 28, "Westminster Abbey," Joselyn Perkins, M.A., F.R.Hist.S. Monday, September 30. Some Celebrated Nesting Haunts of British Sea Birds," W. Wren. Thursday, October 3.—"A Year and a Half among the Alps," A. H. Dunning, F.R.G.S., F.R.P.S. Saturday, October 5. Wedgwood: His Life and Work," Harry Barnard. Monday, October 7.—"Ancient Egypt," C. J. Marshall, A.R.I.B.A. Thursday, October 10.—"The Romance of Insect Life," F. Martin-Duncan, F.R.P.S. Saturday, October 12.—"Some Dutch Places and People," C. J. Marshall, A.R.I.B.A., F.R.P.S. Monday, October 14.—"Lakes and Villages in North Italy," Rev. H. O. Fenton. Thursday, October 17.—"Adventures in Bird Land," Oliver G. Pike, F.R.P.S. Friday, October 19.—"My Experiences in the Jamaica Earthquake," Vaughan Cornish, D.Sc., F.G.S., F.C.S., F.R.G.S. Monday, October 21.—"Two Benedictine Minsters," E. W. Harvey Piper, M.S.A. Thursday, October 24.—"Bird Hunting in the Balkans," R. B. Lodge. Saturday, October 26.—"Beauties of the Alps," Louis J. Steele, M.I.E.E.

J. EDWARDS AND CO.—We learn from Messrs. B. J. Edwards and Castlebar Works, Ealing, W., that, from the 8th inst., Mr. B. J. Edwards is no longer connected with their firm, the technical management of which is now in the hands of Mr. E. J. Wall, F.R.P.S., well known to our readers as an expert in emulsion making, orthochromatic plates, and other branches of photography. Mr. B. J. Edwards also informs us that he is no longer connected with B. J. Edwards and Co. and that all personal communications should be addressed to "Wistow," Hayes, Middlesex.

EXHIBITION AWARDS.—This question received much attention from the Committee of the Bristol Photographic Club, who finally decided to give several plaques of equal value in each class, and to depart from the usual practice of placing the winning pictures in so-called order of merit. It was felt that any such attempt at "placing," even in the case of a big open competition, is bound to be unsatisfactory and against the best interests of pictorial photography. Whereas most art critics would agree closely in choosing the best eight pictures, yet probably no two would place them in the same order, owing to the idiosyncrasy of each critic.

OZOBROME, LIMITED, beg to announce that, in consequence of the increasing demand for Ozobrome materials, their factories at 96, Prince of Wales Road, and 1, Weedington Road, have been found to be inadequate, and they have therefore acquired more commodious premises at 122, Allcroft Road, Kentish Town. They will continue to supply materials for the Ozobrome, Ozotype, and gum-ozotype processes, and in a few weeks will be able to undertake, from customers' side prints, the making of Ozobrome prints and enlargements. They will also supply suitable papers for the oil process, and papers coated with plain gelatine for special photographic purposes.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made between August 6 and August 10:—

DARK-ROOM LAMPS.—No. 17,825. Improvements in, and relating to, lanterns for photographic dark-rooms. Harry Duckworth Halstead, 51, Deansgate Arcade, Manchester.

APPARATUS.—No. 17,900. Improvements in portable photographic apparatus. Reginald Haddan, 31, Bedford Street, Strand, London.

CINEMATOGRAPHS.—No. 17,955. Improved device for looking at stereoscopic projected images, especially living pictures. Marius Nicolai Topp, 6, Lord Street, Liverpool.

MOUNTS.—No. 17,975. Improvements in photographic and other picture mounts. Benjamin Garfield Carpenter, 82, Victoria Street, Westminster.

EMULSIONS.—No. 17,976. Improved method of manufacturing emulsions and the like. Oscar Pirsch, 7, Southampton Buildings, London.

LENSES.—No. 18,121. Improvements in telephoto lenses. Alfred Edward Staley and Owen Wheeler, 19, Thavies Inn, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

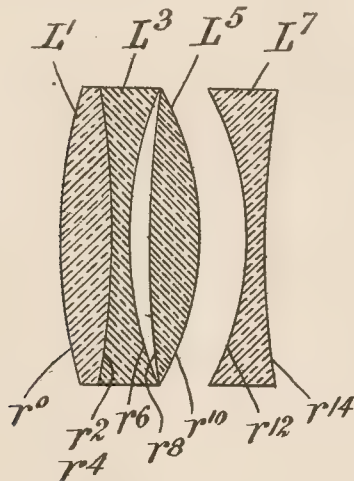
ANASTIGMATIC LENSES.—No. 18,073. 1906. The invention is for a lens free from aberrations, the claim being for a lens consisting of front and back combinations, having in them the same number of lenses, each lens of each combination being made of the same type of glass as a lens of the other combination, and having substantially the same radii of curvature, but of opposite sign. The complete lens is generally composed of several glasses, two combinations at least being employed. The front combination, which is positive in character, is constructed in one of several well-known ways, so that central spherical aberration, coma, astigmatism, and chromatic aberrations are practically eliminated. No attempt is made to obtain flatness of field, though in some cases the conditions for obtaining this may happen to coincide partially with the conditions for freedom from the aberrations enumerated. When a suitable front combination has been obtained a back combination is formed as follows:—A number of lenses equal to the number of lenses in the front combination, and of substantially the same diameters are taken, the types of glass being chosen so that there are the same number of lenses of each type of glass as in the front. Each lens in the front may now be considered to correspond to the lens of the same type in the back. By "type of glass" it is meant that corresponding glasses should have substantially the same refractive index in the part of the spectrum for which correction of other aberrations is made, but the corresponding refractive indices to all parts of the spectrum need not be equal. The glasses may be chosen in order to free the back combination as far as possible from chromatic aberrations.

The character of the back lens, whether positive or negative, depends on the separations between the curves. When the order of the lenses has been so adjusted, keeping the aspect of the curves always as described above, as to make the separations between the surfaces as small as possible, the back combination will be negative in character. The complete lens will then form a telephotographic system, and the separations between the components may be varied in order to obtain different focal lengths.

In describing the lens the words "crown" and "flint" are used to denote simple lenses, in accordance with the usual workshop practice. "Crown" designates a lens having a positive

or convergent effect on a parallel pencil of rays, and "flint," one having a negative or divergent effect on such a pencil.

Separation between lenses always means the distance between the centre of the back surface of one and the centre of the front surface of the other. Separation between curves means the



distance between the centres of the curves, either in glass or air.

Particulars of a system, consisting of four lenses,  $L^1$ ,  $L^3$ ,  $L^5$ ,  $L^7$ , and illustrated in the accompanying drawing, are as follows:

Diameter of lenses .6 in.

$$\left. \begin{array}{l} r_0 + 2 \text{ in.} \\ d_1 .2 \text{ in.} \\ r_2 - 3 \text{ in.} \\ r_4 - 3 \text{ in.} \\ d_5 .05 \text{ in.} \\ r_6 + 1.7 \text{ in.} \end{array} \right\} \begin{array}{l} L^1 n_{D10} = 1.6112 \\ L^3 n_{D30} = 1.5137 \end{array}$$

$L^1$  and  $L^3$  are cemented in contact.

$$\left. \begin{array}{l} r_8 + 3 \text{ in.} \\ d_9 .2 \text{ in.} \\ r_{10} - 1.7 \text{ in.} \end{array} \right\} L^5 n_{D50} = 1.5137$$

$L^5$  is close to  $L^3$

$$\left. \begin{array}{l} r_{12} - 2 \text{ in.} \\ d_{13} .05 \text{ in.} \\ r_{14} + 3 \text{ in.} \end{array} \right\} L^7 n_{D70} = 1.6112$$

Separation variable.

Refractive indices of glasses:—

	$L^1$ and $L^3$	$L^5$ and $L^7$
Ray D .....	1.6112	1.5137
Ray G .....	1.6248	1.5273

An iris diaphragm may be conveniently placed about a quarter of an inch in front of the front surface.

With a separation of .2 between the back crown and flint, a focal length of about 13" is obtained, and there is good definition over a circle of about this diameter when the lens is used on moderately distant or distant objects. With shorter separations good definition is obtained over the same circle. With longer separations the central definition remains good, but the well-defined field is less extensive. Cyril Frederick Lan-Davis, 25, Newman Street, London, W.

**CINEMATOGRAPHY IN COLOURS.**—No. 26,671. 1906. According to the invention, negatives of records of two colour sensations alternating with each other are photographed by apparatus, which may be of the usual character for taking cinematograph pictures, but red and green transparent filters, or screens, are employed which are alternately brought into position as the photograph is being taken, so that a cinematograph negative is obtained in which there will usually be about double the ordinary number of pictures for a given subject, and in which negatives of records

taken with the intervention of the red filter, or screen, alter with those taken with the intervention of the green filter screen. The photographic material, or negative film on which the pictures are taken in the camera, will, of course, be coated with an emulsion which has been rendered sensitive to the action of red, yellow, green, and blue light. A positive is then taken from the negative so obtained, and is used in a cinematograph apparatus, which may be of the usual kind, except that it is provided with a device, or shutter, furnished with two colour transparent screens, with the usual opaque parts between them, so adjusted as to conceal the change from record to record, and to show the minimum of obliteration, the coloured transparent screen being of a character respectively similar, or sufficiently similar to those used in taking the records that the alternate red and green colour records are exhibited with the intervention of corresponding colour screens—that is to say, as each alternate colour record of the one character comes into position for exhibition, the correspondingly coloured screen will simultaneously come into position, and as each of the other alternate colour records of the other character comes into position for exhibition, the other correspondingly coloured screen will simultaneously come into position. A rotating shutter with two apertures, or transparent parts, and opaque parts between, of the same size possible to conceal the change from record to record, may be a convenient device for the purpose, if the apertures are covered by the respective coloured transparent screens.

In order to comply with the requirements of persistence of vision as regards colour, it will be necessary to drive the apparatus, both in taking and exhibiting, at a greater speed than is employed with ordinary cinematograph apparatus, say at a speed double the speed. It is found that a speed which will allow about thirty successive pictures to pass the aperture per second gives good results, causing the persistence of vision of the observer to give him the impression that the colours obtained from the alternating records are superimposed, or blended, so that the moving picture appears to him to be in its natural colours, or approximately so. George Albert Smith, F.R.S., Laboratory Lodge, Roman Crescent, Southwick, Brighton.

**MOUNTANTS.**—No. 9,105. 1907. The invention relates to mountants for photographs, which consists of a pasty substance, such as starch, paste, gum, or the like, applied to the back of a photograph, for the purpose of affixing it to a mount.

To overcome the objection of warping caused by many mountants a flexible paste mountant is made as below, which prevents warping when it is applied to a dry photograph, and is applied to a wet photograph allows both the photograph and the mount to which it is affixed to be straightened if they should be warped when they become dry.

The invention consists of a compound of the following ingredients, in suitable proportions, which need not be accurate proportions—namely, gelatine, glycerine, starch, or a starch paste, such as flour, cornflour, and the like, and water. Gelatine may be omitted, and isinglass or glue, or gum arabic instead. Suitable proportions are as follows: Gelatine, 1 part; glycerine, three parts; starch, four parts; water, the balance. By mixing the ingredients together a flexible compound is formed, which is to be applied in the usual way to a photograph, print, or the like, and affixed to the mount.

It has been proposed to mix 40 per cent. potato flour, 10 per cent. gelatine, 50 per cent. water, and 5 per cent. glycerine in conjunction with blotting-paper, for the purpose of forming a matrix for stereotype casting; but these proportions are unsuitable as a mountant for photographs. George Richard Holding, 62, Cavendish Road, Kentish Town, London, N.

**COPYING STAND.**—No. 28,000. 1906. The object of the invention is to manufacture a copying stand and its equipment in a simple and portable form, to fold up and occupy the minimum of space, and be convertible and adaptable to the several uses attaching to or necessary in, finishing the picture. Also when printing or copying photographs, to ascertain and register the distance between an object placed upon the support or at any point of the stand, and the lens of the camera fixed upon another part of the stand, and, further, to enable all focussing movements to be undertaken by the operator from behind the camera.



The invention consists of a suitable stand composed of a base frame or slide carrying the source of light. Upon this frame slide two telescopic frames; each sliding frame is movable towards or away from the centre of the base frame, and carries a folding support at one end, against or upon which may be secured the printing-frame, easel, or other apparatus.

Upon the opposite sides of these sliding frames to the notched scale, which is provided in previous apparatus, devised by the inventors ("B.J.," March 16, 1906), additional scales are marked in inches, commencing at the front of easel, secured to the folding supports, and continuing the length of the said frames. With the use of this scale one can calculate from the distance of the easel, from the centre of base frame, as indicated on the notched scale, the distance between an object placed upon the folding support or at any position upon the stand, and the centre of the fixed or base frame. This information cannot readily be ascertained by reference to the notched scales, as these only indicate the distance of the object from the source of light or the centre of the base frame.

Suitable notches are provided in one end of the inner sliding frame for receiving a suitable detachable spring handle. With the use of this handle all focussing movements may be executed by the operator from behind the camera or the like, to any distance up to six feet between the folding supports, providing each sliding frame is of a length to contain a scale in inches up to one yard.

This easel may, when required, be secured by similar means in a horizontal position on the stand, and serve as a table for supporting a light-screen and retouching desk, and, being adjustable in a transverse direction, a portion may be further utilised as a palette for holding brushes or other materials incidental to the work of retouching. The light-screen is preferably made independently of, or separate from, the retouching desk, and adaptable to any size or type of retouching desk.

Part of the improved equipment is a small studio for use in lighting and modelling flowers, fruit, or small still life studies, Arthur James Lambert, 250, Barkerend Road; and Charles Henry Land, 15, Alma Place, Thornbury, Bradford.

**WIDE PRINTERS.**—No. 25,613. 1906. This invention relates to photographic apparatus for printing, by artificial light or daylight, sensitised postcards, etc., and has reference to that type of apparatus which consists of a box-like arrangement in which is placed a light, the shutter and pressure pad of such apparatus being arranged so that each is closed entirely before the other begins to open, means further being provided whereby the pressure on the platen is increased after the shutter commences to open. The shutter is glazed with orange or ruby glass, or coloured with a non-actinic medium, and is so arranged that a weighted lever pulls it on to its bed and prevents white light escaping. In front of the shutter there is an inclined bed, or a carrier resting in the bed, to carry the negative or film, and over this a hinged lid, covered with a pad, shuts down on the sensitive paper. A spring arranged at the top of negative holds the paper in position; further, there is provided an adjustable guide, against which the paper is placed, so that the prints may be identical or so that the same may be at an angle, raised or lowered or more to one side as desired. A lever, either single or double, is arranged outside the body of the apparatus, so that on raising the lever the hinged lid comes to a vertical or other suitable position, in order that the paper may be placed on the negative or removed therefrom.

On depressing the lever or levers the padded lid is brought down, pressing the paper in intimate contact with the negative, the shutter being opened by the movement of the lever. A further pressure is then put upon the paper by the engagement of the lever or levers on projections on the sides of the lid. On raising lever the shutter is closed, and then the padded lid is raised to its original position. Daylight may be substituted for artificial light by placing the apparatus in front of a window, removing the back cover or slide thereof, and blocking out of light round the apparatus. Harry William Harold, of Stoke Newington, Norfolk.

**RAS.**—No. 20,781. 1906. The invention has for its object to

provide a camera having a back or closure adapted to carry a holder for containing sensitised material, capable of receiving photographic impressions, which is adjustably mounted on the casing to permit the holder to support the sensitised material in the focal plane at any desired position of angular adjustment. A further object is to provide a simple and compact arrangement of the parts connecting the back or closure to the casing whereby the usual appearance of the camera is not altered, and which will permit the back to be readily removed when desired. The first claim is for the combination in a photographic camera of a rectangular casing, having a circular aperture in its rear end of a removable back, therefore having a rectangular aperture and plates, having overlapping edges mounted respectively on the casing and camera back, one of the plates on the casing being movable, to enable the back to be detached. Kodak, Ltd., 57-61, Clerkenwell Road, London.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Time Development.

Writing on the above subject in "Focus," Mr. H. T. Munkman gives the following table for rodinal developer 1:100:—

Temperature in Fahrenheit Degrees.	Development in minutes and seconds.			
	Portrait.	Architecture.		Landscape.
72	14	19:30	...	27:20
71	14:30	20	...	28
70	15	20:30	...	28:40
69	15:30	21	...	29:20
68	16	21:30	...	30
67	16:30	22	...	30:40
66	17	22:30	...	31:20
65	17:30	23	...	32
64	18	23:30	...	32:40
63	18:30	24	...	33:20
62	19	24:30	...	34
61	19:30	25	...	34:40
60	20	25:30	...	35:20
59	20:30	26	...	36
58	21	26:30	...	36:40
57	21:30	27	...	37:20
56	22	27:30	...	38
55	22:30	28	...	38:40
54	23	28:30	...	39:20
53	23:30	29	...	40

### Oil Prints from Bromides.

Writing in "The Photographic News" on the use of a thin gelatine coating to enable bromide prints to be used as originals in the Rawlins oil process, Mr. C. Welborne Piper gives the following working instructions: For gelatinizing the print, take one part by weight of gelatine (Nelson's No. 1 will serve perfectly), soak it in twenty parts of water, and dissolve in a water bath in the usual way, taking care that the temperature of the water in the bath does not rise above 130deg. F. When quite melted, filter through cotton-wool twice into a clean vessel that is kept warm by standing it in warm water, and then pour the gelatine into a clean dish large enough to take the bromide print. This dish should have been previously warmed by letting it stand full of warm water until wanted. Next take a fairly big pledget of clean cotton-wool, soak it in water, then squeeze out the water and ressoak in the gelatine solution. You are then ready for the print, which, if a large one, should have been soaked in cold water until limp. Drain off the cold water and immerse for a few seconds in a dish of water at about 90deg. to 100deg. F. Drain again and immerse quickly face up in the gelatine solution, pushing the print under the solution edgeways, so as to avoid air bubbles underneath. Remove bubbles on face by brushing over with the cotton-wool, then lift out print and hang it up to dry. It should not be in the gelatine for more than fifteen seconds, and should be hung up immediately on removal. Small prints can be gelatinized dry. Whether dry or wet does not affect process, but limp prints are somewhat easier to manage. The print should be

untrimmed, as finger and clip marks at the edges cannot be avoided, and you cannot prevent the gelatine from accumulating at the bottom edge. In two or three hours the gelatine will be dry, and the bottom edge, with its blobs of thickened gelatine, can be cut off. The print is then ready for the next process, bleaching, and fixing. Soak print in water until limp, and prepare a bleaching solution, consisting of one part of fresh stock ozobrome solution, added to two parts of water. For this stage you must work by weak artificial light (ordinary gas or candle light) until further notice.

Immerse print in bleaching solution, and keep dish rocking until action is complete—that is, until the image is brown and all trace of greyness or blackness has disappeared. Then wash very thoroughly in about eight changes of water. To do this, first remove the bulk of the yellow bichromate by a rapid series of rinses under the tap, then let the print soak in one dish while you rinse, wipe out, and fill a second dish. Lift out print, drain, and put to soak in second dish while you clean out and refill first one. Repeat this eight times, then proceed with next operation.

Prepare a fixing-bath containing 4oz. hypo, 1oz. soda sulphate, and 40 grains potassium ferricyanide to one pint of water. Put print in this and leave it for 40 minutes, taking care that it is properly immersed the whole time. The dish should be rocked for a minute or so now and again to ensure complete action of the bath. After this fixing process wash well for two hours in about a dozen changes of water, and then pigment.

After about half-an-hour's washing you can work safely by daylight.

#### The P.O.P. Problem.

There is another way, as the cookery books say (writes Mr. W. B. Ferguson in "Photography"), and I think a better one for securing both permanence and the tone wanted. This is first to fix the prints for fifteen minutes in the usual hypo-fixing solution, and afterwards to tone them in any combined bath one likes until the required colour is obtained, remembering, of course, that there will be a slight darkening of tone when the print is dried. I have used this method for the last six years, and found it very successful.

**CINEMATOGRAPE FILMS.**—Messrs. Gaumont have again shown their enterprise by issuing a film of the funeral scenes connected with the Belfast riots.

**"AMERICA ABROAD."**—The 1907 edition of this useful handbook is in no way behind the issues of previous years. It contains valuable, up-to-date information for the American tourist visiting London, Dublin, and Paris, together with an extremely useful section on "how to travel" and many useful hints connected therewith. It is published at the offices of "America Abroad," 8 and 9, Essex Street, Strand, London, W.C., price 6d.

**A VICAR'S PORTRAIT.**—"Recently," writes the Rev. H. B. Freeman, Vicar of Burton-on-Trent, to the "Daily Telegraph," "a young man called and asked the vicar of a village in my deanery for permission to ascend the church tower for the purpose of surveying the glorious view of the surrounding neighbourhood. Consent was willingly accorded. A few days afterwards the vicar received by post a snapshot of himself in the act of entering the only public-house in the vicinity. The victim told me that he remembered going into this hostelry on the morning in question to pay some wages."

**SOUTHWOLD OLD HARBOUR.**—A collection of photographs of Southwold Old Harbour is being published by Mr. F. Jenkins, of the photographic studios, High Street, Southwold. The illustrations, which number ten and are printed in platinum, are accompanied by historical notes by the Town Clerk of Southwold. The volume will be published at 12s. 6d., in an edition of 100 copies only. In drawing attention to this example of enterprise in a field closely allied to photography, we may mention that the collection of ten photographs and the history are published in an attractive and well-made box, which opens like a book. The contents are loose in the box, and can be readily lifted out with the aid of a ribbon provided for the purpose. The box is bound in a handsome blue cover, with gilt lettering, and is equally suitable to lay on the table or put on the bookshelf.

## New Materials.

"Verotype" Gaslight Paper. Sold by C. A. Rudowsky, 89, Chiswick Street, London, E.C.

The variety of printing materials at the disposal of the photographer is now so great—and the number of brands of one particular description of paper has equally increased tenfold of late—that it is increasingly difficult to discover notable features in any new introduction. Nevertheless, it is no exaggeration to say that in the particular gaslight paper to which we now propose to refer there is to be found a combination of qualities which lays upon the enterprising photographer an obligation to test them for himself in the anticipation that his work will be bettered, or that he will be able to secure equally good results in an easier way. "Verotype" paper, in chief respects, is worthy of a careful trial. It has a delicate beautiful surface approximately answering to the description of "semimatt," and it has a very great range of gradation. This conjunction of qualities in a print which without difficulty yields a black tone suggests that the claim of the makers, that it may be used as a substitute for collodio-chloride paper, is no idle boast. A trial of the paper will show that the prints come very near indeed to those on a collodion paper, whilst their permanency is unquestionably of a higher degree than that of a photograph printed and toned with platinum. The peculiar surface of the paper and degree of exactness with which it corresponds to a print of collodion character are matters which do not admit of realistic description. A print, but a few trials with a packet of paper will show that on point the maker has not raised the purchaser's hopes for nothing. As regards gradation, our trials were made with negatives quite opposite of what is suitable for the average gaslight paper. They were portrait negatives, containing the strong high-lights of a photograph in actual sunshine, a rather dark background and a light dress and hat representing a not inconsiderable amount of detail in almost the densest parts of the negatives. They were, as we have said, of more than the average density, being, in short, about the type of negative suitable for a collodio-chloride print paper. Using amidol as the developer, we obtained without difficulty or dodging a number of prints which did even justice to the negatives, and the difference between the results thus obtainable (from a negative of this kind) on the average gaslight paper was forcibly brought home to us by comparison with a set of the latter made only a few days previously from the same negatives, in which the detail in the dress was only faintly indicated when the shaded parts of the face were obtained of the correct tone. Our conclusion, therefore, is that, in providing "Verotype" for the production of C.C. effects, the makers have not only done so successfully, but have adjusted their paper to work at its best from a negative of the type required for collodion printing.

The paper we found much more rapid than is conveyed by the term "gaslight." From the negatives above mentioned—and they were of the greenish colour given by pyro-metol—we found 15 to 20 seconds, at 1 ft. from a 16-c.p. incandescent electric lamp, to be about right. The makers, it may be added, recommend a metol-hydroquinone developer of the following formula:—

Distilled water .....	24 ounces.
Sodium carbonate cryst. ....	3 ounces.
Sodium sulphite recryst. ....	1½ ounces.
Metol .....	24 grains.
Hydroquinone .....	72 grains.

And also a bath of 1:100 acetic acid as a sharp stop of the development. Our own preference is to omit the latter and use an ammonia fixer of the kind very usually used for gaslight work.

The prices of the paper are 7d. per dozen, quarter-plate size 1s. 1d., half-plate; and 2s. 1d., whole plate.

**"Rotona" Collodion Self-toning Paper.** Made by the Rotary Photographic Company, Ltd., Moorfields, London, E.C.

Varied as are the products of the Rotary Photographic Company, as witness their latest list which obtains a mention on another page, it is not until now that they have placed upon the market a print out paper of the self-toning class. In doing so now they have selected collodion as the vehicle of the self-toning emulsion, and the print thus possesses the special qualities which belong to a printing medium.



this description. "Rotona," as the new paper is called, if we judge from our trials of it, is quite fit to stand with the other stable products of the Rotary Company, and is evidently the result of careful manufacture applied to produce a material requiring the minimum of manipulation. The paper is printed to the depth usual with P.O.P., and placed, with or without a preliminary washing, in fixing solution (of 2 ozs. hypo per pint), which is rendered slightly alkaline with a little bicarbonate of soda. If the preliminary washing dispensed with the tone is less warm, but in any case the prints are toned under conditions which preclude the evil action of a fixing bath acidified by transference of acid from the paper. The fixing solution should be allowed to act for about ten minutes, and should not be—for this time of fixation—of less strength than the 10 per cent. recommended above. A weaker bath, used for a longer time, will yield warmer tones, and a stronger solution cooler tones; but our own preference is for the very agreeable brown tone given in a 10 per cent. bath without washing. These we like better than the blue and purple tones obtained with ease by the stronger hypo or the use of a 10 per cent. bath of salt before fixing. However, each will discover a procedure to his individual liking, and the bluish tints certainly supply prints of a colour very excellent for reproduction in half-tone. The "Rotona" prints are finished like any other halodion prints by blotting off the surplus moisture, and, short of actual ill usage, can come to no harm in the course of drying spontaneously or by heat. The paper is made matt, glossy, and creamed smooth, in each of which three varieties it is obtainable at a price equivalent to 22 quarter-plate pieces for 1s. A stouter paper also supplied, as "Rotona" card, the shilling packet of which contains 20 quarter-plate pieces. "Rotona" postcards in the three above qualities are also made up at 1s. per packet of twelve,  $5\frac{1}{2} \times 3\frac{1}{2}$  in.

#### CATALOGUES AND TRADE NOTICES.

THE ROTARY PHOTOGRAPHIC COMPANY, LTD., send us the latest issue of a list of all their products, showing the sizes, textures, and prices of their various printing papers and other specialities. The list will be sent post free on application.

MESSRS. A. E. STALEY AND CO., 19, Thavies Inn, Holborn Circus, London, C., send us a copy of a little magazine, "The Prism," issued by the Bausch and Lomb Company. Excellent in its printing and production, "The Prism" draws attention to the intelligent entertainment derivable from the photographic lens.

MESSRS. WRATTEN AND WAINWRIGHT, Croydon, have issued a list of their informative and slightly technical comments of the light-filters and safe-lights manufactured by them for orthochromatic photography and for the illumination of the dark-room. The list explains the differences in the optical quality of a filter desirable for different purposes, and includes a complete scale of prices for single and three-lens filters. The filters are, of course, suitable for use with plates rather than those of Wratten and Wainwright, and particulars of the exposure multiplying factor may be obtained.

SURREY SURVEY.—The Hon. Henry Cubitt, Lord-Lieutenant, has been unanimously appointed president of the Photographic Survey and Record of Surrey in place of the late Viscount Midleton.

VELOX COMPETITIONS.—Messrs. John J. Griffin and Sons, Limited, announce the following as prize-winners in the monthly "Velox" competition:—First prize (£2 2s.), C. Green, near Colne; second prize (£1 1s.), R. Barclay, Clonmel, Co. Tipperary; third prize (5s.), M. Taylor, Muirkirk; fourth prize (5s.), F. T. Norris, Essex; fifth prize (5s.), W. A. Attridge, Dublin; sixth prize (5s.), D. Deans, Larnock, N.B.; seventh prize (5s.), O. Goldsmith, Surrey; eighth prize (5s.), J. B. Irvin, Ayr; ninth prize (5s.), F. W. Walker, Leamington; tenth prize (5s.), F. H. Nield, Bristol; eleventh prize (5s.), A. G. Else, St. Helens; twelfth prize (5s.), W. F. Bache, West Bromwich; thirteenth prize (5s.), Wm. Findley, Aberdeen; fourteenth prize (5s.), Miss F. Wickham, Ealing. It should be mentioned in connection with these competitions that the competition is strictly for those who have never won a prize before. Hence, the prize-winners mentioned above are debarred from again competing, and the chance for beginners is thus increased. The competitions will continue each month until further notice.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, AUGUST 24.

Hackney Photographic Society. Outing to Banstead Common.  
Bristol Photographic Club. Outing to Bradford-on-Avon.  
Edmonton and District Photographic Society. Outing to Hoddesdon.  
Bowes Park and District Photographic Society. Outing to Burnham Beeches.  
Worthing Camera Club. Outing to Chiltonston Common and Thakeham Woods.  
North Middlesex Photographic Society. Outing. The Thames, London Bridge to Greenwich.

SUNDAY, AUGUST 25.

North London Photographic Society. Outing to Chorley Wood.

MONDAY, AUGUST 26.

Southampton Camera Club. Print Competitions.  
Bradford Photographic Society. "Suggestions on improving Prints, from a pictorial standpoint, and how to make the alterations suggested." J. H. Liebreich and W. H. Womersley.

TUESDAY, AUGUST 27.

Bristol Photographic Club. Business Meeting.  
Hackney Photographic Society. Points in Lantern Slide Making.

WEDNESDAY, AUGUST 28.

North Middlesex Photographic Society. "Enlarged Paper Negatives." H. Stuart.  
Leeds Camera Club. Lecture by Messrs. Hudson, Crossley and Lax.  
Edmonton and District Photographic Society. "Sports and Pastimes." Mr. Atkinson. Competition, July 27 Prints.

THURSDAY, AUGUST 29.

North London Photographic Society. Meeting at 8 p.m. Demonstration of Enlarging.

FRIDAY, AUGUST 30.

Photo Art Club. Annual Business Meeting.

## Commercial & Legal Intelligence.

A PICTURE POSTCARD DEAL.—At Brompton County Court last week, Messrs. G. W. Wilson and Co., photographic publishers, Aberdeen, sued Edward Grange, china merchant, Front Street, Brompton, under a judgment by consent for £114 for picture postcards. The judgment was obtained on June 4, but nothing had since been paid. Mr. Douglas Maclaren, who represented the defendant, informed Judge Stevenson that since the consent defendant had made a deed of assignment of all his goods to his creditors, to which the majority, both in value and number, had agreed. Mr. Robert Dalton, of Carlisle, had been appointed trustee under the deed, which had not been registered. Under the circumstances he left the matter in his Honour's hands. His Honour said he would have to make a reduced order for payment against the defendant. What was suggested? Mr. Milburn, the plaintiffs' solicitor, said plaintiffs did not wish to be hard. The original order was that the defendant should pay £2 a month. He believed that defendant was now receiving 25s. a week for carrying on the business. The assets showed something like being worth 25s. in the £, and he was inclined to think they were not being judiciously realised. His Honour made an order for 10s. a month against the defendant.

THEFT BY A CANVASSER.—At Falkirk Sheriff Court last week a well-dressed young man named Hugh Lees, described as a photographic canvasser, of Glasgow, admitted having in April received a gold locket, valued at £5, from Mrs. Elizabeth Ralston or Keir, wife of a labourer, residing in Laurieston, near Falkirk, for the purpose of having photographs therein enlarged, and thereafter returning the locket to her, and having appropriated it to his own use. The accused remarked that he had pawned the locket because he was short of money, but he redeemed it with the intention of sending it back, but he had again to pawn it. His intention was to lift it and return it. His Honour Sheriff-Substitute Watson imposed a fine of £2, with the option of twenty days' imprisonment.

ALLEGED CANVASSING FRAUDS.—The further hearing of the charge against a man named Stephen Mills at Chertsey, reported in last week's "B.J.," was continued on August 12. It will be remembered that the prisoner was before the magistrates last week, charged with obtaining 3s. from Mrs. Dedman, a widow, residing at Rowhill,

Addlestone, and that, after the evidence had been heard, he was remanded. Prisoner was represented by Mr. A. Emmanuel, solicitor, of Southampton.

A number of witnesses were called to prove the transactions entered into by the prisoner.

John Rowland, a groom, of "Woodside," Woodham Road, Addlestone, said he saw the prisoner taking the "maid's" photographs there. He asked him how much half-a-dozen photographs would be, and he said "One shilling and sixpence." Witness also had three large cabinets taken, to be also framed, for 5s. 3d. He went to see the prisoner about a fortnight after, and the latter said he would let him have them on the following week. Witness had received nothing but the proofs of the photographs.

Alfred George King, an insurance agent, of 3, Hare Hill, Addlestone, said defendant called at witness's house at 5 p.m. on June 14. He said the Dorchester Fine Art Photograph Company, of Dorchester, had decided to open a shop in the neighbourhood, and that he was getting photographs. He produced specimens of mouldings, and said his firm at Dorchester would undertake enlargements of photographs if the frames were paid for. Witness and his wife agreed to pay 5s. for a framed enlargement, and paid 1s. on account. A few days later Mills again visited the house and took three groups cabinet size, being paid on this occasion 4s. 6d.—2s. 6d. of which was towards the enlargement. The prisoner also took witness free, saying that he (King) could show it to some of the policy-holders he visited, and thereby get some orders for him. The only thing witness had received was a proof of the postcard. If he had not believed that prisoner's statement that he represented the Fine Art Company of Dorchester was correct, he would not have parted with his money. By Mr. Emmanuel: He had never heard of the Fine Art Company. It was the cheapness of the transaction which attracted him.

William Henry Welspring, a county court bailiff, of Dorchester, said that on April 17 he went to the prisoner's premises at 14, Victoria Road, Dorchester, for the purpose of distraining for rent. He saw no studio, and there was but little furniture on the premises. Outside the door there was a small blue paper and a frame with the words "Fine Art Photographic Company." At a later date he went again and made an entry of the things in the house. There were no cameras, printing-frames, or anything to do with the business of a photographer, in the house, nor was there a dark-room. When the goods were sold they fetched £2 14s. net. In reply to Mr. Emmanuel, the witness said he saw a camera in the house on the first occasion he went there. The prisoner showed him what he thought was an enlarging camera, and there were also large photographs of a greyish colour in the room. There was a chemist in Dorchester who undertook enlargements, and a man named Evans who made frames. The prisoner's family left the house on July 29, and he was told they had gone Southampton way. The prisoner showed witness some receipts which he had from Evans for money paid him.

P.S. Toop, of the Dorchester Constabulary, said he had known the prisoner since November, 1906, as residing at 14, Victoria Road, Dorchester. He saw him in April last at his house, where he went in consequence of complaints. Witness told the prisoner that he had come about a photograph, and that the police had had complaints of his taking orders which had never been executed. He also asked the prisoner if he had a studio, and he said "No." There were some photographs in the front room, and a card on the front door with the words "Fine Art Photo Company." Witness had been in Dorchester for five and a half years, and, as far as he was aware, there was no other person trading as the Fine Art Photo Company.

Mr. Emmanuel, addressing the magistrates, contended that there was nothing to show that prisoner was trading under an assumed name. He could put witnesses into the box to show exactly the reason for the delay. He suggested that what happened was that the people who gave the orders thought they were going to deal with the Fine Art Company—the persons who composed it they did not know—and also that they were going to get something for nothing. He further suggested that it was a mere breach of contract and not false pretences.

The magistrates retired, and on returning into court the Chairman said the prisoner would be committed for trial at the Quarter Sessions. They decided that the cases in which Mrs. Miles, Mrs. Underwood, Mrs. Smeeth, and Mr. Underwood were concerned should

be dropped, the prisoner being committed on the others, including Mrs. Dedman's.

The prisoner said Mr. Emmanuel had foreshadowed his defence in cross-examination. He was a photographer, and had taken thousands of photographs. The delay in the matter was due to the weather, and a death in his family; otherwise the Addlestone order would have been given in.

Bail was allowed, prisoner in £25 and one surety in a like amount.

## Correspondence.

- \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \* We do not undertake responsibility for the opinions expressed in our correspondents.

MARION AND CO., LIMITED.

To the Editors.

Gentlemen,—We beg to inform you that, after more than forty years of service as partner in the old firm, and managing director of the company, our Mr. Frank Bishop, whilst remaining a director, has retired from active participation in the business, and that our Mr. Gerald Bishop has been appointed managing director. Mr. Gerald F. Bishop continues as director, and Mr. J. G. Miller, Mr. J. Dickinson, and Mr. Thomas Clark, who are all old and valued servants of the company, have joined the board of directors.—Yours very truly,

For MARION AND CO., LTD.

22 and 23, Soho Square,

W. Piper, secretary.

London, W., August, 1907.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C. undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, and two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- W. Marshall, 31, Hart Street, Henley-on-Thames. Two Photographs of Park House, Henley-on-Thames.
- Isaac Perloff, 188, Commercial Road, London, E. Photograph of the Opening Ceremony of the Stepney Temple, on July 20, 1907.
- J. E. Reeves, 43, Hermit Road, Canning Town, London, E. Photograph of the West Ham United Football Western League Cup Team. Photograph of the West Ham United Football Team.
- F. G. Gegg, 13, High Street, Evesham. Photograph of the Evesham Junior Rowing Club.

RIGHTS IN A PHOTOGRAPH.—Would you tell me, through your Correspondence Column, if I should have to get permission from



to publish the interior of a church on a postcard?—F. P.  
There is no occasion for you to do so.

—Send us 2d. for postage and we will send you a copy which  
we have here, and which you need not trouble to return.

Penrose and Co., 109, Farringdon Road, E.C.

QUERY.—Will you kindly inform me, through the medium  
of your paper, what plans, light, and size I shall require for the  
erection of a studio for professional work, etc.?—J. THOMAS.  
Very good proportions for a studio for professional use are  
from 30ft. long, by 13ft. or 14ft. wide. As regards its form,  
whether the span roof or the lean-to are best. Opinions are very  
divided as to which is the better of the two. See article  
by Mr. Michell, on page 635.

WOODBURYTYPE PROCESS.—In the BRITISH JOURNAL OF PHOTO-  
GRAPHY, No. 2,181, Vol. XLIX., 1902, was a short article, dealing  
with the presses and their expense used in the Woodburytype  
process. Being a photo-process engraver in charge of that depart-  
ment, I endeavoured to try and find out the method employed to  
obtain a gelatine relief myself. I did not then realise the possi-  
bilities or vagaries of bichromate gelatine, and now a little know-  
ledge is worse than none at all, as I can make no headway; in  
fact it appears as if the difficulties are greater than they were  
at first, so if you could detail the process with the formula,  
which no doubt you are acquainted with, or advise me in any  
way whatever, I shall be deeply indebted.—D. RUTHERFORD.  
The Woodburytype process, beautiful though it is, is practi-  
cally an obsolete one, so far as its commercial working is con-  
cerned. It has been quite superseded by collotype and process  
plates. Its chief employment now is in the production of lantern  
slides. Seeing this, and knowing that the process would be of  
interest to the great bulk of our readers, we cannot afford  
space that would be necessary to give anything like useful  
details of the process. As, however, you appear to have  
access to libraries, we should refer you to page 388 of our volume  
for 1878, or page 602 of that for 1879. On both these full working  
instructions are given. They are also given in Burton's book on  
"Photographic and Photo-Mechanical Printing," published by  
Long and Co., Soho Square.

S.—There are several such methods. Yours may be different  
from others. We cannot say, but would draw your attention to the  
method in which the silver image obtained on first development  
was removed with ammonium persulphate, or that used in the  
Lumière process, in which the same thing is done with  
sodium hyposulphate.

U. LIGHT.—Can you oblige me with the address of the actual  
inventor of the mercury vapour light?—M. S.  
Messrs. Carl Zeiss and Genossen, Jena, Germany.

ENLARGING.—I was much indebted to you for your reply  
to my query regarding the use of a small Goerz-Anschutz camera,  
with 3½in. lens, for negative, designed for enlargement. I hope  
you will ask the following supplementary questions:—The lens  
discussed was a ———, listed to cover the plate in  
focus at  $f/4.5$ . You advised stopping down to  $f/8$ . (1) Does  
stopping down improve definition over the plate as a whole, or  
only necessary for the margins? (2) Is one well advised to  
use a lens with so wide an aperture if it cannot be safely  
stopped down to  $f/8$  as good as another ——— used  
at full aperture? (3) The ——— has a focal plane shutter.  
Is it reliable at the lower speeds? I do not know when I  
have occasion to wish anything shorter than 1/100 sec., and  
eventually I shall wish much less.—DUFFEE.

Definition all over the plate is improved only in the case  
of a very bad lens, certainly not in yours. We recommend  $f/8$   
not only for the sake of definition in the extreme corners.  
Certainly, it is as good, but the wide aperture is frequently  
an advantage when using the camera under bad conditions of  
light. For enlarging pure and simple, the smaller aperture is  
usually as convenient, but even here a large aperture means  
fewer exposures, and is often an advantage. (3) Our experience

is that it is. In general it is the highest speeds, if any, which  
fall short of the markings.

BUSINESS PHOTOGRAPHY.—Can you refer me to any publication, or  
article in a periodical, dealing with professional photographers'  
systems of accounts and bookkeeping, and with the usual methods  
of keeping a record of customers' orders, etc.?—G. C.

Articles on "Business Methods in the Studio" ("B.J.," March  
15, 22 and 29, 1907) deal with methods of bookkeeping.

W. H. DEE.—So far as we know, the firm is Maloni Patents, Limited,  
Ayr, N.B.

COLOUR FILTERS.—(1) Required, to coat a glass plate, 4½in. x 3½in.,  
with 10 minims of dyed gelatine solution. What is the best  
method of spreading the solution over the plate, so as to obtain  
a uniform distribution of the dye over the whole surface? (2)  
What is the best book to refer to for instruction in the prepara-  
tion of colour filters?—COLOUR FILTER.

(1) We know of no method of using such a small quantity of  
solution. You had better use a less strongly dyed solution, but  
more of it, and it is then easy to distribute the solution by flowing  
it on the levelled glass plate. You require about 20 minims  
per square inch. (2) "Practical Orthochromatic Photography,"  
by Arthur Payne, is as good as any.

PERPLEXED.—We do not think you can do anything of the kind. You  
accept the responsibility for an assistant's work when you engage  
him.

STUDIO QUERY.—I should greatly esteem your advice as regards  
improvement in lighting in my studio. I am forwarding a print  
of same. The studio, on first floor, is 31ft. long and 13½ft. wide,  
12ft. of glass on roof, and north side at east end of studio,  
leaving about 16ft. opaque at west end. Formerly I had an  
unobstructed side north light; now a large building runs parallel  
with the north light, about 1ft. from glass at bottom and 2ft.  
at top, finishing 2ft. higher than the side light. This makes  
the light nearly a top light, and is not at all satisfactory. I  
have been thinking I would have glass roof and side put in  
on south side at west end, building out side light in form of  
a large bay window. I should then be able to work at both ends  
of studio, and in the winter and afternoons make use of the south  
light. Do you think this would work satisfactorily? And if  
so, how much glass would it be advisable to have put in?—  
SOUTH LIGHT.

If you were to have the wall of the new building on the north  
side whitewashed it would help somewhat, as it would reflect  
some light from the south into the studio. We should certainly  
advise you to have the south light put in, as you would find it  
of great service. We see no need of the form of a bay window.  
If the glass on the south side is arranged as on the north it will  
be all that is necessary. Ten or eleven feet of glass, or the same  
as you have on the north side, will be quite satisfactory.

so, and the plans were passed by our local Board. Now my  
HALF-TONE ON LITHO.—I have occasion to print from some half-tone  
negatives upon lithographic stones, and am anxious to obtain an  
albumen formula for sensitising the stones. In my particular case  
the bitumen formula often used would be of no use. If you  
could kindly help me in this matter I shall esteem it a great  
favour.—GEORGE HERBERT.

White of four eggs (or albumen) .....	100 cc.
Fish glue .....	10 cc.
Water .....	1000 cc.
Ammonia .880 .....	5 cc.
Ammonium bichromate .....	5 grs.

The fish glue may be omitted, but it makes development easier,  
and the following formula, which contains no albumen, may be  
used:—

Fish glue .....	50 cc.
Water .....	1000 cc.
Ammonium bichromate .....	3 grs.

BUSINESS QUERY.—I have recently taken premises, and have com-  
menced building a studio in the garden in which to take my  
sitters. I had the permission of the landlord, in writing, to do  
so, and the plans were passed by our local Board. Now my

next-door neighbour threatens to stop the building, as it will be a nuisance to him, as he has bought his house, which is freehold. Can he legally prevent me from completing the building?—TROUBLED.

As you have the sanction of the landlord, and the plans have been approved by the local authorities, we do not see how he can. We should advise you to try and come to some terms with your neighbour, which you possibly may do if you tell him you will glaze the studio with ground or fluted glass, which cannot be seen through, so that his premises cannot be overlooked. That may possibly appease him.

**CARBON PRINTING.**—Having read many times that the carbon process is so easy to work, I have recently been trying my hand at it, using, for simplicity sake, the single transfer method. But I cannot get good, vigorous prints; they are all so flat. I cannot suppose that is due to the tissue, which I sensitise for three to four minutes in a solution of bichromate of potash—1oz. to the pint of water, with a few drops of ammonia added. If I were to use a stronger solution than that, should I get more brilliant prints?—NOVICE.

No, you would not. Your failure is probably due to the tissue being too highly sensitised for the negatives you are using. You must bear in mind that to get vigorous prints from feeble negatives a weak sensitising bath must be employed. Try diluting your present solution with an equal bulk of water, and immerse the tissue for only two or two and a half minutes. You must also keep in mind that for this process tolerably vigorous negatives are necessary, such as are required for platinotype.

**LENS QUERY.**—A relative (an amateur photographer) recently died and left all his apparatus to me. Amongst the lot is a cabinet lens 3½ in. diameter. It bears the name of "Lerebours et Secretan, Paris." It has no central stops, but there is one that slides in the hood of the lens. Can you tell me if it is likely to be a good lens and its probable value?—R. J.

The lens is not a cabinet lens, but the old whole-plate portrait combination, and probably has a much rounder field than modern cabinet lenses have. We can express no opinion on its quality, as that would necessitate a trial. We may tell you, however, that these makers had a fairly good repute for portrait lenses, though they were considered by some to be somewhat slow. The lens has very little market value, like most other very early lenses, at the present time.

**PURPLE TONES ON ALBUMEN PAPER.**—My employer wants me to get purple-tone prints. He has procured some albumen paper, which I have to sensitise on a sixty-grain-to-the-ounce silver bath for two to three minutes. I have tried the acetate and the borax baths as given in the "Almanac," but I cannot get the purple tones he says he must have, and if I cannot get them he tells me that he will have to get someone who can. Will you please tell me of a bath that will give good purple tones on albumen paper, as up till now I have had no experience with that paper?—LADY PRINTER.

With either of the baths you have been using you should be able to get purple tones if you print deeply and tone also deeply—that is, provided the negatives are suitable. From weak and feeble negatives it is impossible to obtain rich purple tones, whatever toning bath be used. Rich purple tones depend more upon the negative than the formula for the toning bath. As a rule, stronger negatives are required for albumen paper than for P.O.P.

**GEO. CUMMINGS.**—The fault in the bromide prints sent is due, not to the developer, as you surmise, but to the paper being fogged by light. The paper you are employing is far more sensitive than any of the papers of the Velox type, which you are used to. Therefore, as much care as regards light should be taken as with slow plates.

**FACTORIES ACT.**—In our business—a cheap one—we employ six girls, who commence work at eight in the morning and leave off at eight at night. They have half an hour off for dinner and half an hour for tea, and half of them work on alternate Sundays from ten till six, with half an hour off for dinner. The other day a factory inspector—a lady—called and told us that the

girls must have an hour off for dinner and half an hour and half a day's holiday a week, and that they must not work at all on Sundays. This, as you know, is only a very small town, and there are no real factories in it. Can you definitely if this lady inspector can compel us to do as she says because it will mean a great expense to us in carrying on trade—it will necessitate taking on more girls.—L. I. and

Yes; certainly your place comes within the Factory Act, whether the town is large or small, and you will have to comply with it, whatever extra it may cost you. The Act was passed to prevent the "sweating" of employees, especially of young persons, and that is what you seem to have been doing in the past. You must certainly not employ any of them on Sundays—that is against the law, which is a very serious one.

**W. W.**—The agreement you got the man to sign when you employed him is a very inequitable one. By its terms the man is prohibited for an indefinite time from carrying on business on his own account or entering the service of any other photographer in the county of York. In a court of law we surmise such an agreement would be held to be an undue restraint of trade, which is against public policy, and, therefore, null and void, in which case the man can set up where he likes and you cannot prevent him. Had the agreement been such that he should not carry on the business of photographer in the county for a year or two years from the time of his leaving you, it would have been more equitable and possibly valid.

**STEREOSCOPIC SPECIALTIES.**—We are informed that the collection of Mr. Theodore Brown in apparatus for stereoscopic photography is now carried on by Mr. B. K. Brown at 8, Villa Road, London, S.W.

**BRISTOL PHOTOGRAPHIC CLUB'S EXHIBITION.**—The date is October 12, entries closing September 23. The following are the classes and awards:—Pictorial, any subject. Open. Awards: Three bronze plaques, six certificates. Technical. Open. Awards: Three bronze plaques, three certificates. Lantern Slides, sets of five. Open. The awards will be given to single slides in the technical class. Awards: Three bronze plaques, three certificates. Pictorial subject. Open to residents in Bristol or within twenty-five miles radius. Awards: Two bronze plaques, three certificates. The secretary for the exhibition is Mr. J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

**"NATURE LECTURES."**—Now that the autumn session is close, and secretaries of societies are seeking to fill their programmes with interesting items for the instruction and entertainment of their members, Mr. Martin Duncan, F.R.P.S., the well-known lecturer, opportunely announces a new series of his fascinating lectures, which are illustrated by means of photographs, lantern slides, and animated pictures. There is no doubt that an evening of one of these lectures will draw a large audience, and is a popular feature in the programme of such societies as are large enough to secure a visit from Mr. Duncan, and secretaries should make early application for vacant dates, terms, etc., to Mr. Martin Duncan, 39, Bradley Gardens, West Ealing, London.

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## The British Journal of Photography

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## SUMMARY.

giving an Exhibition. Mr. F. C. Tilney discusses a number of points which must be considered by any hanging committee conscientiously enters upon its duties. (P. 651.)

oil process. M. Puyo has published a brochure detailing his method of inking the oil print. Some full translated extracts on pp. 655 to 657, and a review of the book on page 664.

Unsuspected cause of failure in the use of a focussing magnifier mentioned on page 660.

Further points in reference to the colour of and material for curtains, and wall coverings in a studio appear on page 659.

J. McIntosh has recently described his method of ascertaining increased exposure required when using a yellow screen. (P. 661.)

Instance of the occurrence of blisters in bromide prints, for a very simple remedy proved effective, is the subject of notes on page 650.

her methods in catatype printing, a button magazine camera, pounds, and rotary surfacing of photographs are among the notes of the week. (P. 662.)

F. E. Ives writes to point out that a recent patent for a motion compensator in conjunction with a one-lens three-colour was anticipated by him in 1899. (P. 666.)

give a description of the simple Pfund photometer recently introduced by Mr. Wallace. (P. 660.)

hearing of the recent Chertsey canvassing fraud case at the Quarter Sessions resulted in six months' imprisonment for the canvasser. (P. 665.)

Nottingham canvasser charged with embezzling money from employers was fined twenty shillings or fourteen days. (P. 665.)

conviction for Sunday trading was obtained in the Cleithorpes Court last week against a photographer. (P. 665.)

## EX CATHEDRA.

### The Exhibition Season.

Before another issue of the "B. J." appears the last days for entries will be upon us. That for the Salon, Monday next, September 2, will be already past, and those with aspirations to honour at the exhibition "presented" by the Linked Ring must deliver their pictures unpacked at 5A, Pall Mall East, before six o'clock on that day. The last day for the Royal Photographic Society is Thursday, at 121, Regent Street, W., also unpacked, or Wednesday, September 4, if the exhibits are despatched by a carrier. Colour photography, it should be added, is to have an exhibition to itself under the auspices of the Society of Colour Photographers, the necessary accommodation having been provided by the editors of the BRITISH JOURNAL OF PHOTOGRAPHY. The entry form must reach the secretary of the Society, Mr. H. J. Comley, on September 10, whilst the exhibits themselves must be delivered to the "B. J." offices on or before September 10.

\* \* \*

### Developer Poisoning.

We have heard several times quite recently from correspondents troubled with skin affection from the use of metol developer, and while we are aware that there are persons of extraordinary susceptibility to all kinds of chemical solutions, we still have reason to maintain our opinion that there is really no cause, even with the metol developer, why inconvenience should be met with if more neatness in the manipulations be exercised. There is no need for the developer to come in contact with more than the tips of the fingers and thumbs, and in these circumstances no injury would be likely to occur to them. It is only when the developer gets between the fingers and on the backs of the hands, where the skin is thinner and more delicate, that trouble results. If any one who has suffered from metol poisoning were, for a time, to abandon its use and take to pyro he would see, after an hour or two's working, by the tell-tale stains on his fingers and hands, how much they have come in contact with the developer. With a non-staining developer this fact is not suspected. In developing plates, if one end of the plate be raised—a quill toothpick is a convenient thing to use—and the two corners taken between the finger and thumb of the left hand, the plate can be held up for examination; and, if the precaution is taken to hold the plate sloping downward so that the solution drains off away from the hand, only the inner portion of the finger and thumb will touch the developer. The same with prints; they can be dealt with in a similar manner, except that the fingers and thumbs of both hands must be used; but there is no need for more than their extreme tips to touch the solution even with large pictures. In the old wet-collodion days,

when acid-pyro and silver were used and stains were unavoidable, it was easy to distinguish at the end of the day's working who was the neat and who was the slovenly worker. Just the ends of the fingers and thumbs of the one would be discoloured, while the whole of the hands and perhaps wrists of the other would be badly stained. Metol has acquired a bad reputation, but that is due to its being used in a too perfunctory manner. If employed with neatness and a little more care, no ill-effects need be experienced from its employment.

\* \* \*

#### **Focussing Magnifiers.**

In the "Answers" column this week we briefly reply to a correspondent who complains that with a focussing-glass which he used successfully a few years ago he cannot now focus properly. He can even get on better without it. He does not state its form, and as there are several on the market at the present time, it is not easy to advise him. Some of the commercial patterns are not adjustable to suit different sights. Those that are not are usually constructed to suit normal visions, and they answer admirably so long as the sight of the user remains at the normal. But as one gets on in years the sight changes, the lenses of the eyes usually becoming longer in focus. Hence spectacles, which practically shorten it, become necessary. Only long-focus spectacles are required at first. But as time goes on and the eyes generally increase in focal length, lenses of shorter focus in the spectacles are required to compensate for it—"stronger glasses," as they are often termed. After this explanation it will readily be seen that a fixed focus magnifier, which may well suit a person while the eyes were of normal focus, would not do so when the sight had changed with age.

\* \* \*

#### **A Necessary Adjustment.**

This recalls to mind a circumstance that came under our notice a few years back. Calling on a friend, a professional photographer, fairly well advanced in years, he complained that his sight would not enable him to focus his sitters, for which operation he had to rely upon his assistant. In reply to our query as to why he did not use a focussing magnifier, he said that he used to, but he could not see at all with it now. It was brought to us—it was of the Ramsden eye-piece form, which is the best—and we saw at a glance that it was set for about normal vision. Finding that his spectacles were of eleven inches focus, the clamping screw of the instrument was loosened and the tube screwed out about half an inch, which was less than we thought necessary. Our friend was then asked to move it backward until a fresh pencil mark on the focussing screen of the camera was seen in focus. That required nearly another quarter of an inch. Finally, the proper focus was adjusted to suit his sight, and he was then enabled to focus his sitters as sharply as he ever did. Our friend had, as he told us, found it necessary to have the glasses of his spectacles changed from time to time, but it had never occurred to him that it was necessary to readjust his focussing magnifier in accordance with his advancing years. This is probably the case of the correspondent who wrote us on the subject, and probably of many others. A focussing magnifier is of little use unless it is set to the sight of its user, and unless that is done, in some instances, it is less than useless.

\* \* \*

**Washing-Soda in Developers.** A case of some interest to photographers who use the pyro-soda developer came before the Mansion House Police Court on Thursday last week. A City firm were sum-

moned, under the provisions of the Merchandise Marks Act, for selling what were falsely described as "crystals," ten bags of soda mixed with Glauber's sulphate of soda. For the prosecution it was said soda crystals, or washing-soda, meant carbonate of soda worth £3 per ton, while Glauber salts were only £1 14s. a ton. In the end the defendants were fined a similar amount as costs. On a second sum they were fined a nominal sum. A good number of who employ the pyro-soda developer use washing-soda, indeed, some makers in their formula still mention form of soda carbonate, and practically it is as good the "crystallised carbonate" if it is of good quality. when washing-soda is used the supply is usually from the nearest oil-shop, or from the household soda which is supplied from the same source, and if this is largely mixed with Glauber salts—the sulphate of—it is quite unsuitable for photographic purposes. above is not the first prosecution under the Merchandise Marks Act for selling adulterated washing-soda, so we may well assume that the fraud is not uncommon. moral is to use the crystallised carbonate of soda as by photographic chemists. Its price is a little more the oilshop variety, but it can be relied upon as being correct substance.

#### **BLISTERS ON BROMIDES.**

THE discussion which took place on this subject in pages a short time ago suggested that the question was a matter of considerable moment to many workers. During the last week we have had some personal experience of one particular kind of blister, and as we found the probable cause and a certain preventive, our experience may be of service to others.

While conducting some experiments with sundry kinds of bromide paper and bromide postcards, we found some brands blistered most readily in circumstances that did not affect the other brands at all. This comes from those of our correspondents who suggested that only certain papers blistered. The blisters in a few cases were gelatine blisters, but the majority of them were water blisters. They were filled with water, and were produced almost instantaneously when the prints were direct from the hypo bath and put to wash under a spray. We were not aiming at the production of blisters in our experiments had a very different object in view—but blistering was such a nuisance that we had to devote some time especially to its investigation.

The size of the blisters varied from that of a pin's head to that of a two-shilling piece, and the big ones were fully a sixth of an inch. After watching their formation for some time, and after dissecting them, it became apparent that something of the nature of osmosis must be the cause. The blisters rose rapidly, but only when fresh water from the tap struck the print, and they were filled with water. It was evident that something of the water to penetrate very rapidly at the blistered surface, and it seemed probable that the something might be a small cavity filled with the hypo solution. It should be remarked that this was a strong solution for prints, contained four ounces of hypo to the pint. If we had such a cavity to exist and pure water to be brought into immediate contact with the film, it seems highly probable that the water will rush in and dilute the small quantity of hypo solution, and so raise a blister. It is significant that the blisters only occurred where the fresh water flowed directly on the print, that is, just where the film was most rapidly cleared from the hypo solution which it was impregnated, and it was obvious that a b-



can readily be formed if water can enter the cavity more rapidly than the hypo can diffuse out of it.

This hypothesis as to the cause of the blisters directed attention to two obvious methods of prevention. One was the device of immersing the print in a dilute hypo solution before placing it in pure water. The other was to wash in repeated changes of still water and to avoid running water. The prints were therefore transferred from the strong hypo bath to one of half the strength and left in it for five minutes. After this treatment they were still liable to blister under the tap, but to a much less serious extent. After six changes of still water they could, however, be put under a strong stream with impunity. This suggests that the theory is correct, though it does not prove it. In any case the treatment is absolutely effectual, and we have not seen a sign of a blister since we adopted it.

The facts that the blisters only occur with certain brands of paper and that they are nearly all paper blisters seem to suggest the use of defective paper. Very commonly the fault is ascribed to the gelatine, which is assumed to be imperfectly adherent to the paper; but

when the underside of the blister is coated with paper it is evident that there is not much wrong with the adhesion.

It may be remembered that a salt bath has occasionally been recommended after the hypo in order to prevent blisters. If the theory we have suggested is correct, it is obvious that many solutions should be preventives. It is not clear that salt can have any particular virtues, and it is probable that the salt bath acts in just the same way as the weak hypo solution. A preliminary alum bath is also a well-known preventive, and with this the non-appearance of blisters may be as much due to the filling of the assumed cavities with alum as to the hardening of the gelatine. It is not easy to get the alum out of a print; hence any alum in the cavities will almost certainly remain long enough to decompose any hypo that afterwards gets in. In this case blisters are not likely to be formed in the manner we have suggested. It may be added that the theory of the formation of the blisters is supported by the fact that a reverse action takes place if a blistered print is transferred from the water to a strong hypo bath. The blisters then subside, the water being drawn out of them by the hypo.

## OBSERVATIONS UPON THE HANGING OF PICTURES IN GALLERIES.

EXCEPT to those who have tried it, the "hanging" of a gallery of pictures may be taken to be an agreeable pastime, free from worry, and not involving too much mental effort. It may, indeed, be all this if the hanger is given to taking life easily, and declines to take the job seriously. Even then he must have sufficient softness of temper to take smilingly the jeers and the curses that will probably be heaped upon him by those who survey his work when it is done.

The hanging of a mass of pictures is, in reality, a task of never-ending responsibilities and heavy obligations; and to the man who is sensitive, nice, and naturally critical, it is one of exhausting effort both mental and physical. Coat must come off at the outset. Pipes either go out from inattention or are vigorously and extravagantly pulled at, according to habit and temperament. In less than an hour a visitor would see in the worker various unmistakable signs of conscientious application of labour, such as ruffled hair, derangement of neck-gear, and eke a broken brace.

### The Picture versus the Gallery.

Judging, selecting, and hanging, though each a separate operation, frequently react so much upon one another as to become practically one. What is a perfectly obvious course in one operation may become an impossibility in one of the others. In fact, the logical man, if he is nothing else beside, had better never embark upon the work: he will but be in an unprofitable state of eruption all the time. The reason for this is that picture-hanging involves an opposition of two necessary ideas and two different mental attitudes. For whilst there is an obligation to be fair to a good piece of work, there is also a responsibility for the general look of the gallery when all is done. Pictures are apt to run in clusters as to subject and style; but a collection should not show too marked a preponderance in any subject when it lays claims to a generality. This means that if 30 per cent. of the works selected are mud-flats with dark skies, and 1 per cent. are something else equally desirable, the whole percentage of the latter may find place, whilst half of the former may be "slung" instead of hung, and yet be no worse technically or artistically than the ones preferred. "Hence these tears" on the part of the senders.

But that's nothing! Everybody who makes pictures steels

his soul against such rough usage. Tears are really due when what is known as a "rotten thing" comes in imposing and admirable shape; fine and large of frame; expensively finished and beautiful to look upon from a distance. "That's obviously the centre for the long wall," says the hanger, who has it placed in a corresponding position on the floor; and if the logical hanger-on begins to object, he is cut short when he gets as far as, "But, my dear fellow—"

### The Decorative Trick.

"'Tis true, 'tis pity. Pity 'tis 'tis true." For myself, I think it an adventitious glory that a gallery should owe its first imposing impression to the frame or the size of works. At the same time, I am well aware of the value of such a moral effect upon critics, upon those journalistic bats and buzzards known collectively as the lay press, and upon the gilt "nobs" who pay shillings to walk in, through, and out in fifteen minutes. They, at any rate, will not pay again next year unless they are made to think the show "by way of being perfectly all right." Where there is no direct reliance upon the shillings of the general public, however, a hanging committee need surely never stoop to mere furnishing and decorating tricks. Therefore, I do solemnly trust that these mild observations will not add so much as one more altar-piece or overmantel arrangement for the autumn exhibition committees to deal with.

There is an aphorism which, though a trifle Ruskinian, is nevertheless perfectly practical. It is that the task which is beset with the hardest conditions brings the best triumph. Everyone may phrase it to their liking; but that's my own setting of my own experience. A sonnet has the reputation of being the most difficult form of poetic diction. Fourteen lines of ten syllables; octave, sestet, and a score of other conditions less often observed. But all the great poets have proved its form to be the perfect one for the expression of an idea, and their finest work is not infrequently found in that form. Architects and designers usually like to be well hedged with obstacles to keep them on the lines. Why may not picture-hangers first select their material solely by pictorial standards, and then boldly face themselves with the problem of hanging them with the best possible effect, omitting and adding nothing? Their task would certainly be more difficult than when they are allowed to make constant visits

to the rejected heaps in order to find something that will "pair" either in size, shape, weight, or colour. They will be less able to build up those wondrous groups of faultless symmetry which, after all, are only appreciated as one enters or turns at leaving the gallery; but they will be quite easily able to make smaller groupings, which will have the advantage of appealing to the eye at close quarters.

#### Wall Planning.

The main thing is not to have a ragged wall. My own feeling and practice has been always to maintain a steady weight from a line above eye-level and running throughout the mass, the tops of all the frames being kept accurately level, whatever size they may be. Those which are adjacent drop or rise at various distances, of course, from this line, and may be made to do so as symmetrically as possible; but the line itself should be traceable through all the groupings. It gives steadiness and homogeneity, and is much more in keeping with the architectural factors of a wall of a room than a free display that suggests target practice.

#### Classification.

To any who are new to the pleasures and pains of hanging, it may safely be recommended that a thorough sorting out of the selected works according to a *prima facie* aspect be first undertaken. Nothing is so restless and unsatisfactory as a mass of things having different "weight" and character. Let all passe-partout pictures hang together, and, further, all brown ones, grey ones, and white ones. Such an arrangement secures reposefulness. Next sort out all fussy things from quiet ones; any that are so peculiar as to defy classification being classed by themselves. The latter serve as "centres" for groups, and you may have several centres to one group if it is a large one. When such a system of classification is carried on throughout all the varieties of framing, due attention being given to size, colour, subject, and all other qualities that make pictures different from one another, it will be found that the work is practically done, all that remains to do being but mere pattern making, which may be carried out upon the floor until the arrangement is quite satisfactory.

In this process, a little re-mixing of the sorts, if very judiciously done, and not with too great contrast, allows the heavy groups to be lightened here and there, and the lighter ones to be strengthened, besides admitting of occasional relief of tint also. The system of classification brings order out of chaos; clarity from confusion.

As to the general pattern of groups, it will be found that a simple method is preferable. Horizontal lines are always safe, and if a set of works can be found similar in size and style, they may be regarded as a "god-send," and will look best by far if arranged in a solid order like the panes of a Georgian window.

#### Contrast Affected by Lighting.

There is a further matter upon which something might be said, since it does not appear to trouble the minds of the generality of picture hangers. This is the matter of lighting and the effect of pictures under varying lights. Most of the galleries built for the express purpose of exhibiting pictures are made with skylights, and these make a fairly equal illumination over all. But dull corners often occur, especially where screens are in use, and these corners may be made to serve valuable ends. It is by no means an invariable rule that a picture looks best in a strong light. The modern photograph of the so-called "artistic" variety is usually at its best with a dim illumination. On the other hand, the anathematised print with great contrast of tone and wealth of detail should be seen in brightest spots available. The reason for this is that a very strong light is so searching in the dark parts that contrast is minimised, and, *vice versa*, a dull light enhances contrast because it catches only the lighter parts. Watch a man in all but darkness. His face is scarcely recognisable; his clothes not at all; but his shirt-front and cuffs "come forward" out of all normal relationship of tone.

For this reason are the curb posts painted white around count lodge-gates, so that they may be seen on dark nights, when road and verdure defy close scrutiny.

If, then, a work is over strong in contrasts, its defect is mitigated by being placed where the light may not fall full upon it. If, on the other hand, it is flat and bald of detail, it will gain immeasurably in every way by receiving the subdued illumination that makes the utmost of its light parts whilst its darks are under-lit. In word, the dull light broadens and generalises: the bright light reveals everything. Skies, fields, faces, frocks, and all such passages that are of general high tone, but nevertheless are covered up with delicate shades and modelling when brightly lit, lose all these saving graces, and show a generalised passage of equal tone under low illumination. Similarly the grey-lights on dark clothes, trees, houses, and so forth either break up and relieve the dark passages or sink into them and are lost, according as there is light enough to see them or not.

#### The Bane of Glazing.

Now to another matter: we dare not, in a picture gallery, tilt a picture forward as is done in a room sometimes, because to do so would be derogatory to the dignity of the gallery, which would then smack too much of a bar-parlour. But there is no doubt that such a plan shows work to the best advantage because it gets rid of the reflection from the glasses, which is the bane of picture-seeing.

There appears to be no help for this annoyance. One may often see one's own face and nothing else when the picture is dark one. I cannot for the life of me understand, however, why, in the case of photographs, there should be any glass at all. They are not like paintings in the matter of taking damage from dust, or from uniqueness of production. What a lightened thing it would be to hang nothing but unglazed works, instead of the ponderous things that require carpentry to fix them to the walls. What a saving of risk from smashes! How easy the handling would become! And, above all, how much better they could be seen. I hear the murmured reproof that the glass gives them tone and quality; to which I reply that the tone and quality should be, and might be, in the print itself without any reliance upon a heavy green colour-screen to cut off 30 per cent. of the light. As to dust; a month or two in a large airy room will have no more damaging effect upon a perpendicular surface than may be instantly repaired by the flick of a silk handkerchief. I have had a fine photograph hanging upon a staircase for five years, and if it has altered at all in that time, the print is slightly more harmonious in tone than it was at first. Yet it has never had a glass before it in my time.

But the removal of glasses will not absolutely remove the reflection nuisance. All plain surfaces have this bad habit if they happen to be at the proper angle of incidence. Silver-prints, carbon-prints, and gum-prints have all more or less an altered appearance from certain points of view. Even the positively "matt" surface gets a greyness in its dark parts if seen at a certain angle.

#### The Golden Rule.

The golden rule is to have the eyesight going in the same direction as the light. When those conditions prevail the work is seen properly; but never otherwise. When pictures are hung too high, the gaze, being directed upward, finds upon them the reflection of the skylights above. With glazing this is easily obvious; but in every case the phenomenon exists, although its effects may be reduced to a minimum with certain surfaces. In the direction of vision and that of the illumination coincide exactly, and at right angles to the picture surface, then, of course, a perfect reflection occurs; but this is seldom, if ever the case in a gallery, though common enough in dwelling-rooms.

The ideal gallery for seeing pictures, not for any other, I admit, would be one where a platform raised the spectator a foot



so, so that he always gave a slightly downward glance. This would come to the same thing as tilting the pictures forward; but would have the advantages of perpendicular hanging, no loss of light on the works, and no upward staring with its accompaniments, a headache and stiff neck. As it is, the works immediately below the eye are always most comfortably seen and look their best.

### The Velarium.

Some galleries can afford the luxury of a velarium, and where this is possible a good deal of reflection trouble is eliminated by cutting off of the bare image of the source of light. The illumination is diffused, and attacks the picture more equally from every point. Cast shadows are mitigated—a consideration in oil paintings. In some cases the velarium stops short a few feet of the side walls and admits a margin of strong vertical light, whilst the spectator remains in a grateful shade. It is nice to have one's eyes comfortably shaded, and it prevents gallery fatigue very greatly; but the pictures, under this

arrangement, wear a forced look and suffer in various ways. This plan, which was tried at one of the "International" picture shows some years ago, has not been adopted since, except in a modified form.

At the New English Art Club galleries, in Dering Yard, Bond Street, a narrow velarium of diaphanous material sufficiently mellows and diffuses the daylight, whilst at night its action is quite perfect; for immediately above and behind it run two lines of small inverted incandescent burners, close set, which flood the room with a mellow but penetrating veiled white light, whereby works in colour are almost as well seen as by daylight. This little gallery is certainly one of the best lighted in London. Most others are hopelessly inadequate in their artificial lighting arrangements. The larger galleries seem to rest secure in elaborate electric fittings and switches; but there is no better light than the incandescent gas mantle affords for seeing work in colour or in monochrome.

F. C. TILNEY.

## M. PUYO'S TECHNIQUE OF THE OIL PROCESS.

[The enthusiasm with which M. Puyo, M. Demachy, and other members of the Photo-Club de Paris have taken up the Rawlins oil process was evidenced in last year's exhibition of the Photographie Salon, and it is therefore no surprise to find that as a result of the further experience of these indefatigable French workers a handbook of the process has been added to the list of photographic text-books which appear with the recommendation of the Photo-Club de Paris. In this M. Puyo gives a most lucid exposition of the principles and practice of the process as adopted by himself, and the following should be certain of a careful study from those working the *Procédé Rawlins*," appears on another page under "New Books."—Eds., "B.J."]

M. Puyo attaches the utmost importance to the oil process as a means of pictorial expression on account of its unique facility in permitting any control of the scale of tones as a whole, and also locally—in the latter case, however small a portion of the print may be selected for such local treatment.

1. Under-exposure increases the contrasts, over-exposure decreases them.

2. A hard ink increases the contrasts, whilst a softer ink modifies them.

3. A different ink may be used in different parts of the print, contrasts being raised in some portions by means of hard ink and lowered in others by means of a soft.

In the treatment of values in a print locally:—

4. The tones may be modified by adjusting the deposition of the ink. By the use of a fully charged brush a full deposit will be given to the print. By applying a hard ink very lightly a grey tone is the result, whilst any portion may be allowed to remain white by refraining from inking it. In other words, much may be done by under-inking.

In the other direction, by using a softer ink, the surface can be persuaded to take up more and more ink, and tones as deep as black as can be wished may be thus produced by over-inking. In short, the conjunction of the two systems under and over-inking permit of practically every effect from white, through a scale of greys, to intense black.

5. The time of drying also affects the final result. During a comparatively long time which is occupied in drying, advantage can be taken to further modify the print by gentle action, using a fine linen rubber or eraser, one or other of which may be used to lighten any given tone up to pure white.

With these comments on the essentials of the oil process, M. Puyo proceeds to discuss the materials for working.

### Papers, Inks, and Brushes for the Oil Process.

The beginner is recommended to use, in his first attempts, the special paper placed on the market under Mr. Rawlins'

directions. He will find as he gains skill that he can use almost any make of double transfer paper. In selecting any particular brand he should look for two qualifications:—

1. The surface should have as perfect a matt as possible, in order to obtain the necessary brilliance of the high-lights.

2. The gelatine film should be of a kind which does not prevent the drying of the ink. Papers present certain inexplicable differences in this respect.

As regards inks, a litho. ink is the most frequently used for the hardest ink, a copper-plate ink for one somewhat softer, and the "ivory black" oil colour of the artist for a still softer material. By using a mixture of litho. and copper-plate inks one of medium hardness is obtained, and another degree of additional softness may be secured by an admixture of some medium with the ink, such as varnish, Haerlem fixative, or mineral spirit.\* The beginner is advised to commence with black inks, but he may obtain any colour to his liking by mixing one or other of the above with coloured litho. inks.

Two kinds of brush are advised by M. Puyo, the first a so-called fitchet hind's-foot and the second the straight fitchet. The former is chiefly used for practically all the work, as its form eminently fits it for the various touches which are necessary in inking the print, and which are very clumsily done with the straight brush. The latter serves only for joining up, removing the excess of ink, and for softening portions of the print; in short, for the accessory portions of manipulation. It is well to have a number of the hind's foot brushes, so as to be able to take up a new one without cleaning that already in use, two or three of each size—costing from four to six francs each—and one or two of medium size should be sufficient. Those of the straight kind should be of different sizes.

### Sensitising and Printing the Paper.

M. Puyo insists on a comparatively weak solution of bichromate containing not more than 2 or 3 per cent. He sensitises by one of two methods:—

(a) *Immersion*.—The dish is filled with 2 per cent. bichromate

\* See footnote, p. 656.

of potassium or ammonium, the sheet of paper immersed and allowed to soften, gelatine side upwards. At the end of a couple of minutes the paper has absorbed all it will of the solution, and will not gain anything by remaining longer as regards sensitiveness. In sensitising several sheets at a time, as is usually required to be done, a second piece is inserted film side upwards as soon as the first has flattened, and the third is likewise introduced after the same time, an occasional movement being given to the solution. When the last sheet has been immersed the first is removed from the bottom, and, if seen to be uniformly saturated with the bath, is hung up to dry. The second and other sheets are removed in like manner, the whole operation requiring only about five minutes for six or eight sheets. By this process the sensitising must take place the day before printing, as the sheets require several hours to dry.

(b) *Sensitising by Brush.*—A much more rapid method of applying the sensitiser consists in using a 6 per cent. solution of ammonium bichromate to which is added at the time of use twice its volume of alcohol, 90 deg. Potassium bichromate must not be used, as it is precipitated by the alcohol. The sheet to be sensitised is placed on blotting-paper or card, pinned down, and the sensitiser rapidly applied with a flat hog's-hair brush, first in one direction and then in another, leaving no portion uncovered. Markings will still be visible, but may be removed by going over the print quickly with a goat's-hair brush, which takes up the remainder of the alcohol and equalises the coating. When the sheet is hung up to dry there must be no superfluous liquid upon it, or markings will occur when it comes to be inked. Ten minutes to a quarter of an hour is sufficient for the print to dry. The sensitising bath does not keep, and should be thrown away.

M. Puyo uses an Artigue photometer, giving thin negatives  $\frac{1}{2}$  to  $\frac{2}{3}$  deg., fairly vigorous negatives 1 deg., and those of greater density  $1\frac{1}{2}$  to 2 deg. But the time of exposure which should be given depends not only on the general density of the negative, but on the particular state in which it is desired to bring it in order that certain portions may be in a proper state for inking. For example, in the case of an under-exposed negative with a good deal of clear glass, little detail, and dense high-lights, a sufficient exposure is given for the shadows of the print to take up a hard ink in the ordinary way, the lighter portions of the subject being "developed" with a softer ink. The principle, in short, is to expose a negative in such a way that all portions of the subject are suitably exposed for one or other of the inks at the worker's disposal, from the hardest to the softest. If the negative as a whole is grey and lacking in contrast, it is well to distinctly under-expose for a hard ink, as under-exposure tends to contrast. In the case of a hard negative over-exposure will be employed, but without overstepping the time suitable for a hard ink. The above may be taken as a general rule, for it is not practicable to go to great extremes in using an extra soft ink. The only cause of total failure is to give an extraordinary over-exposure.

After exposure, the prints are washed in frequent changes to remove the bulk of the bichromate, after which they are left to themselves. Half an hour is a sufficient time for washing, but several hours will do no harm. It will be found that when the bichromate is completely washed out the image has almost disappeared. The prints need not be inked immediately, but may be allowed to dry and kept for at least several months. To prepare them, however, for use, the gelatine surface of the sheet, on withdrawal of the latter from the washing water, must be mopped so as to remove actual drops of water and to deprive the print of the larger portion of the water absorbed in it. This is done with blotting-paper, or if the best quality is not obtainable, between cotton plush, the gelatine surface of the print being gone over with a ball of

butter muslin. After this treatment the print is laid on inclined board (which is covered with damp blotting-paper) and is ready for inking.

Dust being a frequent cause of failure owing to the particles settling on the print and causing the adherence of the ink, it is well to sponge down the working bench with a duster free from fluff, and to wear protective silk sleeves which will prevent lint being removed from the clothes.

### The Principles of Inking.

A large clean glass being placed on the table, M. Puyo takes a little hard ink on the end of a palette knife and spreads it on the glass. The inking-knife of the lithographer, being a little stronger, is often convenient. If the ink is to be tinted a little bistre or blue is mixed with it, and the whole spread into a thin film. This done, the large hind's-foot brush is laid on the ink, allowed to rest a minute, and raised again. The brush has taken the ink, but before applying it to the print it is well to equalise the ink which it has taken by tapping the brush lightly on one part of the glass; it is then ready for applying to the print. Though the method of inking is easily taught by demonstration, the beginner will have to study for himself the different methods from descriptions which are not easily expressed in print.

(a) The first maxim of inking is to make each application as gently as possible: all force is fatal to success in the process. Gently applied, the ink is easily deposited on the print, but it will not adhere if violence is used. The major cause of failures in the process are due to disregard of this precaution. The hind's-foot brush is held lightly, and not tightly, between the thumb and second finger, the first finger guiding the second, the third finger separate, and the little finger in the palm, somewhat after the manner of a painter who affects "style" and the wrist is kept flexible. The fingers holding the brush should not grasp it by the hairs, but above the enlargement of the handle.

(b) If the print is over-exposed the ink will appear unmanageable, but if the paper has had the right exposure the ink will take nicely to the print. Those accustomed to the process will feel from the first application whether the ink is of the right composition for the print.

(c) Inking should always be commenced with a hard ink which may be softened as the hand feels it to be necessary, and inking should always be done by a series of operations that is to say, by applying a series of deposits to the final image. If too much ink is put on at once it has to be taken off, and in doing so the gelatine surface may be easily damaged.

### "Touches" in Inking the Oil Print.

In applying the ink a certain elastic touch is employed simultaneously with (1) a sweeping and (2) a twisting movement. The subject being brought out by these movements finished by a tapping action. The hind's-foot brush is charged with ink and held with its "heel" towards the worker, a given portion of the print. On pressing it slightly the hair bends and spread, and thus, in consequence of their oblique mounting in the brush, recoil slightly. The grasp of the brush by the fingers is relaxed so that the brush rises by the elasticity of its hairs; it is again pressed, and the operation repeated again and again. In this series of movements the tip of the brush does not leave the paper, and if the effect is now examined it will be seen that the ink has been deposited all over the portion, but not equally, the grain being coarse and irregular, and the result only a rough suggestion of the subject. The further deposition of the ink is done by a certain triple movement consisting of pressure, sweeping, and twisting, all of which are done with the ends of the fingers and the palm of a rapid deposition of the ink, the handle of the brush being held between the thumb and second finger. It is, in fact,



sort of "tickling" of the gelatine surface, and when skill has been obtained in it the brush seems to humour the paper, the thumb and fingers not tiring after hours of work. Finally, the inking is done by tapping either with the same brush or with one of the straight variety. In this latter part of the process, again, no force must be used. The brush is held perpendicularly above the plate and very light taps given, raising the tip of the brush a hair's breadth above the print. The whites are cleaned by this process, the grain becomes fine, the half-tones appear, the shadows are strengthened, and the print is completed. If the tapping, however light, instead of producing this result, appears to remove the ink, and if the grain does not become fine, the ink is too hard for the exposure which has been given, and must be softened. On the other hand, if the whites do not clear up, the print appearing to absorb the ink all over, and if certain portions are sunk in dark fog, the print is over-exposed, and requires a harder ink. If none is available, there is the remedy of "sweeping," of which M. Puyo writes below.

#### Accessory Touches in Inking the Oil Print.

"Sweeping," as M. Puyo defines it, consists in treating the print with a brush in the method employed in sweeping a carpet. The superficial action of "sweeping" cleans the whites (raised parts of the gelatine) and leaves the blacks (depressions in the gelatine). Sweeping thus increases the contrasts, and if the print shows signs of veiling, gives it a certain brilliancy.

A series of sharp dabs by means of the brush held perpendicularly to the print removes the ink all over, in the shadows as well, as in the high-lights, and serves to clear up any part which has been over-inked. It should be regarded as a quite exceptional means, for the safe method in applying the ink is to do so by successive small applications. In principle this last method is similar to tapping, the difference between them being only one of degree.

#### Adjusting the Ink to the Print.

The beginner in oil printing is recommended by M. Puyo to consider the prime object of securing intense blacks and pure whites in the print. These two extremes, in the majority of cases, are placed next to one another in the print. In a landscape the trunk of a tree placed in shadow stands black against the clear sky, whilst in a portrait the eye usually comes on the light side of the face. The tree trunk must be persuaded to take the ink well while the sky remains clear, just as the eye should print strongly without the well-lighted portions of the forehead and cheek-bone being veiled. There are thus three cases:—

1. By light tapping the ink can be picked up from all over the print. The shadows at each application of the ink gain intensity, but lose this intensity very quickly. At the same time the whites are veiled and become about equal to a half-tone. The plan of imparting sharp blows to the print instead of removing the ink seems to intensify its adherence, and the behaviour of the print in this way is a sure sign that it has been over-exposed for ink of this particular hardness. It is impracticable to make ordinary litho. ink any harder, such a print is of no use except for transformation into a light effect.

2. By tapping the print the portion operated on takes up the ink gradually and shows normal contrast. In this case the print has been correctly exposed for litho. ink, the use of which can be continued. These conditions, in M. Puyo's opinion, are the most favourable to latitude in modifying the oil print. It is possible to make the grain finer or coarser, and to adjust more or less the contrast in the different portions of the print, both being the result of the facility of treatment possessed by a print which has had ample, but not too great,

exposure. The question of grain is simple, since the hard litho. ink is not crushed fine at the first application of the brush. It assumes at first a regular grain, which gradually becomes finer as the tapping action is continued, and the worker, even when using a smooth paper, can give strength and breadth to the subject, say in the case of a fairly large head, or vigour to the foreground of a landscape. He can also adjust the grain in the different planes of a landscape in order to assist the aerial perspective or to suit the nature of the subject. This he cannot do if an insufficient exposure compels him to use a soft ink at the start, inasmuch as such an ink immediately gives a fine grain, but without the least vigour. It is therefore better, in M. Puyo's experience, to give the print a right exposure for a hard ink, which is quite easily done when using a photometer.

3. If when continuing the tapping movement the ink takes with difficulty, the shadows not gaining in intensity, it will be found that even if the action is done more vigorously the black deposit will lighten, the half-tones will become granular and without good modelling. A more pronounced tapping movement will produce an immediate lowering of tone, all of which shows that the print has been under-exposed for a hard ink and requires the latter softening by the incorporation of some copper-plate ink. This admixture can be made in small doses, in order not to exceed the precise degree of softening which is necessary, and it is better to work at first with an ink which is a little less soft than may be used, since one too soft gives the effect of over-exposure. Since the action of the softening constituents of the ink is very marked, a morsel of copper-plate ink, or of varnish, such as one will take up on the end of a match, is sufficient to work a transformation in the action of the litho. ink.

#### Precautions in Inking.

M. Puyo insists, again, on the necessity of taking the inking by easy stages, giving one application and intensifying this by successive use of the hind's-foot brush, avoiding any such action as may compel the worker to remove ink. Also, after each application the tapping action may be carried out almost completely before giving a further application of ink. In this way the print better retains its ability to respond to treatment. In all these movements all stiffness of the wrist or fingers should be avoided, and the movements of pressure, sweeping, and tapping made light and gentle.

In taking up a subject, the best course is to commence the inking in the portion containing the object of interest, and to keep this always in a further stage of development than the surroundings. There is no difficulty in adopting this course, which is the best one whether the subject be a portrait or a landscape. Thus in a landscape, when the object of interest, which is usually in the middle distance, has been inked, the foreground and the distance are next completed, and the result of such a procedure is to obtain a print which is much more harmonious throughout. Should the result of the whole process not satisfy the worker, the inking can be entirely removed with a sponge dipped in essential oil, which removes the image, the print being then allowed to remain for a few minutes in water in order to allow the gelatine to swell, and, after blotting off superfluous moisture, again submitted to the inking process. The gelatine possesses surprising resistance, though it may sometimes happen that when inking has been completed particles contained in the brush or in the ink attach themselves to the print, usually in the high-lights, where the gelatine is soft. The best means of removing them is to wipe the print with a wet sponge. Similarly, fragments of hair from the brushes can be very easily removed by means of a small water-colour brush. The print being completed, it is finally hung up to dry, or better, pinned down to a board where it cannot curl,

being covered with a piece of soft paper in order that dust may not fall upon it while the ink is still soft.

#### Softened Inks and their Pictorial Use.

From what has already been quoted from M. Puyo's practice it will be clear that the addition of a softening substance to the ink is frequently useful in accentuating portions of a print or in reducing contrasts. It will be remembered that a print having been inked with an ink exactly suited to it, the tapping movement as it is proceeded with gives it first a very granular deposit with incomplete rendering of the subject, the grain becoming finer as the picture "develops." These two final results should be obtained at the same moment, but it may frequently happen, if the ink is softer than it should be, that the grain has become fine before the subject is completed, and the tapping action has to be continued in order to obtain detail. For example, in a portrait in which the face is to be accentuated at the expense of the clothing, full detail is required in the face, whilst that in the clothes is required to be subdued. The head is therefore inked with a rather hard ink, the quality of which is compensated for by careful hand manipulation so as to obtain plenty of vigour. The contrasts are further accentuated by a light sweeping movement given by the hind's-foot brush. On the other hand, the clothing will be inked with a brush slightly charged with soft ink, the tapping being stopped before all the details have appeared. The background is also treated in the same way. Thus, by using a soft ink it is easy to produce an effect similar to that of over-exposure, and the process is useful for subduing details, with the difference that while in other photographic processes over-exposure involves a number of dark tones, the larger or smaller charge of ink on the brush can be used to regulate the intensity.

The softening agents can be mentioned in three classes:—

1. Copper-plate ink and thin varnish.
2. Mineral spirit.\*
3. Driers, Haarlem drier, Robertson medium, Hamel copaline.

The copper-plate is used chiefly at the commencement of the process, being added in increasing quantity to the litho. ink until the print takes the mixture. The proportion of copper-plate ink may vary according to the exposure of the print and with the different kinds of litho. ink. Such a mixture which M. Puyo calls normal ink having been obtained, further additions of varnish or mineral spirit must be carefully made since their effect on the ink is considerable. As a rule one brush should be kept for a normal ink and another for those of greater softness. Too great an addition of the softening substance can be corrected by the addition of litho. ink.

Mineral spirit has the property of making the litho. ink pseudo-fluid, but in proportion as the spirit evaporates the ink returns to its former state. Secondly, while the softening due to copper-plate ink or varnish remains the same, that given by the spirit disappears, the ink soon returning to its first degree of hardness. This property of the mixture of ink and spirit makes it useful in certain cases, as, for example, in treating a face which is harshly lighted. By following the first normal ink with one containing spirit, the side of the face, which may be too strongly lighted and without gradation, may be given its proper detail and contrasts. The use of ink containing spirit is very similar to the development of a Fresson or Artigue print in a broth of wood powder. The stages of the process are the same, the outline of the image first appearing, next finer contrasts and some little detail, and finally the normal contrasts and full detail. As a general rule, therefore, ink containing spirit may be used—

(a) To diminish the general contrast of a print.

\* M. Puyo does not specify the density or boiling-point of the spirit which he uses, but he probably intends by "mineral spirit" ("essence minérale") the light paraffin oil sold as "petroleum spirit" in this country, and having a density of about .85, and a boiling-point of 120 deg. to 140 deg. F. Petroleum spirit is sold at about 1s. per pint. Motorists might very well employ ordinary Pratt's spirit, which is a very similar liquid to petroleum spirit.—EDS. "B.J."

(b) To obliterate certain parts by converting them into monotone.

M. Puyo estimates that when an ink softened with spirit used, and the normal effect of the negative is desired, an exposure at least one-half of the normal should be given, otherwise a print is obtained with the effect of fog or night.

As regards the driers, their influence on the litho. ink is not so marked as that of the spirit. When commencing work the softening the ink and make it "take," but in consequence of the drying nature the ink becomes glutinous. The hairs of the brush separate into small bundles, each containing several hairs stuck together, with the result that the grain of the print remains coarse. Occasionally this may be an advantage, but M. Puyo cannot recollect developing a print in which it has been so, although it is possible that for certain subjects similar addition of a drier may help the image.

#### The Choice of Methods in the Pictorial Control of Oil Prints.

M. Puyo would not be true to his reputation did he not content, as he does in "Le Procédé Rawlins," on the need of sympathetically treating the print from the negative, and he speaks almost with abhorrence of a photographic impression taken direct from the negative. The four services which the oil process can render the pictorial photographer may be listed as—

1. Accentuation of values,
2. Introduction of dark tones,
3. Introduction of high-lights, and
4. Subduing portions of the image.

The beginner in using the process for the first of these purposes must first bear in mind that the tip of the brush does not form a flat surface on the print, but a spherical cap, so that the brush on being placed on the print first marks a small circle, which afterwards enlarges on pressure. In inking up or over-inking any given shadow, the hind's-foot brush is used without troubling to keep exactly inside the outline of the portion under treatment. The harmonious combination of the portion with the remainder of the image can be easily obtained by drawing the straight brush from outside the region to the dividing line. In accentuating certain portions of a landscape, for example, it is easy to give prominence to detail at one point and to obliterate it at another, either by altering the ink or by varying the method of its application. The latter is usually sufficient. Thus, in order to obtain details in the foreground without altering its tone value, it is treated again with harder ink under the action of which the contrasts gain intensity, and the details spring out. The print is next submitted to the tapping movement applied lightly and sharply, which completes the development and further tends to contrast. A further sweeping movement gives prominence to any foliage in the foreground. The same subject would very likely require details in the distance subduing, for which a brush moistened with mineral spirit is taken, and the distance treated with it. It will at once appear of a uniform grey, and the tapping action can be arrested when the details have sufficiently, but incompletely, returned. Without changing the ink an extreme light tapping action will result in the grain growing gradually finer, the action being arrested when the print is satisfactory in this respect, and before the details have reappeared. M. Puyo in short, briefly summarises his method:—

To bring up detail, hard ink, light continued tapping, and sweeping.

To remove detail, soft ink, very light tapping for a short time and slight sweeping.

In introducing black tones M. Puyo relies upon a refinement of manipulation which allows even dark tones of extreme small area to be accentuated when using a brush of fair size. This follows from the property of the ink to adhere more firmly to the dark portions of the print than to the light, and consequently, a careful adjustment of the tapping action may



then a small area of dark tone, while it has no effect on that portion, and the worker may thus apply this *tour de force* in strengthening the eyes in a face or similar small portion of dark existing in a light portion of the subject. In doing this the print is lightly inked, and, as soon as the ink has been taken, is rather more vigorously treated in order to prevent uninking of the light portions; the strengthening of the dark portion being then carried out as just explained.

After drying the print it is possible to further strengthen the lines of small size by taking a water-colour brush dipped in alcohol spirit, charging it with ink, and allowing the ink to be what dry by using the brush on a porcelain palette; at the point that the print is almost, but not quite, dry, it is applied to the spot to be strengthened. In introducing high-lights it is so to wait until the print has dried for forty-eight hours, or several days, as the ink remains soft for this time. Usually the high-light required is found in a light portion of a print, and means of a water-colour brush dipped in water a slight friction removes the gelatine. M. Puyo, however, prefers to introduce high-lights after complete drying. At this stage, friction with rubber will disclose the gelatine and give a strong high-light. A still stronger may be obtained by using an ink-eraser, which will remove the gelatine and give the white paper.

In subduing portions of the image, two methods, under-inking and the use of a very soft ink with careful tapping, are employed. The former may even be pushed to the point of over-inking, and is useful in certain subjects, such as portraits on a very light ground. The second method, which is more general use, tends to suppress detail in the portion where it is not wanted, and to give an almost uniform tone to the whole. It is based on the fact that if the ink is too soft for the grain becomes fine before the details appear. This is most markedly when mineral oil is used as a softening agent. All that is necessary is to avoid prolonging the tapping or arresting it before the appearance of any detail.

#### Some Miscellaneous Hints.

Puyo gives some hints on the use of india-rubber in producing pure high-lights in the print, not only in definite portions of the subject, but in the form of hatching or cross hatching, a facility afforded by the oil process which is of frequent use in strengthening the composition of a subject.

In treating the sky of a landscape a rather softer ink is used, and then after the print has dried for one or two days any desired gradation can be given to the sky by means of india-rubber or ink-eraser. M. Puyo rightly insists on the reserve with which work of this sort should be done.

Variations in the grain of an oil print may be made by suitably choosing the paper support, whether smooth, medium or rough grain, or in the mode of manipulation. The latter is the most effective, and as has been judged from the foregoing, consists in not pushing the tapping action up to the point of complete removal of the ink. As a rule a light and lengthy tapping gives a fine grain, a short and vigorous action a coarse grain. At the same time, in the latter case, a broader effect is produced, as finer details are not given time to appear. It is often advantageous to give a much finer grain to the distance than to the foreground, and in a portrait a finer grain to the face than to the clothes.

An oil print dries very slowly, and during this operation should be carefully protected from dust. The print should not be put under pressure, and should be covered with a smooth parchment paper. Contact with water vapour hastens the drying of the ink, and it is often convenient, after the print has dried for a day or so, to hold it above the steam from a boiling kettle. It may also be pinned down to a board and exposed to the sun for several days.

The gelatine paper cockles on drying, and should be straightened by placing on a sheet of glass, gelatine side downwards, and drawing over the back of the paper a square edge which is moved with the left hand, while the print is held with the right. The print itself should not be moved.

#### Points of Importance.

M. Puyo emphasises in particular the following points:—

1. Aim to give the print an exact exposure, easily done with the aid of a photometer. In summer light an exposure of 3 to 8 minutes in the shade is sufficient for average negatives.
2. Commence inking with the minimum of ink, obtaining the first picture in a very light tone, afterwards securing vigour.
3. Avoid all force in using the brushes.
4. Do as little as possible in the way of treating a dry print with india-rubber. The most common mistake of the beginner is in placing his high-lights all over the picture.

## ORIGINAL METHODS OF TONING DEVELOPED PHOTOGRAPHIC PRINTS.

The following article in the "Scientific American" describes a variation of and an adjunct to the toning of bromide and light prints by the sulphide process, which is particularly worthy of attention now that these methods are so largely employed.—Ems. "B.J."]

The desire to obtain colours other than those given by development *per se* has led the manufacturers and users of bromide so-called gaslight papers to resort to different methods. Many methods used, the one that has found the greatest vogue is the so-called sulphide method, of which the developer may be taken as a good example. About ten years ago the writer recommended in one of the photographic magazines a similar method for obtaining sepia colours on lantern slides. Sulphide tones properly made are permanent. Sufficient time has elapsed since their introduction to sufficiently prove this. Facility of production is also in their favour. The tones are, however, not very varied, nearly always some shade of sepia. Experiments to obtain some other

permanent sulphide tone were made by the writer with what appeared to him to be a fair degree of success. It was found when finished prints made on Velox or Nepera bromide paper (I mention these papers because my experiments were confined to them) were immersed in a solution of ammonium sulphocyanide and sodium sulphide, a good purplish tone, very often equal to a gold tone on printing-out paper, was obtained.

The following formula has proved the most satisfactory of any tried:—

A. Ammonium sulphocyanide .....	8 ozs.
Water to make .....	16 ozs. (fluid)
B. Sodium sulphide (crystals) .....	$\frac{1}{2}$ oz.
Water .....	3 ozs.

Following are condensed instructions for its use:—

BATH No. 1.

Solution A .....	1 oz.
Water .....	3 ozs.
Solution B .....	1 drachm.

Mix just before toning.

Immerse the fixed and washed (and perfectly dried) print. The toning action begins almost immediately, ranging through the purple tones first, and then into the sepias.

Allow the print to remain in the toner till the desired colour is reached, then wash fifteen minutes in running water and dry as usual. With the bath at 70 deg. to 80 deg. F., prints will tone in from fifteen to forty minutes; at 90 deg. to 100 deg. F. five to fifteen minutes will suffice; but it is not advisable to use the bath at a higher temperature than 100 deg. F., owing to its softening action on the film. Prints developed with Velox N. A. developer tone quicker than prints developed with ordinary developer.

The rapidity of the toning may also be increased by adding more of solution B but not more than one drachm should be added to the original solution at one time, as this would render the bath too alkaline and soften the film. It works best when freshly mixed and after forty minutes or so more B solution may be added. The old bath may be kept for future toning, but before use it should be filtered or decanted to remove the white precipitate formed, and fresh B solution added, but it should be discarded when it becomes so alkaline as to affect the film.

It will be found that the toning is influenced somewhat by the character of the negative used, different degrees of density in the negative affecting the silver deposit on the print and the subsequent action of the toning solution. It will also appear that matt papers tone more readily than the glossy, and that purple tones are easiest secured on glossy papers. It must be confessed that the laws governing the action of this bath are not as thoroughly known as could be desired. Sometimes it will work quite rapidly, and again, under apparently the same conditions, it works much slower.

An Alternative Formula.

Further experiments have shown that its certainty of action could be greatly improved by mixing with it hypo alum toning solution, made according to the following formula:—

C. Hypo .....	10 ozs.
Water .....	50 ozs.

Heat to boiling and add

Powdered common alum .....	2 ozs.
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Allow to stand until cold. It improves by standing.

Bath No. 2.

A .....	$\frac{1}{2}$ oz.
C .....	$\frac{1}{2}$ oz.
Water .....	3 ozs.
B .....	1 drachm.

When B is added the solution is clouded by the precipitate of aluminium hydroxide. This precipitate does not interfere with the toning action.

This latter bath (No. 2) yields tones equal to and quite superior to the former bath (No. 1).

It also smells more strongly of hydrogen sulphide, and is not advisable to use it where the ventilation is poor. The action ceases more of B can be added. The latter bath yields better lasting qualities. I have known it to tone without the addition of an additional quantity of B after it has stood over-night.

An Improvement to Sulphide Tones

Prints from some negatives when bleached and redeveloped with sulphide solution sometimes incline more to the red than is desirable. Having ascertained this fact, colder tones can be obtained on subsequent prints to be toned by using bath No. 1 as a preliminary bath. How long the print should remain in bath No. 1 cannot be stated with exactness, as there are many factors to be taken into consideration; chief among these are (1) how much the colour given by the bleach and redevelop method differs from the desired colour; (2) how fresh the bath is. The fresher the bath the quicker it works. Other things being equal, the longer the print remains in bath No. 1 the colder the tone. In a freshly-prepared bath at the ordinary temperature even fifteen seconds is enough to effect a change in the finished print.

As a general thing, any immersion—even one falling far short of the time necessary to produce a visible effect—is quickly apparent by the print refusing to bleach as much as it has done were it untreated when placed in the bleaching solution. Prints should be well washed before placing in the bleaching solution, and should remain in it from five to ten minutes or until it is certain that the bleaching is completed. After bleaching, prints should be rinsed free from bleaching solution and redeveloped as recommended in the Velox developer instructions.

What chemical reactions take place in what I would call the sulphide sulphocyanide method of toning I have not investigated far enough to state.

However, hydrogen sulphide is released, and this in its condition no doubt has power enough to attack the silver image. It is also certain that other reactions have an effect, for if the ammonium sulphocyanide is replaced by an equal weight of the potassium salt the toning action is very slower.

To the question, Why does this method give a different result from that obtained by simple bleaching and re-developing with sulphide solution? it might be answered: Because the conversion of the silver is not so complete as in the latter process. In my opinion I would say that it would be hard to imagine the colours obtainable on some prints as resulting from a combination of sepia and black.

As they are, the processes described are practical, but there is much room for improvement.

MILTON B. PUNNETT

THE BIRDLAND LECTURES.—At this season of the year, when the majority of society secretaries are seeking interesting subjects with which to fill their programmes for the forthcoming session, the "Birdland" booklet comes as a timely reminder that at least one evening may be spent with both pleasure and profit by securing the services of Mr. Oliver G. Pike, whose "Birdland" lectures, illustrated with both lantern slides and the cinematograph, never fail to draw an appreciative audience. Mr. Pike is now filling up his winter list of engagements, and those desirous of securing his good services should make early application for terms and vacant dates to Messrs. Sanders and Crowhurst (Dept. T.), 71, Shaftesbury Avenue, London, W.

"TAQUA" DEMONSTRATIONS.—A new model of the "Taqua" camera for producing circular pictures on ferrotype plates is now on the market, and Mr. Jonathan Fallowfield announces that the camera can be seen and practical demonstrations given at any time between 3 and 10 p.m. at "Pastimes," 51, Strand, London, W.C.

BRISTOL PHOTOGRAPHIC CLUB'S EXHIBITION.—The judges will be Mr. F. M. Sutcliffe (pictorial) and Mr. Abel Lewis (technical). There will be no entry fees, except a registration fee of 1s., which will entitle the exhibitor to a number of exhibits, and in order to prevent overcrowding of the exhibition rooms there will be a Selection Committee, consisting of Mr. John Fisher, Mr. Percy Lewis, and Mr. Fred Marsh. All exhibits, whether selected or not, will be passed before the judges.



## THE STUDIO AND ITS BLINDS.

THE present article, like a former one on "Studio Construction," suggested itself from the queries replied to in the "Answers" columns of the "Journal." It will be the object here of the writer to give a few practical hints that may possibly be of service to those of limited experience. It should be obvious to everyone that no set rules can be laid down for lighting a studio, as so much must necessarily depend upon its aspects and form, as well as upon its surroundings.

One of the most frequent queries seems to be with reference to stopping out the sun. There are some studios so situated that the sun gives but little trouble at any time. For example, we may have one that runs north and south, and the south end abuts on a high building. Here the sun will give but little trouble at any time of the year. A plan that fulfilled this desirable condition was at one time in vogue: it was to have a large sail fitted outside the southern end or side of the studio, which could be hauled up or let down at pleasure. Another method is to have a permanent wooden hoarding, painted black outside, which prevents the direct rays of the sun from reaching the studio. Both these contrivances are very efficacious, but they are a little costly, as they must be substantially fixed to resist strong winds. They are also somewhat unsightly, when seen from the outside. Should the sun cause trouble only during two or three months of the year it may usually be overcome by fitting inside, temporarily, a curtain of dark colour, say black, over that portion of the roof upon which it shines, and which can be readily removed when it has moved off. In some circumstances this might possibly entail stopping out light which it is desirable to utilise. In that case the glass may be stippled over with flour paste, with which some common whiting has been mixed. This will stop out the glare of the sun while yet admitting light, and can be easily cleaned off at the end of the summer.

### Obscuring the Studio Light.

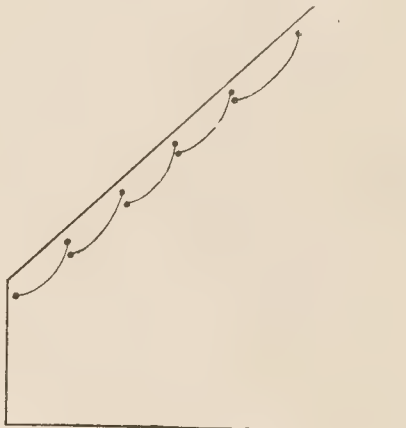
Another good plan of subduing direct sunlight is to cover that portion of the roof glass upon which it shines, either with tissue paper, or, better still, architects' tracing-linen. This can be strained on light wooden frames, which may be made to slide backward or forward, or be removed altogether when the sun ceases to be troublesome. Or the tracing-linen may be fitted as a blind on a spring roller, to be drawn down or let up as desired. Tracing-linen, which is by no means expensive, may be had from any of the dealers in artists' materials. It stops off but little light, while it quite subdues strong sunlight. Should the aspect of a studio, lighted from one side only, be such that the sun when shining is on it, more or less, all the year round, it is a good plan to have it glazed with ground glass when it is built. Ground glass when clean stops off but little light, but in large or smoky towns it is prone to get dirty; it then shuts out a considerable amount of actinic light, but soap and water will quickly remedy this defect.

### The Colour of Blinds.

A query one frequently sees has reference to what colour the blinds or curtains should be, and how they should be arranged. As a matter of fact, the colour, *per se*, is quite immaterial, so long as the material is sufficiently thick or opaque to arrest the light and enable the sitter to be lighted so as to obtain proper chiaroscuro. But the comfort of the sitter is a consideration. A glaring light, such as would be caused by white blinds, would be trying to their eyes, and for that reason is not conducive to a natural expression. Blue or green both yield a soft and quiet light that is very pleasant to the eyes, and therefore very suitable. Buff might be used, but on the whole the writer much prefers either one or other of the first-named colours. Black might be used in studios where the light is very strong, say, one with a south aspect, but it gives the studio a sombre and somewhat funereal appearance, which is likely to have a depressing effect upon a sitter. With a south-lighted studio, blinds or curtains of thick material, either dark blue or green, are far preferable to black, as they will effectually produce all the shadow that may ever be required.

For the roof either blinds or curtains may be employed. If the former, they are more convenient to use if they are on spring rollers, fitted quite close to the ridge of the studio, so that they can be drawn

down or let up as required. If curtains are used they are best fitted to run horizontally on wires, and in sections, which overlap each other. The fabric should be a soft material, such as thin serge, with small brass rings sewn at short intervals along the edges. These are threaded on wires, running from end to end of the studio. The curtains should hang rather full, and, as just said, overlap one another, the laps being upward, so that no light passes downward between them. Should the roof of the studio be large, it is well to have the curtains in four sections; if small, three will suffice. The curtains are manipulated by simply pushing them to or fro with



a light bamboo rod. In some studios where the sun gives trouble two sets of these curtains are fitted, the one next the glass white, and the other of a dark colour. With this arrangement the light is under perfect control in every way. The wires must be strained tight and kept taut, otherwise the curtains will not run freely. The wires may be kept taut in the same way as they are in wire fencing, and screw fittings for the purpose may be had at any of the large ironmongers. For the wires iron should be avoided, as it rusts so quickly, and then the rings will not pass freely, and, moreover, if water should happen to get through the roof, the iron rust would stain the curtains. Stout copper wire—say No. 12, B.W.G.—is about the best for the purpose.

### Side Studio Curtains.

For the sides of the studio either blinds or curtains may be used, but it is desirable that they be capable of regulation alike from the top and bottom. Therefore they should be in two parts—one on spring rollers fixed a little below the skirting, so as to be drawn up, and the others on rollers near the eaves to pull down; in this way the side light is brought under complete control. Spring blinds are a little costly, but every purpose is served by having curtains in two parts, running on rods or wires; the lower portion reaching from a little below the skirting to about the middle of the side, and the upper ones from the eaves to somewhat below the top of the lower ones. If the side curtains are in one piece they can, to an extent, be stretched somewhat diagonally; but, on the whole, it is best to have them divided into two portions, particularly if the side is high, as then the light is under more complete control. The material for the side blinds may be similar to that of the roof ones. Two sets may be fitted—the one white and the other dark—but this is rarely necessary, except where the sun is on the studio for a good part of the day. With a direct south aspect two sets are certainly very desirable.

### Colours for Studio Wall Coverings.

With regard to the colour for the interior of the studio, the comfort of the sitter is the main consideration. The late Mr. Adam Salamon, to whom reference was made in the former article, had the sash-bars and much of the other parts of the studio painted a dark chocolate colour, and at his time many photographers in this

country followed his example. The object of this was to avoid all traces of reflected light. Personally, we are not much in favour of this colour. We prefer a dark French grey or a neutral tint for the sash-bars, and a lighter French grey for the interior of the studio generally. This gives a cheerful appearance to the place, and is comfortable to the eyes of sitters. If the studio be of the lean-to form and the side is of the matchboarding it may be painted a medium

French grey, or greyish green. These colours, while comforting the eyes of sitters, tend to reflect a light that aids materially in softening the shadows of the portraits. If the side should be a wall it is better to have it papered with a paper with an unobtrusive pattern, with the ground of a similar tint to the above. The paper will give the side of the studio a better appearance than if it were simply plain paint.

WM. MICHELL.

## THE PFUND PHOTOMETER.

[The reference by Mr. R. J. Wallace recently to the simple type of photometer designed by Mr. A. H. Pfund having brought us several inquiries, we applied to Mr. Wallace for the text of the original description of the instrument in the "Johns Hopkins University Circular," 1906, No. 4, in kindly sending us which Mr. Wallace writes: "To avoid the formation of oxide by exposure to the air, I would suggest that the mirror surface be flowed over with (or dipped into) a thin collodion. Otherwise the tarnishing of the silver would make a comparable density of measurements impossible."]

THE form of photometer about to be described is not to be considered as an improvement upon the well-known Lummer-Brodhun type, but rather as a simplification. During the course of certain optical investigations, in which it becomes necessary to make photometric measurements, the use of a Lummer-Brodhun photometer becomes impracticable, either on account of its bulkiness or on account of the angle which the two beams of light whose intensities are to be compared make with one another. It occurred to me that a photometer, which was both simple and accurate and which could be made

the eye or telescope on the edge of the silver, it is easy to cause the line of demarcation between the two fields to disappear. The method of using the photometer is shown in Fig. 1, in which  $s'$  and  $s''$  are the two sources whose intensities are to be compared, and  $P$  the photometer.

In addition to its simplicity and compactness, the other advantage claimed for this photometer is that it can be used under all conditions of angle which the two beams whose intensities are to be compared

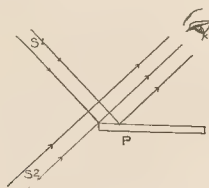


Fig. 1.

to fulfil any requirements which the experimental conditions might demand, could be made in the following manner:—

A piece of plate glass, about 2 mm. thick, is silvered, highly polished, and then cut in two, the diamond scratch being made on the "glass," and not on the "silver" side. If the break is not perpendicular to the flat surface, that portion of the mirror is selected which has an acute angle at the edge of the silvered surface. Upon close examination it is found that the silver extends up to the very edge, and hence, by using this arrangement as a photometer and focussing

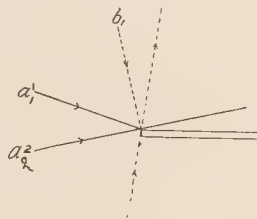


Fig. 2.

make with one another (with the exceptions, of course, of absolute normal and grazing incidence). This fact is brought out by Fig. 2, in which  $a_1, a_2$  and  $b_1, b_2$  respectively are the sources of light. A photometer of this kind has already been used in a determination of the distribution of light in the various spectra of a grating\*, and has yielded very excellent results.

A. H. PFUND.

\* "Astrophysical Journal," Vol. xxi, No. 2, 1905.

## THE GENESIS OF A MODERN LENS.

[The following second portion of an article by Herr L. Büniger in manufacture and design of a high-class modern lens, a subject which may, nevertheless, be made, as in the present instance, of interest to

THE discovery of the Fraunhofer lines, and the consequent determination of the optical constants of a glass, enabled the mathematician to select glasses from the catalogues of the smelters which would be suitable for his purpose. An important question then arose as to whether he could use those in existence or whether it was necessary to find absolutely new types. Schott and Abbe's work was here of enormous importance.

When a new type of lens is to be made, approximate values are first found analytically, and the correction of these is effected with trigonometrical formulæ, which render it possible to trace exactly the path of a ray through a lens combination.

First of all a ray of light, parallel to and very close to the axis, is taken, and followed from surface to surface to the point where it cuts the axis of the lens. If the lens is symmetrical—that is, con-

sisting of two halves of absolutely identical properties—it is sufficient to calculate one-half only, and usually that behind the diaphragm is chosen—both halves are, as a rule, separated by a stop midway.

The first calculation is for the D line. Then the same ray is calculated for F. A comparison of the final results gives an idea of the chromatic correction of the centre of the objective. Each calculation gives in a certain measure two results—the back and the true foci of the ray. By the back focus is meant the distance between the last surface of the lens and the point where the ray cuts the axis, whilst the true focus is reckoned from the nodal point of the system. The nodal points as a rule lie within the system—that is, in the glass.

When the calculations for two rays for the centre are completed, the back focus of the two rays must, if the result is to be satisfactory,



the same numbers. This also applies to the true focus. In the back focus cause coloured halos or rings, whilst focal produce images of different size. If the correction is to be the results must coincide with great accuracy, and the errors do not exceed 1.50 millimetre (equals 1-1250 inch). That this of correction is not attained in a trice is obvious, and the and the thicknesses must be altered till the results are satisfactory. It may be mentioned that the corrections are usually made aid of logarithmic tables, and are usually taken to five places after to seven places of decimals. The more lenses and radii em has the more wearisome is the calculation.

us assume that the centre of the system shows equal back and for the two colours, D and G. This condition is called le achromatism."

order to correct an image for spherical aberration a ray parallel the axis is calculated out. The height of the incidence of this determined by the ratio aperture of the lens. We follow by ble formulæ this marginal ray through the lens combination obtain by calculation again the values for the back and true The calculations are made first for the D line. If the back or D on the axis and D in the marginal ray coincide the spherical ation for D may be considered obviated. If the true foci of axial D and the marginal D coincide distortion is corrected. is a happy case which rarely occurs from the first calculation, therefore various other calculations, alterations of the radii and nesses, etc., are necessary. The same ray is now calculated out, and the results compared with the previous ones. If the foci and true foci for axial G and marginal G coincide, then spherical aberration and distortion for G are corrected. If the foci for G and D are coincident, then the well-known Gauss ion is fulfilled. A comparison of the foci of the marginal rays and G gives the measure of the colour enlargement at the

When the mathematician has corrected the lens up to this the state of correction is that shown by good aplanats, and is with which one was previously satisfied. That these calcula- are hedged round with difficulties will be recognised when it embered that any change of the radii, etc., to obviate spherical ation can absolutely upset again the chromatic aberration in ntre.

us assume, however, that the correction of the back and true or D and G for the centre and margins is perfect. Our next on is to determine the zonal aberrations. The difficulties here se the more precisely we understand this word. Let us be ed, however, by placing the point of a compass in the optical and with half the radius of the lens aperture describe a circle the axis.

order to obtain an idea as to the condition of correction of the we calculate out a ray for D and G parallel to the axis, and istance from it equal to half the radius of the aperture. The rison of the focus and the back focus of these two rays with

the previous results gives the desired result. Unfortunately, it is not possible to give exactly equal foci and back foci to all these rays, but the calculator must try to reduce the errors to a minimum, which can naturally be much more easily done than with a single lens.

One must always try to reduce one error at the cost of another. The correct medium must be left to the experience of the calculator.

Now let us turn to treat, in general terms and briefly, of the correction of astigmatism. For this purpose we assume that every point in an object sends individual rays to all points of the lens, and forms a cone of light. the circular base of which corresponds with the surface of the first system, whilst the apex of the cone is in the object itself. According to the position of the latter the light cone is more or less distorted, and is only completely regular when the object point lies on the axis. An exact point-like formation of the rays proceeding from a point is only possible when all the rays proceeding from a point are again united to a point after passing through the lens. Thus all the bundles of rays from the points of the object, so far as they lie within the angular aperture of the lens, must be again united into points, and they must all lie on one plane. The smaller the aperture of the lens or the smaller the stop the nearer will this ideal condition be approached. For the same reason it will always be found that lenses with relatively large aperture suffer from a certain want of definition, though several define sharply with full aperture

To return, however, to our calculations, it is essential to determine the astigmatism for three rays of the above-mentioned beam—the principal, the meridional, and the sagittal ray. The accurate position of these it is unnecessary to define.

These three rays are again calculated for the two colours D and G through the lens combination, the radii and thicknesses altered till taking all the results together they are satisfactory both for chromatic and spherical aberration. That this work is extremely tedious and difficult, requiring great care and patience, will be clear to the laity from what has been said, and no one will be surprised to hear that the calculations for some modern anastigmats have lasted for a year.

The greater the angle for which astigmatism must be practically removed, the more difficult becomes the calculation, and the more zonal errors are met with. Most of our anastigmats are corrected anastigmatically over an angle of 60-70 degrees.

An excellent means of compensating for error lies in placing opposite to one another two identical half systems. By the symmetrical opposition of two identical series, distortion and spherical aberration beyond the axis are *a priori* destroyed, which is not the case with nonsymmetrical lenses. Further, a well-corrected symmetrical objective has the advantage that one of its halves can be used, generally with somewhat smaller stops, as a single landscape lens.

LUDWIG BUNGER.

(To be continued.)

## ESTIMATING INCREASED EXPOSURE REQUIRED WITH COLOURED FILTERS.

The following short paper appears in the "Photographic Journal" for August in continuation of the report of the demonstration given by Mr. McIntosh recently before the Royal Photographic Society.—Eds. "B.J."]

estimating the opacity of the filter it is neither necessary nor desirable to use a coloured object, since the presence of colour would introduce confusing factors. One or two methods of making such are in common use. One is to expose half of a plate without a and the other half through a filter upon some half-tone picture black and white, say upon a platinum print, giving a longer exposure to the second half. The result will confirm the estimate of opacity of the filter, or show it to be wrong, in which latter case a test must be made. The method is capable of giving accurate results, but is wasteful of time and plates.

Another method, occasionally used, is to expose an actinometer, a Watkins' or Wynne's, to daylight, noting the time taken by sensitive paper to darken to a certain tint. A second exposure is made through the filter, and the time taken as compared

with the first exposure is a measure of the opacity of the filter. Apart from the difficulty of observing the tint through the filter, this method cannot give accurate information, as the colour sensitiveness of the paper cannot be identical with all the plates on the market, and may not be identical with any. At its best the method can but give a very rough approximation to the information wanted.

The method I recommend is to photograph an evenly illuminated sheet of white paper through a graduated transparency, which is easily made and may be used at any time.

To make the scale it is convenient to expose a half-plate (not necessarily an orthochromatic plate), upon a sheet of white paper. The shutter of the dark slide should be fully drawn, and a brief exposure, say 1-64th of a second, given.

The shutter is pushed home half an inch and a second exposure of

the same duration is given. The third section of the plate should receive 1.32nd, the fourth 1.16th, the fifth  $\frac{1}{8}$ , and so on. When twelve exposures have been made the ratio will be 1 to 2,048. Development should not be carried too far, in fact, so long as the steps are clearly marked, the thinner the negative the better for the purpose.

Out of this half-plate we have to cut a piece quarter-plate size, but with its length across the half-plate so that the steps run the long way of the plate, and it is desirable to select that portion of the half-plate which has a clear (or nearly clear) glass strip. We shall have on the width of the quarter-plate six grades, with a ratio of 1 to 32, which is amply sufficient.

This scale is placed in a quarter-plate dark slide with the glass side towards the lens; a plate of the brand with which the filter is to be used is then placed face down on the scale. The dark slide being placed in the camera, the lens is directed to the sheet of white paper. The shutter of the slide is drawn, say three-quarters of an inch, and an exposure is given without the filter; probably one second in a good light with  $f/8$  will be sufficient. The shutter must then be closed and the dark slide removed from the camera. A slip of blackened cardboard has to be fixed in the reversing back of the camera in such a way as to shield the section of the plate just exposed. The dark slide is returned, the filter placed in position, and the shutter being drawn a quarter of an inch or so at a time, a series of exposures are given to the plate. Each exposure must be the same as that given without the filter (not multiples of the exposure as when the scale was being made). The last exposed section of the plate will have had one unit of exposure, and the other sections 2, 3, 4, 5, and 6, and so on.

When a print is being made from this negative, the section exposed without the filter is compared with those given through the filter, and it is a simple matter to decide how many times exposure the filter requires.

It will be obvious that the tests may be made without the scale, and for all ordinary purposes the results will be accurate enough, but it must be remembered that the filter may have a considerable effect on the gradation. A violet filter, as used in three-colour work, for example, may reduce contrasts, and an orange or red filter may increase them. If such should be the case, the use of the scale will indicate it, and the exposures may be shortened or lengthened as seems desirable.

J. MCINTOSH.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, AUGUST 30.

Aberdeen Photo Art Club. Annual Business Meeting.

SATURDAY, AUGUST 31.

North London Photographic Society. Outing to Golder's Hill.  
Handsworth Photographic Society. Excursion to Rednal and Oratory Retreat.  
Coventry Photographic Club. Outing to Berkswell and Hampton.  
Aberdeen Photo Art Club. Outing to Crathes.

MONDAY, SEPTEMBER 2.

Bowes Park and District Photographic Society. "Enlarged Negative-making."  
E. H. Down.  
South London Photographic Society. "A Little Light on Lenses." Dr. A. R. F. Evershed.

TUESDAY, SEPTEMBER 3.

Royal Photographic Society. Ordinary Meeting for the Election of Candidates for Membership only.  
Hackney Photographic Society. "Flower Photography." A. D. Fort and A. J. Linford.

WEDNESDAY, SEPTEMBER 4.

North Middlesex Photographic Society. Lantern Slide and Print Competitions.  
Everton Camera Club. "Development." J. Mansell.

**SOUTH MANCHESTER PHOTOGRAPHIC SOCIETY.**—The exhibition of the above society will be held on February 20, 21, and 22, 1908; closing date for entries, February 5. Further particulars may be obtained from the secretary, Mr. M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made by August 12 and August 17:—

**TRANSPARENCIES.**—No. 18,271. Improvements in photographic transparencies. Lawrence Dalton Whitfield, c/o Paget Prize Company, Ltd., St. Albans Road, Watford, Herts.

**SIGHTING OBJECTS.**—No. 18,388. Improved device for indicating correct direction for sighting objects to be photographed. Muschke, 116, High Holborn, London.

**APPARATUS.**—No. 18,399. Improvements in or relating to graphic apparatus. Georg Bruno Seele, 111, Hatton Garden, London.

**CAMERAS.**—No. 18,430. Improvements in photographic cameras. William James Lancaster, 24, Temple Row, Birmingham.

**DRY MOUNTING.**—No. 18,526. Dry mounting attachment. Hyde, 30, Duke Street, Chester.

**MAGNESIUM LAMP.**—No. 18,584. Appliance for use in burning magnesium ribbon or wire for photographic and other purposes. Edward Albert Marr and Johnson and Sons, Manufacturers Chemists, Ltd. (1882), 4, South Street, Finsbury, London.

**PRINTING FRAMES.**—No. 18,600. Improvements in photographic frames for copying plans, drawings, and the like. Richard Baker and Philip William Jones, 156, Llandaff Road, Cardiff.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**CATATYPE PROCESSES.**—No. 29,480. 1906. The invention consists in a process for imparting permanent catalytic properties to a print, toned with platinum (treatment with ammonia gives only temporary powers of this kind). The print is treated with oxidising agents, such as potass permanganate in acid or alkaline solution, ceric sulphate, chromic acid, or a bichromate or acid, a persulphate in alkaline or acid solution, and with ammonia or the ammonium salt of a feeble acid. The treatment with ammonia or an ammonium salt may accompany that with the oxidant if it does not produce any injurious effects—that is to say, for example, in the case of permanganate and persulphate. Otherwise the oxidising agent is allowed to act first, and then ammonia or ammonium salt. In cases in which the oxidising agent forms a precipitate that has a powerful catalytic action upon hydrogen peroxide, the precipitate must be removed. For instance, when potassium permanganate is used, the negative is treated with a solution of oxalic acid, to which may be added a substance, for example, alum, capable of hardening gelatin. A bath of this kind for removing the substances that hinder catalysis, is composed, for example, as follows:—

Potassium permanganate .....	10 gms.
Water .....	100 ccs.
Normal ammonia solution .....	100 gms.

After about ten minutes, the picture is removed and washed in a 1/20 normal ammonia solution. It is then immersed in a bath composed of a mixture of equal parts of a saturated solution of oxalic acid and a saturated solution of potash alum, washed with water, and dried.

The process may be applied to all platinum pictures which have been produced from silver pictures by treating these with a solution that contains, in addition to alkali platinous chloride, substances which produce an acid reaction of the bath. The presence of alkali chloride is advantageous, as is also that of substances which harden gelatine, and particularly those of the alum group.



of course, it is necessary to avoid the presence of substances that hinder the reaction of the silver with the platinum toning bath, such as, for example, sulphur compounds like potassium sulphocyanide or sulphocarbamide, and mercury compounds. The presence of hydrogen ions is essential.

If the platinising is effected with a bath containing these ions, then the platinum pictures produced can be made applicable for reproduction by catalysis. A. G. Bloxam, for the "Neue Photographische Gesellschaft," Steglitz, Berlin.

**BACKGROUND.**—No. 21,781. 1906. The claim is for a method of photographing subjects against any desired background by using a transparency of the latter in contact with the plate, but by daylight. In other respects the processes is similar to that of Dischner ("B.J.," June 15, 1906, p. 4727). After the object has been photographed in the ordinary manner against a dark background, this background is replaced by one of a light tint, and daylight shut out from the object by means of a dark carpet or curtain, which, resting on the extended wires, is pushed over the object like an open tent. The curtain is drawn so far forward that light from above, as well as from the sides, is shut out from the object, whilst light coming from above on to the back is admitted for illuminating the light background, which, for the purpose of better intercepting the light, may be placed so as to slant backwards. The transparency has been simultaneously arranged in front of the plate and the second exposure takes place, the object appearing dark on the light background. Hans Frederik Immanuel Mohr, No. 21, Kongensgade, Copenhagen; and Joseph Vincent, No. 7, Palagade, Copenhagen.

**RY SURFACING OF PHOTOGRAPHS.**—No. 5,413. 1907. The invention consists of a process and a machine for the surfacing of photographing gelatine prints, in which the material is pressed upon a band of celluloid, sheet metal, prepared fabric, or the like, travelling in the direction of its length, and having a surface giving the desired effect, and the band, with the picture, is then passed into a drying chamber in which the pictures are so dried that they part from the band and can be removed. Benno Bzykowski, 25, Winterfeld Strasse, Berlin.

**ON MAGAZINE CAMERA.**—No. 28,305. 1906. The camera provides for the exposure and development of a large number of circular plates for disc or button photographs. Certain novel movements are provided for handling the plates. The cap *i* being removed, together with the rod *l*, spring *o* and follower *p*, the sensitised

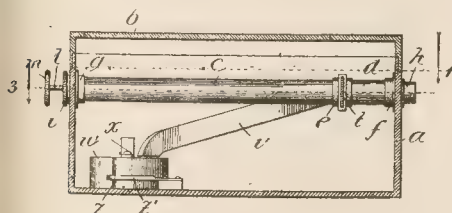


Fig. 1.

plates *q*, which, if not opaque in themselves, should be properly backed, are placed in the tube or magazine *c* to the proper number with the sensitive surfaces towards the lens, and the

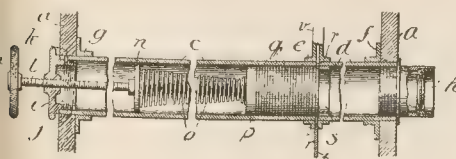


Fig. 2.

ing follower inserted in the manner shown in Fig. 2. The foremost plate then rests against the gate *t*, which is normally pushed in to the full extent. The gate is then withdrawn by

pulling out the rod *u*, as shown in Fig. 1, when the foremost plate is pushed forward by the follower until it rests against the shoulder formed by the ring *s*. The lens is then uncovered to make the exposure, when the rod *t* is pushed in, which causes the gate to push the exposed plate laterally from the magazine in the runway *v*, when it rolls downwardly into the bath receptacle *y*, which is then placed beneath the mouth of the runway.

The receptacles *y* are each made of a size to enable them to hold an indefinite number of plates, and each is intended to contain a combined developing and fixing bath. When a predetermined number of plates have been exposed and deposited in the bath, the bath vessel *w* is rotated upon its axis a distance of one notch, which causes the receptacle containing the fixed plate or plates to be moved outside of the case. The plates are then removed, and the operation repeated until the magazine is exhausted. When this occurs the follower *p*, which is thicker than a plate, will rest against the ring *s*, and the gate, being withdrawn, cannot be returned until the follower is removed to refill the magazine. Louis Mandel, 146, Lytle Street, Chicago, U.S.A.

**CHANGING BOXES.**—No. 28,543. 1906. The invention relates to change boxes of the type in which there is an adapter, which may be separated from or form part of the camera, and also an inner container for daylight loading, comprising telescopic parts with means for changing the plates from front to back, the present improvements consisting of the combined arrangement of parts, and new form of adapter, container, and mechanism for changing and actuating the plates. The fifteen figures showing details of the apparatus are necessary for the understanding of the construction and working of the changer. Fred Hilton and Arthur Brown, 52, Taunton Road, Leò Green, Kent.

## New Trade Names.

**RELIABLE.**—No. 292,467. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives, but not including paints and varnishes, and not including any goods of a like kind to any of these excluded goods. W. B. Fordham and Sons, Ltd., 36 to 40, York Road, King's Cross, London, N., manufacturers. April 25, 1907.

**WHISTLE BRAND.**—No. 294,697. Chemical substance used in manufactures, photography, or philosophical research, and anti-corrosives. P. Germain and Cie., 11, Rue du Milieu, Petit-Ivry (Seine), France, manufacturers. July 18, 1907.

MR. WALTER PILLEY has presented to the Herefordshire Photographic Society a solid silver tankard, to be competed for annually. Herefordshire pictures only are eligible.

**PICTURE POSTCARDS IN BLACKPOOL.**—The centre of the picture postcard world at present is Blackpool. A fine was inflicted there last week on a local postmaster for street obstruction, the evidence showing that people were driven off the footwalk owing to the number of men and women standing outside the post office industriously writing picture postcards—presumably to their friends at home. A witness said he saw postcards being written on the post box, on the office windows, on the table, on every available ledge, while frequently the writers' hands and, in one instance, the back of a friend who obligingly stooped for the purpose, were utilised as desks. Possibly an explanation is afforded by an amusing communication which the "Manchester Guardian" has received from a correspondent as to special postcards, which are being sold in Blackburn for the good folk of that great weaving town who are staying at home, while their more fortunate friends are on holiday. "One of these cards," says the correspondent, "represents a pair of clogs, bearing the unkind motto, 'To think tha'll ha' to come back to these!' A postcard with a photo of reedhook, scissors, and shuttle is inscribed, 'Ye'll be glad of us afore so lung.' But perhaps the most unfeeling card of the series is one which shows a pair of clogs and bears the words, 'Nob'dy ud think, to see thee neaw, as tha wears these a-whom.' The Post Office authorities state that Blackburn folk away on holidays have posted 200,000 postcards home. It is evident that those who remained at home have been 'getting their own back.'"

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Reducing Sulphide Toned Bromide Prints.

A correspondent, writing to "The Photographic News" with reference to the above subject, says: My method of reducing a sulphide toned bromide print is to place it in a hypo-alum bath, and heat it in the same manner as one would an untuned bromide. I have found this satisfactory in every way, and the colour is, if anything, improved.

### Handles for Hand Cameras.

Writing of camera handles in "Photography," Mr. Charles H. L. Emanuel says: "It is certainly a moot point whether the ordinary flexible leather handle is a useful form, and yet it is universally found with a hand camera. The one great difficulty of a hand camera is to give sufficient exposure without the risk of vibration; and there are many persons who, with their present apparatus, the whole gripped tight to the chest, cannot safely expose for the fifth of a second. Put a much steadier hand at architectural or street scene work, where the camera has to be held up by means of a wobbly leather handle, and it is a question whether his perpendiculars will be right or the result free from evidence of vibration. An absolutely firm handle would be of great assistance in such a case, and would be most convenient if made of aluminium, broadened in the centre for the purpose of grip, and hinged with a spring, so as to lie down for convenience in packing for travel.

### Above All, Patience.

"You are old, Father William," rose to my lips (writes the "Magpie," in "The Amateur Photographer"), as I listened to the recital of a new and, of course, improved printing process which has been, I understand, brought out by Mr. Welborne Piper. I may be—according to some people, I must be—wrong, but, as far as I can at present understand, "Bromoil" is calculated to make amateur photography, if not impossible, at least improbable. To obtain a pictorial something, the amateur must first learn to excel in bromide enlarging, in "ozobrome," and in the "oil pigment" process. Having taken these preliminary steps the fun begins. First make a really good enlargement. If you then have the heart to risk ruining it, you gelatine it. Should it survive this, it is ozobromed. So far only twenty-two baths are required, which will not take above four hours. Mostly, however, another couple of hours will be needed for re-bleaching and re-developing. If not spoiled before, the chances are that when pigmenting is undertaken ruin will set in. However, a centenarian may hope to produce a masterpiece with this fascinating intricacy.

### Toning P.O.P.

For even toning (writes Mr. Percy J. Slater in "Focus") it is advisable to tone all the prints at once, when only a few prints are being toned. When dealing with large batches, however, the prints should be divided into two or three lots, and the toning solution divided up in proportion. When toning a large number of prints in one lot of solution, a few at a time, the first few prints usually get evenly and fully toned, while the last few appear either double toned, or under toned compared with the others; but by following the method outlined above, the whole batch of prints will be evenly toned.

It is absolutely necessary to keep the prints quickly moving one over the other in the solution, or toning will take place irregularly. I generally place the prints in the bath face downwards, and quickly turn them over face upwards one at a time. They are continually kept moving in this manner until they appear sufficiently toned when looking at the surface, when they are transferred to a dish of water, and then quickly washed in about two changes, to stop the toning action, when they are ready for fixing. As the prints dry considerably colder than they appear when wet, toning should not be carried too far, or the finished prints will appear muddy and lifeless.

## New Books.

"Le Procédé Rawlins à l'Huile." By C. Puyo, Paris. Paris. 1 franc 50.

That M. Puyo has put into writing his practice of the process he gratefully acknowledges to Mr. Rawlins is undoubtedly of no little importance to the class of worker whose aim is in the direction of pictorialism, and who is without scruple methods. There is no doubt that the arrival of the oil process will mark a new era in the so-called pictorial photography, though one's first thought is the aspiration that its facility of will prove the ruin of many a bubble reputation, it is probable that this reason its adoption will be slow. For even when the skill M. Puyo's volume shows to be necessary has been acquired by a practitioner has still to learn everything in the way of using newly acquired powers. But that the process is certain to do the exhibition world there can be little doubt, and therefore have drawn largely on our space this week in order, by M. Puyo's permission, to place his methods before English Colonial workers. Yet we must not allow ourselves to forget the sharp distinction between a print produced by the oil process and those by the older and less elastic processes. Essentially an oil is not photography at all, and the gulf between it and other processes is so wide that we would like to see a new word coined to describe it and others of similar "plasticity." Call a "straight photograph" good or bad as you will, with all its sins upon it, it has redeeming qualities of literalness, and it would be all the better to have another name found for pictures which are actually of a different kind. For M. Puyo, his colleague, M. Demachy, and others who have shown what a process such as that of Mr. Rawlins is capable of in the hands of an artist-craftsman, we have not but the liveliest admiration. It is not too much to say that this piece of original dexterity, M. Puyo's applications of the properties of greasy inks on a gelatine surface to pictorial ends, is pretty an example of genuine craftsmanship as can be found in photographic or other process. Perhaps he dwells in too great on the technique of which he has made himself so proficient a man, but the process has evidently obsessed him, and he is unable to restrain his ardour in explaining the minutiae by which he obtains his results. Our extracts from the newly issued volume, full as they are, do not at all exhaust M. Puyo's descriptions, whilst the several plates in the volume are needed for certain of the experiments.

### CATALOGUES AND TRADE NOTICES.

**PHOTOGRAPHIC LENSES.**—Messrs. A. and E. Staley send us a copy of a catalogue recently issued by the Bausch and Lomb Optical Company, of Rochester, New York, which gives much useful and up-to-date information regarding the various lenses made and supplied by this well-known firm. The catalogue is printed on art paper and contains numerous half-tone illustrations, which demonstrate the excellence of these lenses for all classes of subjects. A charge of which will be refunded on any purchase, is made for the list of those interested in high-class lenses can obtain a copy by sending this amount to Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn, London, E.C.

**MESSRS. SPIERS AND POND, LTD.,** have just issued a new and comprehensive catalogue of the photographic apparatus and accessories to be obtained at their stores, Queen Victoria Street, London. The list includes particulars of most of the well-known makes of cameras and hand cameras, lenses, shutters, enlargers, dark-room lamps, together with a variety of accessories and materials too numerous to mention. In short, it would be difficult for a would-be purchaser to visit this establishment to go away without having his requirements satisfied. This catalogue, which will well repay a perusal, may be obtained post free by any of our readers on application to Messrs. Spiers and Pond, Ltd., at the above address.

**DR. LOUIS MERCK**, of the firm of E. Merck, Darmstadt, has been granted the honorary degree of M.D. by the University of Giessen.



## Commercial & Legal Intelligence.

**PHOTOGRAPHER, WIFE, AND SUNDAY TRADING.**—At the Cleethorpes Court last week thirteen traders were summoned on charges of Sunday trading. Most of them pleaded guilty, and were fined 5s. 6d. costs.

A charge against John Hawkey, photographer, was contested by Wainwright. Inspector Sindall said the business was being carried on on Sunday, August 11. Mrs. Hawkey was in the studio, she said she was carrying on the business, and pointed out to the jury that the words "Mrs. Edna Hawkey" had been temporarily over "John Hawkey" in front of the shop. On the back of the photo, however, readable to people in trains and Poplar Road, the name John Hawkey was still there, and notices inside the studio the name John Hawkey. In answer to the officer, Mrs. Hawkey said she carried on the business entirely on her own behalf, but used using the plates and other materials which were in the shop, that she did not pay her husband for them. She assisted her husband at the studio during the week. In cross-examination, the officer said Mrs. Hawkey was giving receipts bearing the name John Hawkey. He did not see the defendant on the premises that Sergeant Johnson corroborated.

The defendant was called, and said he was not at the studio on Sunday, and had no interest in the business on Sundays. He charged the jury with the bare cost of the plates she used. He admitted that the charge was made for the plates. He transferred the case to his wife for the day to avoid the fine. The photographs were finished off in the week by him.

Wainwright submitted that the defendant could not be fined, as he was not following his ordinary occupation. He was never at the studio on this day, the 11th, and it was his wife's name that was on the studio door. It was true that the name John Hawkey was on the back of the premises, but this would be remedied at once. It was an oversight. (Laughter.) It was quite immaterial, he submitted, whether the wife had paid for the stock she used or not. If the Bench convicted, he said, it would be tantamount to saying that if a man went for a holiday, and another man went to business and carried on the business on Sundays in his own name, then on the holiday would be liable to be fined. He was perfectly satisfied with the Bench—it was an attempt to evade the law. They were going to make the transfer of the Sunday business quite complete. If the Bench wanted a deed they should have it. The Bench said they considered that it was simply an attempt to evade the law, and the defendant would have to pay 5s. and 6d. costs. "If he is not satisfied we shall be glad to state a case," said the Chairman.

**PASSING FRAUDS.**—William Stephen Mills, described as a photographer, was indicted at the Surrey Quarter Sessions at Kingston for obtaining money by false pretences from women in different parts of the county. Mr. Rowsell appeared to prosecute, and Mr. Guy Lushington defended, prisoner pleading not guilty.

Mr. Rowsell, in opening the case, said it was a most important case as the fraud had been practised only on poor people, several of them servant girls, and was of a most ingenious character. Prisoner was at Dorchester, but on June 15 he took lodgings at Addlestone, Surrey, and from that time until July 17 practised these frauds on a large number of poor people living in the neighbourhood. His object was to go to a house and ask the woman if she wanted her photograph taken, and if he could not get an order, then he offered to do a large photograph for her free, on condition that she would give him a frame for the enlargement. In many cases he succeeded in getting some small payment on account for the frame, but, having got the money, nothing more was heard about the frame or the enlargement. Prisoner represented that he was working for the "Fine Art Photographic Company, of Dorchester," whose address was given as Victoria Road, but when inquiries were made there it was found to be an ordinary dwelling-house, with absolutely nothing in it of "fine art" in it, not even a studio. There was a card on the front door, however, with the words, "Fine Art Company"

Witnesses having been called, Mr. Lushington urged, on behalf of the prisoner, that there was no false pretence, the failure to execute the orders being merely a breach of contract, which he intended to execute. The jury found the prisoner guilty, and he was sentenced to six months' imprisonment in the second division.

**EMBEZZLEMENT BY A CANVASSER.**—At Leicester Police Court last week Alfred Sylvestone, 24, photographer's agent, Goldsmith Street, Nottingham, was charged with embezzling 5s. received by him on account of his employers, the Atlas Fine Art Company, on July 30. Defendant was employed as collector and salesman to the company, and failed to account for 5s. received from Mrs. Cousins, going away and leaving a note at his lodgings to the effect that he had gone home. It was stated that the defalcations amounted to 17s. The accused was received in custody from the Nottingham police, and when charged said, "That was quite right." He now pleaded guilty, and said his pay was inadequate for the work he had to do. Fined 20s. or fourteen days.

**CHARGE AGAINST A CASHIER.**—At the Birmingham Police Court last week Wm. Henry Evans, chief cashier to Hurmans (Ltd.), photographers, Victoria Square, was charged with embezzling moneys of his employers. Evans resides at Stechford, and has recently come back from his holidays. While he was away his employers went through his books, and, it was alleged, found serious defalcations. Detective-Inspector Goldrick went to Messrs. Hurmans, and pointed out an item of £60 to Evans, who confessed to the defalcations. The officer stated that on the way to the station Evans confessed to him that he had been carrying on two businesses in the photography line, in Ashted Row and at Stechford, on his own account, and that it was these two concerns which were at the bottom of all the defalcations. Detective Goldrick also said that Evans had previously held a good position as an accountant in Birmingham. They were not yet ready to proceed with the case. The accountants were still at work upon the books, and he asked for an adjournment. The Magistrate adjourned the case for a week, liberating the prisoner on bail.

**SOUTHPORT BANKRUPTCY.**—On Monday, at Liverpool Bankruptcy Court, Mr. Britten, the Deputy Official Receiver, conducted the examination of James Shaw, a photographer, of Southport. The debtor was represented by Mr. John Sefton. The unsecured liabilities were stated to be £341 12s. 3d., and net assets £67 19s. 3d. In reply to Mr. Britten, the debtor stated that when he was employed as a labourer on the railway he occupied his spare time at photography. Fifteen years ago he started as a photographer, and the main cause of his failure was the destruction of a large quantity of photographs and picture postcards by high tides, storms, and rain. The place they were in on the Southport shore, together with about a dozen other places, was carried away by the high tides some time ago. The examination was ordered to be closed.

### NEW COMPANIES.

**MANSFIELD, LTD.**—Capital £2,000, in £1 shares. Objects: To acquire the business carried on at 12, Manningham Lane and 4, Snowden Street, Bradford; 245, Anlaby Road, Hull; Welford Place, Leicester; 16, Cloth Hall Street, Huddersfield; Baldwin Chambers, Baldwin Street; and 16, High Street, Bristol; 28, Bridge Street, Burnley; 46, King Cross Street, Halifax; and 39, Barrow Street, St. Helens, as Mansfield, and to carry on the business of photographers, dealers in photographic materials, etc. No initial public issue.

**LAWLEY AND DAVIS, LTD.**—£3,000 (£1). To acquire the business carried on by S. Davis, at Sherlock Street, Birmingham, as Lawley and Davis, and to carry on the business of photo-etchers, stationers, etc. No initial public issue. First directors (not less than two nor more than three): S. Davis and Mrs. E. Davis (both permanent). 100 shares. Remuneration (except managing director) as fixed by company. 206, Sherlock Street, Birmingham.

**THE NEWCASTLE PHOTO COMPANY (LTD.)** has been registered with a capital of £250 in £1 shares, to acquire the business of photographers and confectioners, carried on as the "Imperial Photo Company," at 3, Clayton Street, and 114, Westgate Road, Newcastle-on-Tyne. There will be no initial public issue.

## News and Notes.

**SCARBOROUGH AND DISTRICT PHOTOGRAPHIC SOCIETY.**—An exhibition of pictorial photography, the work of the members, will be opened in the School of Art, Scarborough, next Monday by the Mayor of Scarborough, and will include some of the best work of such well known exponents of the art of photography as the Brothers Wanless, Messrs. T. F. Brogden, A. H. Robinson, A. E. King, and F. Foster.

**RIGA PHOTOGRAPHIC SOCIETY.**—The Photo-Club of Riga (Russia) are holding an international photographic exhibition from April 19 to 30, 1908, both pictorial and technical work being admissible. Particulars as to medals, wall space, etc., may be obtained from Mr. O. K. Saldtner, Postfach, 223, Riga.

**THE ROYAL PHOTOGRAPHIC SOCIETY'S ANNUAL DINNER** will take place on October 30, at the Holborn Restaurant, the function having been fixed for a later date than in previous years in order to avoid the holiday season, and thus enable many to be present who might otherwise be out of town. The following gentlemen will act as stewards:—Mr. J. C. S. Mummery, A.R.I.B.A. (president); Sir Joseph Swan, D.Sc., M.A., F.R.S. (vice-president); Messrs. A. W. W. Bartlett; Leslie E. Clift; A. R. F. Evershed, M.R.C.S., L.R.C.P. (London); T. E. Freshwater, F.R.M.S.; John H. Gear; E. T. Holding; Fred. Hollyer; G. Lindsay Johnson, M.A., M.D., B.Sc.; Furley Lewis; Ernest Marriage; Arthur Marshall, A.R.I.B.A.; C. E. K. Mees, D.Sc., F.C.S.; F. J. Mortimer; C. Welborne Piper, A.R.I.B.A.; E. Sanger-Shepherd; J. Spiller, F.I.C., F.C.S.; and H. Snowden Ward. Applications for tickets may be made to any of the above, or to the secretary of the society, 66, Russell Square, London, W.C.

**PHOTOGRAPHING A LION FIGHT.**—An enterprising photographer of Copenhagen, being anxious to secure a realistic lion hunting scene for the cinematograph, proceeded to convert a small island in the vicinity into a tropical scene, into which he introduced horses, sheep, and sportsmen in typical lion hunting costume, the latest addition being two lions, purchased in Hamburg. The Minister of Justice, hearing of the scheme, gave orders that it should be prevented, but the photographer made a secret visit to the island, and, with the aid of his assistants, succeeded in carrying out his programme. The animals at first refused to stir, but eventually attacked one of the horses, and a desperate fight ensued. When sufficient film had been obtained the lions were shot, and the operators hurried from the spot; but the following day the photographer was arrested by the police, his films confiscated, and his licence withdrawn, the Minister of Justice also prohibiting the purchase of the films thus secured.

**THE PLATINOTYPE OUTING.**—The members of the Platinotype Company's works held their annual excursion on Wednesday, the 21st inst., Eastbourne being the place selected, and right royally were they entertained and provided for. There is a tradition in the Platinotype Company that what is worth doing at all is worth doing well, a principle which Mr. W. Willis carries out in its entirety when all concerned at the works become his guests for the day. Leaving Penge at an early hour Eastbourne was reached shortly after eight, the members driving to the Grand Hotel, where breakfast was partaken of. Here they were met by Mr. W. Willis and a small party who had motored down. A drive to Beachy Head and a ramble over the breezy downs made the morning seem all too short. On the return to the Grand Hotel over 100 sat down to an excellent dinner, Mr. E. J. Humphery and friends having by this time arrived. Dinner over, Mr. Humphery, in graceful terms, proposed the health of Mr. W. Willis. He (the speaker) always regarded those at the works as one large happy family, pulling together for one common end, with never a note of discord to break the harmony and good feeling which existed between themselves and their principal. Mr. Horsley Hinton said that for over twenty years he had been opening mysterious tins, evidently packed by deft fingers, and had also been associated with those responsible for the direction of the company's affairs. In future whenever he rotated a certain cutter lid it would bring back to his memory the fair and happy faces of those around him. He hoped to have the pleasure of meeting them all again. A cheery note of welcome next came from Mr. J. Willis, and finally Mr. W.

Willis rose to express his gratification at seeing all assembled again. He hoped they would enjoy themselves, and have many happy days together. To Mr. W. H. Smith (the manager of the works) and others his and their thanks were due for the arrangements made at very short notice. The company then dispersed in various directions, some attending a flower show at the Devonshire's residence, others seeking the attractions of including "The Beauty of Bath," whilst a few availed themselves of a steamboat trip to Hastings and back. The sea had the temporary appearance of a billiard table, but this did not prevent one or two young ladies from being temporarily overcome by the "beauty of briny," a state of things possibly accentuated by the recollection of a six-course dinner. Tea was served at six o'clock, and a comfortable journey home brought a "red-letter" day to close. Amongst those who wrote or wired expressing their regret at being unable to be present were Mr. G. E. Brown ("British Journal of Photography"), Mr. Snowden Ward ("Photographic Monthly"), Mr. F. J. Mortimer ("Photographic News"), Mr. P. R. Mortimer ("Photographic Dealer"), and Messrs. E. J. Wall and H. M. Wall (hon. secretary Croydon Camera Club).

## Correspondence.

\**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed in our correspondents.*

### PATENTS IN COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—With reference to Otto Pfenninger's patent 25,907, 1906 ("B.J.," p. 581), permit me to call attention to the fact that the refraction compensator which he claims was patented by me in 1899—U.S. patent, No. 635,253, published October 1, 1900. In my Traill-Taylor memorial lecture for 1901, following a description of this compensator, occurs the following sentence:—"A known defect of the prism, which is the cause of the error, is remedied by the use of a compensator, which is now being instantaneously devised, used, and published by me."

Even my 1894 patent on "photochromoscope and photochromograph camera" shows the colour screens inclined to act as refractive compensators, although the reason therefore was not then stated. It is a fact that every inclined transparent mirror trichromatic light have ever used has been provided with one or another of the compensators which I devised.

Having once originated and published or patented such a device is not necessary to burden subsequent patent specifications with details, hence Pfenninger's ability to point out that such compensators are not shown in my subsequent patent drawings.—Very truly yours,

FREDERIC E.

Woodcliffe-on-Hudson, Weehawken, P.O., N.J.  
August 13, 1907.

### PATENT REGULATIONS.

To the Editors.

Gentlemen,—In reference to your article, "Patent Office Regulations," in this week's "Journal," I think that the authorities could put forth a system in the way of inventors if they so desired. To mention amongst others is the reduction of the time that elapses in the disposal of protective documents. The greatest obstacle, to my mind, to the interest of the inventor is the grave lingering poor applicant for his rights.

It is generally recognised that the authorities here are not so earnest in their care for the just claims of the true inventor in comparison with those of the United States. Under the present system it is the first introducer and first or second pirate, to be the results, who reap the benefits of the working brains of the true and deserving, but poor, inventor.—Yours very faithfully,

A LINGERING STRUGGLER



## Answers to Correspondents.

\* All matters intended for the text portion of THE JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

*For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

PHOTOGRAPH REGISTERED:—

Lowthian, 144, Freeman Street, Grimsby. *Photograph of the s.s. "Marylebone."*

ROUBLED.—We explained the method fully in our issue of July 12, which please consult.

IXING.—I should feel much obliged if you would let me know the quantity of hypo required to properly fix one dozen whole-plate P.O.P., and whether alum could be used in the same bath.—J. T.

If we fixed all together we should like at least 10 oz. of solution, containing 1½ ozs. of hypo. This quantity would certainly fix a great many other prints, but we should not think it wise to exhaust it. Yes, you can make up an alum-hypo fixer (see "Almaazac," p. 964), first formula, but the plain solution is best for P.O.P.

Q.—Are the prints as toned by Mr. W. B. Ferguson as permanent as those toned in separate bath, if thoroughly fixed before toning in the combined bath? I have tried same, which works admirably, but do not want to sacrifice permanency.—H. WEST.

There is no reason why they should be less permanent.

There is no reason why they should be less permanent.

ANS FOR REFLEX.—I want to get a 10 x 8, or larger, lens for use on a 5 x 4 Argus reflex, to work at not less than f/8. My object is to get as large an image as possible in the case of natural history subjects, without the loss of intensity entailed by the telephoto lens. The maximum extension of camera is 13in., so that I cannot exceed that focal length. Will you kindly answer me the following questions? (1) What increase in size of image of a 7in. Holostigmat, Series I, as sold with the square Argus, may I look to get with a 10 x 8 of the same angle of view of 12in. focus? I take it I shall, roughly, get twice that of the 7in. on the focal length, and about twice on the extra size of plate covered—that is, about four times the image as given by the 7in. Holostigmat. Am I right? (2) Is there any objection to the use of a 10 x 8 on a 5 x 4? Does the light which does not act upon the plate tend to fog it? (3) Would it be possible to use anything bigger than 10 x 8 successfully? I am limited by my camera front, of course, which will only take 2in. mounts. (4) Given other things equal, would not a lens with angle 60 degrees give a larger image than one with angle of 90 degrees, assuming they are made to cover the same size plate? I want to be able to get a small object big enough to be enlarged without pushing it too far. You will know how hard it is to get, say, a bird even twenty feet away, of a decent size.—Non Sero.

(1) Yes, you are right. The image would be 12.7ths or 15.7ths the linear size. (2) None so long as the camera interior is properly blackened. (3) It depends on the back focus, which, we believe, in the "HoloStigmat" is somewhat shorter than the equivalent

focus. Therefore this is to your advantage, though the difference will not be much. You must remember you are not using the lens on distant objects. Altogether we doubt if you can use a longer focus, or quite so long as 12 inches for your particular work. Why not ask the makers? (4) Of course it would, but that is the same thing as saying a lens of longer focus would do so. You cannot speak of them as distinct qualities.

STAINED NEGATIVES.—How is it I get green stained negatives? I am using Ilford's pyro soda, stock solution (A), with Ilford plates. I have used this developer a number of years without any stained negatives. Before the plates are half developed the developer turns black. I have thrown one ounce of pyro away, also carbonate and sulphite, and made up a fresh lot, but still no better. Is it the nitric acid that causes it, or what is the cause and the remedy?—E. MOORE.

You have probably been supplied with a bad sample of sulphite. Try making a new lot of developer with a sample of guaranteed purity, such as Schering's, and we think you will find the trouble disappear.

MIDGET PHOTOGRAPHS.—(1) Where can I get a good stamp camera for copying, serrated paper, and masks for same? (2) A formula for a toning bath, which will work evenly? I am doing postcards in large quantities, and, although I keep them moving, they tone very uneven, much quicker at the edges, as enclosure.—W. E. M.

(1) Butcher and Sons, Camera House, St. Bride Street, E.C.; and J. Fallowfield, 146, Charing Cross Road, E.C. (2) The fault is probably not in the bath, but in toning too many at once. Why not try less? If this does not help you we can only suggest that you let us know the formula you use, and other details of your working, without knowing which we obviously cannot assist you.

GOVERNMENT OFFICIALS.—Is an excise officer allowed to carry on a photographic business in same town? Also are there any rules to prevent a post-office clerk from making profit from photography? This clerk styles himself an amateur, yet boasts of doing from 200 to 300 postcards of local events at 2d. each per week?—G. A. SMS.

It is out of our province to reply to your queries, but we believe the restriction as to other business varies in different Government departments and in the grades thereof.

PHOTOGRAPHIC RIGHTS.—I should be glad if you could say whether I am right in publishing the enclosed postcard of tomb, not having had permission to photograph it.—JAS. T. WILDER.

You are quite at liberty to publish.

PHOTOGRAPH ON A SILK HANDKERCHIEF.—Would you kindly give the process of printing a photograph on a silk handkerchief, if a reliable process is really known, as from inquiries through the trade it seems that no practicable information is known on this subject?—THOS. WILLIAMS.

Better obtain sensitised silk from the Platinotype Company,  
Bloomsbury Street, W.C.

DUTY ON CAMERAS.—I shall be obliged if you will inform me in your next issue if any duty is payable on cameras, lenses, etc., taken into Italy, Switzerland, and neighbouring countries. I purpose going to Naples, Rome, Venice, etc., next month, and I am given to understand that in some countries a very heavy ad valorem duty is charged.—VIATOR (Devon).

There is none on apparatus taken as personal luggage.

PROSPECTS OF ASSISTANTS ABROAD.—I am desirous of leaving this country for a while, and should like to ascertain what prospects there would be for me in Canada or United States as assistant. I am, and have been for two years, a commercial photographer, and am used to small postcard publishing businesses. My total experience is seven years, during which time I have touched almost every branch. Are wages and demand better in Canada, and what would be the best means of advertising for a situation, and in what paper, for the States? Should I have a better chance on the Continent, France, Germany, etc.? I am 24. I thank you in anticipation of a reply in "Journal" in due course.—W. H. P.

We very much expect that wherever you may go you will find the photographic labour market as well as, if not more, over-

stocked than it is in England. In Canada and in the States salaries may be a little higher than they are here, but the cost of living is also very much higher. Unless you are a really skilled photographer we do not think you will do any better abroad than you will here. In all the places you mention there are many very high-class photographers, and your qualifications do not appear to be of a very high order. Probably the best paper to advertise in in the States is the "Photographer," the offices of which are at 30 and 32, West 13th Street, New York.

**BRONZE POWDERS.**—We have just had delivered to us a batch of mounts, printed in error with bronze powder, which has got over the whole surface. We should be glad to know if this bronze powder has any effect on properly treated P.O.P. prints if left between the print and mount. Wiping off powder with cotton wool may not prove satisfactory. We have had experience with bronze powder printed mounts fading the prints in fine white spots, due, as we understand it, to the bronze powder. As the printers say it is not harmful we are asking your opinion on the matter.—**BRONZE POWDER.**

Certainly, we should not entertain using the mounts, as the metal particles are almost certain to spot the prints, unless the dry-mounting process is used.

**FOCUSsing GLASS AND DEFECTIVE VISION.**—I shall esteem it a great favour if you can enlighten me on the following in your "Answers to Correspondents" column, of which I am a constant reader. I have been using for six years the same focussing glass with success, but a short time ago, when I noticed on developing my plates, I found them all out of focus, although I brought everything up sharp on the screen with the glass, and, curious to note, when I focus without the aid of the glass, I get everything sharp; but it is difficult to me to do so on account of defective eyesight. If you can help me I shall be very thankful.—**R. E. SMITH.**

It is very obvious that the focussing glass is not adjusted to your present eyesight, which has evidently changed since you first had it. You will see the subject dealt with in "Ex Cathedra" this week.

**WORKING-UP.**—(1) Could you inform me as to what medium is used to prepare the surface of bromide enlargements for water-colouring by hand, also C.C. and Velox prints? (2) Should ordinary water-colours be used for the purpose? (3) Could you also tell me of whom I could obtain books on the subject, also working-up in black and white?—**ENQUIRER.**

(1) Apply ox-gall (artist's purified), using a tuft of cotton wool slightly moistened with this preparation. This will serve for the bromide and gaslight prints. For the collodion the best is:

Fluid extract of quillaia .....	1 drm.
Water .....	1 oz.
Alcohol .....	1 oz.

(2) Yes. (3) The best book is "Art of Retouching Negatives and Finishing and Colouring Photographs," by Johnson, 2s. (Marion and Co.)

**SPOTS ON PRINTS.**—Will you please tell me what is the matter with enclosed print and how to remedy it? The blue spots were originally blisters that appeared in second washing.—**R. M.**

As you tell us nothing of your working we can only conjecture that the spots are due to decomposed hypo in the prints; but what is the cause we cannot say.

**BROMIDE and Others.**—In our next.

**PHOTOGRAPHS OF MACHINERY.**—I have recently been called upon by a firm of engineers here to take some photographs of machinery at their place. When I sent the proofs they were returned, with the complaint that they were not good, and not at all like the photographs done for other firms. I went to see the people, and were shown some pictures which, I must confess, were a good deal better than mine—three of which I enclose herewith. You will see that there is not good detail in the shadows, and the bright parts are white and hard. In the other photos there is good detail everywhere, and the bright portions are not white

and hard as they are in mine. Can you please tell me how to get better pictures, as the firm there is a new one, and it is bringing business to me if I can improve the work?—**ENGINEER.**

It is usual, when machinery is to be photographed, to print over with a grey flattening colour. When that is done the bright portions become dull and non-reflective, while the other parts are, of course, lighter than they were before. This is probably what had been done in the case of the photographs you wish shown. On page 997 of the "Almanac" is a formula for a flattening paint, which can easily be cleaned off, after the photograph has been taken, with turpentine or petrol.

**G. J.**—We believe the sample of print is on one of the harder gaslight papers, of which one variety was made by the firm of Liesegang, who turned over their photographic business to the Bayer Company. Probably if you apply to them they can give you particulars of the paper.

**CANVASSERS' AGENTS.**—Our business being a club business, we employ canvassers on commission. Are we liable if the men offer goods at prices far below what is on our printed receipts, and also receiving more money than the receipt states they are to receive? Your favoured answer will greatly oblige, as we are having a lot of trouble over the matter.—**T. H. AND CO.**

As the canvassers act as your agents, any contract they make with customers is binding on you. If they agree to take portraits at a lower figure than quoted on your list you will have to take them at that price.

**A. WATTS.**—It is quite possible that the vibration will prejudice the use of the buildings for photography. We should advise you to allow your solicitors to look after the matter for you.

**D. D.**—Dyes are sold by the larger houses which will take to tints and prints. A useful preliminary treatment is with fluid extract of quillaia, 1 drachm; water, 1 oz.; alcohol, 1 oz.

**W. S.**—We have carefully considered the process described in your letter, and there are certainly some novelties in it. We think it workable, but we do not consider it patentable, as we do not see how it could be worked without, to an extent, infringing patents already in existence. Your letter has been destroyed as you wished.

**C. C. PRINTS.**—Can you kindly tell me the cause of the small black spots on the enclosed prints? Do you think they are due to iron particles in the water? The agents through whom I get the paper (C.C.) say they are, but I think they are in the paper, pieces of which I enclose herewith.—**C. YOUNG.**

The black spots are undoubtedly due to the paper. They can be clearly seen by looking through it before a strong gas flame. They are apparently in the emulsion and not in the paper itself. You would be perfectly justified in returning the paper to those from whom you got it.

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## The British Journal of Photography

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## SUMMARY.

Business and technical aspects of home portraiture are quoted in a recent address by Mr. C. Wesley Hearn. (P. 674.)

Qualifications which the photographer's receptionist should possess are the subject of some notes by a lady receptionist. (P. 675.)

Oil Process.—Although probably little will be seen of oiling at the exhibitions, there is much to be said for the use of process by the professional portraitist. (P. 671.)

Elaborate reflex camera for studio use has appeared on the market. (P. 671.)

Among the patents of the week are folding reflex cameras, one-colour processes, and a method of colouring photographs. (P. 671.)

Cheron has published some further details of apparatus which he employed in the prismatic dispersion process of colour photography. (P. 675.)

## "COLOUR-PHOTOGRAPHY" SUPPLEMENT.

Lumière Process.—It is hoped that plates will be shortly made, in anticipation of which we publish some further instructions to the process. (P. 65.)

Martin Duncan, on the microscopic examination of an "Arto-ne" plate, reports the occurrence of carbon particles, but is able to identify the grains as those of potato starch. (P. 68.)

Abridged method of three-colour printing by transference of a film gelatine surface has been brought to a commercial stage by F. W. Donisthorpe. (P. 71.)

Last day for entries for the exhibition of the Society of Colour Photographers is to-day week, September 13. (P. 71.)

Instructions for the use of the "Sanzol" reducer for three-colour printing have appeared. (P. 71.)

We publish a further portion of the comprehensive paper on the mann process by Professor Cajal. (P. 69.)

## EX CATHEDRA.

### More About Blisters.

Since writing our article of August 30 on blisters we have seen in a contemporary the advice to "Beware of the bromide paper which sinketh not in the dish when it is wet, for the blisters anon will be many." Just before reading we noticed that a bromide print floating face up in a dish had developed blisters just at the points where the surface was exposed to the air. The paper in use had the property of floating to a marked degree and required a very abnormal soaking before it sank. At the time it looked as if contact with the air was helping the formation of blisters, hence we took the precaution of keeping the rest of the prints all face down. Later it occurred to us that the floating of the paper might be due to the same feature that we assumed to be the cause of the "osmotic blisters" described in our article. Small cavities in the paper filled with air would account very readily for the reluctance of the paper to sink. They would also account for the floating paper developing blisters at the points exposed, since the part at which the air sac exists would naturally float higher than the rest.

\* \* \*

### An Unpaid Hand in the Dark-room.

It is remarkable how seldom in the dark-rooms of either the amateur or professional photographer one sees that most useful of accessories, a rocking-table. Either class, one would suppose, would find its assistance in regular work of such distinct value in reducing the proportion of failures or saving time that the little trouble and expense of installing it would be repaid. The larger proportion of development being done in dishes, and, in the case of professionals, with the pyro developer, there is always the necessity to put into practice the maxim of the text-book to rock the dish. And not in development alone, but in many other operations, a rocker is actually an extra assistant in the dark-room, and permits of a greatly increased output in a given time. Its value, of course, depends on the efficiency of the rocker, the best form of which for regular work is one of the pendulum variety, consisting of a platform mounted on a pair of knife edges and actuated by a weight of, say, 50 lb. at least. An occasional touch will keep the table steadily moving while the worker has time to attend to other things, and the mottling which is the result of neglecting to rock certain developers will never be the result of a few moments' inadvertence.

\* \* \*

### Cinematography of Bird Life.

An interested audience gathered at the Palace Theatre last Thursday to witness an exhibition of animated photographs of bird life which, from Monday evening last, have figured in the programme of the renowned place of entertainment

in Cambridge Circus. Mr. Oliver Pike, who, with Mr. Armytage Sanders, has committed to the sensitive film the domestic life of our best-known sea birds, himself explained a few of the obstacles which come in the way of the adventurous spirits who carry a cinematograph camera weighing sixty pounds down the face of such inaccessible places as the Bass Rock and plant it on the equivalent of the front doorstep of Mr. and Mrs. Puffin. From the series of films exhibited we can congratulate Mr. Pike on the first results of his enterprise in bringing before a London audience the life, and incidentally the humour, of the sea birds of our northern islands, and the management of the Palace Theatre equally deserves public approbation for this educative addition to a programme which is invariably the high-water mark of refined entertainment.

\* \* \*

#### Evening Figure Studies with the Hand-Camera.

Among the occasions whereon the folding hand-camera, which is the tourist's usual companion, breaks down is when the light falls off at the end of the day. Although the provision of a small tripod will enable stationary subjects to be photographed as well as, if not better than, with the camera in the hand, anything in the way of figure studies unbeknown to the subjects themselves must be postponed until the next day. A lens of larger aperture, it is true, will admit sufficient light for a short enough exposure, but the difficulty of focussing with certainty then becomes a task which lies outside the capabilities of the average worker. The same lens, however, when a camera of the reflex type is used, will be found a most valuable addition to the outfit. In the country, whether in England or on the Continent, but particularly the latter, the hour preceding twilight is precisely the time when the best opportunities for figure studies occur. The sun has usually set before the people of a Bavarian or Tyrolean village return from the fields, and, in picturesque twos and threes and loaded with the tools or produce of their labour, betake themselves to their houses. In such circumstances a lens of aperture  $f/4$  and of focal length about 8 in. on a quarter-plate will permit of work which would be otherwise unobtainable. An exposure of 1-15th of a second is usually short enough to obtain figures free from movement, and is at the same time quite long enough to secure a full exposure to the plate. The doorway of the village Gasthaus zur Post affords a most favourable point of view, and we should not regard any tourist-photographer in search of negatives illustrating the life of the country

as well equipped for his work unless possessing the singular combination of large aperture lens, focal-shutter, and reflex camera.

\* \* \*

#### Sky Shades for Lenses.

It must not be forgotten that the use of large-aperture lenses, as suggested, there is a corresponding increased necessity for shielding the plate from the light which may be reflected upon it as a whole in addition to that which forms the image proper. Even with the blacking of the interior of a camera which can be done, there is bound to be a certain amount of reflected light, and the best course is to waylay the enemy at the opportunity—that is to say, before it has entered the camera at all. A lens-hood which prevents light falling on the lens at anything more than the angle of view is included in the picture on the plate is necessarily a better preventive of extraneous light than any means taken for absorption in the camera. The form of lens-hood recently made, designed by Captain Owen Wherry for telephoto work and made by Messrs. Beck, might be adopted in much hand-camera work with large apertures with great advantage. It could readily be made in a form for attachment to the front of a box camera and would have the virtues of certainty in use and ability to exclude light falling very nearly directly on the lens. In conjunction with the reflex camera, it would be a great help for the hand-camera worker to screen his lens effectively as when using the camera with all the accessories which can be exercised when using a stand.

\* \* \*

#### Portraits of Notabilities.

A London daily paper, with which are associated several other daily newspapers, is just now issuing a request for a portrait to large numbers of persons who may be regarded as more or less in the public eye. A collection of portraits has of late become a necessary addition to the modern newspaper, which nowadays cannot wait until a photograph has been taken or procured of a person figuring in the events of the day, but must have it in the office in readiness for the photo-engraver. The fact may be taken as a hint to photographers to offer their services to editors of likely papers any portrait of a sitter who may shortly be, a celebrity, not when events have passed which bring the person into prominence, but in advance for the editor to file and use at his own convenience goes without saying that, as many people will themselves send to the press photographs on which no copyright

### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### ONE-PLATE THREE-COLOUR PROCESSES

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1908 will be

modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1908 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the new edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.



be charged, the photographer should not omit to state fully on the back of his print the fact of his ownership of the copyright and the amount of payment to be made him for the right of reproduction.

\* \* \*

**International Exhibition,**  
We see in the German papers that active steps are now being taken towards making the first official announcements of the International Exhibition of Photography, to be held in Dresden in 1909, before the photographic world. At the end of the present month 12,000 cards are to be sent out to members of the photographic profession and to those interested in the scientific and pictorial side of photography. The exhibition is expected to have the support of artistic, photographic, and scientific bodies in Germany, and though its organisation is in the hands of a German committee, there is the assurance that the aim of the promoters will be to make the exhibition representative of the status of photography in different countries.

\* \* \*

**Dr. F. D. Chattaway,** in a recent number of the "Chemical News," alludes to some experiments arising out of a research of his through which he has led to notice the very fine mirrors of metallic copper which are formed when solutions of copper oxide are reduced by certain of the aromatic hydrazines. At present, coherent film was obtained on the glass surfaces of vessels containing the mixed solutions, producing a mirror which exhibited the red lustre of burnished copper. The vessels possessed as perfect a reflecting surface as mirrors produced by deposition of silver. As Dr. Chattaway explains, the process may readily be applied in the production of objects of art, among them, we may surmise, photographic prints on a metallic base by the carbon process. The use of the copper process industrially would obviate the employment of the poisonous tin amalgam means of which the manufacture of mirrors is conducted.

\* \* \*

**Studio Camera**  
**Luxe.**  
Many of our professional readers will recollect the article of a couple of months ago, in which Mr. Gordon Chase described his practice of employing a reflex camera for a large proportion of his studio and "at home" portraiture. That such an aid to obtaining a bright and unstrained pose has been studied by others independently of Mr. Chase's suggestion is proved by the exhibition at a recent American convention of professional photographers of a new model of the Graflex camera, designed specially for use in studios. Several ideas are embodied in this camera, with the object of enabling the photographer to make photographs of children entirely without knowledge. A large dummy lens is fixed to the camera and is pointed towards a seated sitter, while the photographer is actually exposing on his child models on the other side of the studio. The focussing chamber of the camera is mounted on a turntable in such a way that the photographer looks horizontally into the camera while the latter occupies a high position and vertically downwards into it when a low view-point is selected. There are also other movements to simplify the working of the instrument, on which, so we gather from the description, an immense amount of care has been expended. Only the advantages of the reflex instrument in studio portraiture have proved convincing enough for a firm of the reputation of the Folmer and Schwing Co. to devote a camera for this branch of work alone.

## HOPES AND FEARS FOR THE OIL PROCESS.

THE publication last week of M. Puyo's full description of his method in the now worthily titled "*Procédé Rawlins à l'huile*" will no doubt still further stimulate the workers who have contemplated its progress since the announcement of its birth in the columns of our contemporary, "*The Amateur Photographer*." Since then the oil process has made copious "copy" for the British press and copious conversation in clubs and societies; but so far as actual achievement goes, the process appears to be the *métier* solely of a handful of enthusiastic gentlemen of France, who are working it for all it is worth, whilst Englishmen, for the present, either have not fallen victims to its fascination, or are, with characteristic stolidity, passing through the "looking on" stage which precludes all British movements. In view of the very English name that distinguishes the process, this fact is a little anomalous.

The truth is that a method which offers such scope for mental initiative as this does is much more appealing to the Gallic mind than to the Anglo-Saxon. Were it a matter of sport, ball-kicking or bird-killing, we should probably lead the van. But to work the oil process in the way that its advantages dictate requires a moral constitution not common among Englishmen. It will no doubt be agreed that if the method is to be of any worth at all there must be a light, venturesome, happy-go-lucky temperament, cheerfully callous of consequences, and with a dash of the illogical, or else there must be a mind and brain well primed with observations of natural phenomena, well used to subtleties and *nuances*, highly analytical, prompt to settle matters of choice, and quick to act; one able to make sacrifices without a pang of regret, and, above all, one cultured in that high school of taste whose wide portals invite everywhere, but are never found by many; whose fees are less than nothing, but beyond the income of the multitude. In short, the mind and brain of an artist "by birth and education."

It is to be feared that the time will have been too short at the opening of the autumn exhibitions for any national effort in oil to appear; but we may live in hopes. Mr. Rawlins himself, and others who have had much advice and many hints to offer in the photographic press for the last twelve months, may surprise us into national pride. Who can say?

Personally we think the country's reputation will be safer if the judges of exhibitions exercise a most rigorous selection by a high standard. It will be unfortunate if, by reason of the lectures, articles, club demonstrations, and so forth, a miraculous draft of fishy affairs are poured into our exhibitions, and thence, by the never-failing route, into our penny plain and twopence coloured papers. It is appalling to think what crimes may be committed in the name of oil-prints under the "encouragement" of society exhibitions. On the other hand, if judges will recognise that it is of more importance to show a very few of the very best than "encourage" every first attempt because, forsooth, it is a first, then the highness of the standard displayed will be a fine deterrent to the too-easily pleased oil-printer, and he will work the harder at seeing the goal so far ahead of him.

The more one reads and thinks about this process the more one is convinced that it must of necessity be as fire and edged-tools to nine out of ten who play with it. Already the methods of less facility in control have proved how little their workers have understood the things to be controlled. These well-meaning ones have been in the position of mariners with effective steering gear but lacking either chart or pilot; so that their manipulations have more often than not steered them into contrary currents and on to shoals and reefs.

M. Demachy has laid great stress upon the faultiness of tone-values in photography; but it would be interesting to know how many, beyond himself, could unerringly place their fingers upon faults of this kind in a good print from a well-exposed negative. Or, granting that they could do so within the narrow margin of such possibilities, is it a certainty that their emendations would not leap to faults at the other extreme?

M. Puyo, in his excellent little work upon this subject, sums up the advantages of the process into four heads: the controlling of local values, the placing of dark accents, the placing of light accents, and the sacrificing of parts. All this, to one who is on the look-out for such adventurous aids in the production of fine prints, would be of inestimable value. If in the past course of his work he had been trying to do these very things by more cumbersome and risky means, then he is the man that should jump at the oil process as something that should sweeten and prolong his existence upon earth. But to the man who has never been troubled about such matters, the man who is jealously careful in selecting his subject, whose care and pains come for the most part before the capping of his lens, and whose after-processes are carried through with the sure and certain hope that perfection will come of his long and studious practice: such a man will be but embarrassed, it may be, by the new view of things which M. Puyo's four headings open up. He would begin to think that he ought to go warily, on the look-out for certain camera faults taken upon trust. He may even be so far confused as to think that without control no photograph can hope to be artistic, and if he lacked any firmness in his own convictions he would probably end in a slough of despond and printer's ink. The last state of that man and his work would be worse than the first.

These remarks do not in the least argue anything against the position taken up by those who have proved themselves masters of the oil process; they merely state a fear of what will probably be the condition of those who are but the slaves of it. The use of it to the best advantage presupposes habits of mind and, to some extent, customary practices lying far outside the essentials of photography *per se*. Photographers who adopt it will not be advancing their craft; they will be paddling in the marginal surf of one of the arts. There is room for them, and a welcome for them, only, let them give heed to getting out of their depth. If the average Englishman has not been richly endowed with the graceful and tasteful temperament which distinguishes the Continental, he is at least fairly well equipped with the common sense that will save him from the ignominy which usually comes of playing a game he doesn't understand; and this probably accounts for the fact that England has so far not produced a crop of fine oil-process men: it is early days for them yet.

There is one avenue of work wherein it would seem that the oil process might become beneficial both to the public and to the "trade." We allude to professional portraiture. The very fact that duplication is difficult and is all but a repetition *ab initio*, exalts the results of the oil process to the footing of original works. This is exactly what many of the leading men have felt to be a desirable thing, as enhancing the monetary value of a portrait. The public are content that oil paintings and miniatures should be ordered singly; but they have got into the habit of thinking of photographic portraits in dozens.

To produce one print from a negative and then to smash the plate is as wicked and wasteful and horridly commercial as the destroying of a copperplate work before signs of wear. It is illogical, and an insult to the sitter. Suppose, however, that a professional man receives an order for a "brush-work photograph," or whatever other thing it may come to be called. He will invite the assist-

ance of an artist who understands portraiture, but is sufficiently affluent to be above the job. (No difficulty about that!) The man may be present at the exposure so that he may take note of the sitter and the effect. The printed film will then be handed to him to develop with his inks and brushes. He could do it in a day, and the photographer could charge his three guineas for it. If the customer wanted another, the professional man might urbanely make the great concession of knocking off the odd shillings. The work would be artistic in the real sense of the word, and if photographers retained their own artists there would be a distinct individuality about the work of each house which, under present circumstances, is hard to discover. Moreover, the better artist employed the greater the reputation and fee of the house. All this might revolutionise the portrait in its higher walks, would help many a deserving artist, and, most of all, would disseminate amongst the public examples of artistic work that would very certainly have educational value, with a reaction in favour of art with the big A.

And why stop there? The landscape cleverly tried might supplant the banal and trashy photogravure which still lives on by the dregs of a respectability it has positively no longer the smallest right to. Every well done is saleable, and these oil prints, if they are carried out with the cachet of the artist such as MM. Demachy and Puyo place upon them, might make a fortune for themselves, *pas-se-partout* mounted "*études*" of the sort that becoming indispensable ornaments of the drawing and smoking-rooms of *le beau monde*.

But this is looking too far into the future. For the present we must concern ourselves with the working results of the oil process in these its early stages. The prospects are bright enough, for it is happily so amenable a nature that it may be adopted by workers who desire a faithful print from a negative—a thing which the way, which both MM. Demachy and Puyo despise.

We have yet to be shown a "straight print" by the oil process, carried beyond the very experimental stage of mere demonstration. With such delicacy and strength and richness as the process can give, it should be possible to get fine pictures from those rare negatives whose local values are not in need of control, and in which the introduction of dark or light accents would be no advantage, and the suppression of passages a veritable artistic sacrifice. Must it be finally decreed that such negatives do not, never did, nor ever will exist? If it must, what a poor game our pictorial photographers have been playing! What exalted rubbish have we mutually worshipped! What insufferable airs and graces have they maintained!

The modest and earnest amateur who shrinks from the pretence of artistic perceptions he does not possess, who better go his honest way, doing his best, to his own and his friends' delight, improving his style and taste by contemplation of works of art and the prints of photographers better than himself. He had better avoid any attempted correction of photographic faults that he can detect for himself, by facile means that are not photographic. He had better, much better, pin his reputation to the "straight print," and leave to the artistic mixer the making of new pictures out of the ruins of old. So far as concerns the compensation for under or over exposure afforded by the oil process, he may be a glib by its adoption; but it is better discipline to suffer one's faults than to have them atoned for. The great danger is that he will be led to think that photographic results are in greater need of patching than they really are, and thus, by placing authority before conviction, may lead himself out of the frying-pan into the fire.



## RECEPTION-ROOM ROUTINE.

"When can you give me a sitting?"  
 "Tomorrow, madam, at twelve o'clock or at three o'clock,  
 or would suit you?"  
 "I think three o'clock would be most convenient.  
 I will be here at three to-morrow."

"Thank you, madam. Good-afternoon."  
 These words are as music to a receptionist's ear. They are the  
 after the exhibition of countless specimens of portraiture,  
 haustible patience, of persuasive sweetness, and of more  
 will-power. A receptionist's work resembles that of  
 ro of a penny novelette—it must have one's whole heart  
 hing, to make the tale end with the usual amount of

daily round is a very varied and exceedingly interesting  
 Contact with all sorts and conditions of men and women  
 one a zest and interest in life, and the lives of our  
 particularly those of political, social, and theatrical  
 that can rarely be obtained in any other calling; and  
 mind a receptionist's life should make her one of the  
 st of English women.

### A Receptionist's Accomplishments.

Amongst the chief qualities that go to make a successful  
 onist, I should include a good all-round knowledge of  
 unches of the business, including especially retouching,  
 g, and mounting, operating and miniature-painting,  
 as also to be able to write a good hand, to answer  
 in a business-like and tactful manner, to have a good  
 edge of book-keeping, and if she has some knowledge  
 versational French and German, her value is so much  
 her.

business ability must also enable her to detect instinc-  
 a chance of enlarging the business, and of following up  
 ail with the eye of a hawk and the determination of a  
 ound.

### Innate Tact.

One of the very important qualities for a receptionist  
 ous is tact, and it must be a tact that springs from the  
 kindness of heart, and the refinement of good breeding,  
 with the subtle intuition of a woman gives her a very  
 ching power. A tact that enables her to gain the  
 nce of a client before a word has been spoken—to feel  
 tively the price and style of portraiture to show them,  
 ithout any undue pressing to make that highest impres-  
 sion them that will induce them to arrange a sitting  
 or later. It only needs a sympathetic ear to the client's  
 a few choice specimens of the most suitable style for  
 ent, a few delicate hints of the highest results always  
 ed, and "Well, when can you give me a sitting?" is  
 suit.

One of the highest importance that the sitter should be  
 ed in a pleasant and inviting way, and sent up to the  
 feeling at peace with the world—pleased with them-  
 and confident that they are looking their best. This  
 rather an impossible task, but I am convinced that  
 ssible to surround oneself with such an atmosphere of  
 al and cheerful pleasantness that each client with whom  
 mes in contact is insensibly influenced by it. This mood  
 in turn influence the sitter's expression, and a most  
 ful sitting should result.

One must be largely exercised in obtaining payment from  
 . I have always found it best to ask for the full amount  
 time of sitting, and in cases of objection have carefully  
 ed out that I am merely obeying the rule of the firm.  
 g this, I always obtain a deposit, except in cases of  
 own clients.

### The Receptionist's Day.

My day is a very busy one. First there comes the finishing  
 touches to my reception-room, that leave it fresh and inviting-  
 looking for the day; and while on the subject I should like  
 to say that money spent on the decoration of the reception-  
 room is money that will return again and again. It is before  
 the studio in importance—it is the room in which the business  
 is made or marred—and the style of the room, its brightness  
 and general cosiness, should impress the clients in a marked  
 degree. There need not be an undue overcrowding of speci-  
 mens, but they should be of the best of their kind in their  
 spotlessness and in their selection of the studio's best effects.

Then comes the morning's post to be looked through—with  
 a keen eye to the bad orders and any complaints; accounts to  
 be made up, sitters to be booked up, and all the time the  
 telephone ringing and messengers and clients in and out.  
 Then, hurrying or altering proofs, taking orders, suggesting  
 alterations when needful, booking appointments, hurrying late  
 orders at the printer's, and arranging re-sittings when neces-  
 sary. Following this, the entering of the work of the day,  
 sending off proofs, looking up back clients who have not  
 ordered, and prospective clients who have not kept their  
 appointments. All this leaves little time to push for extra  
 work.

### Her Business Habits.

There are several very necessary items to keep this part of  
 the business in good working order. The proofs must look  
 inviting—neatly packed up, displayed in a small proof book  
 in the most inviting manner—and free from any small defect  
 in retouching that might prejudice the sitter.

Discrimination is needed in displaying suitable specimens to  
 meet the wishes of the client that will also display her charms to  
 the best advantage. At times it needs a great deal of per-  
 suasion to lead one of the portliest of the nobility from the  
 temptations of the full-length panel to the safer harbour of  
 the portrait bust. The higher-priced style of portraiture  
 should, of course, be shown first and the lower-priced kept out  
 of sight unless particularly asked for.

One somewhat neglected side is the attention shown to the  
 friends of clients accompanying them for a sitting. They  
 should be shown as much attention as any inquiring client,  
 and I have booked many appointments by "making hay" while  
 their friends are in the studio. No one should leave the  
 studio without being impressed by the excellence of the work  
 and the bright and pleasant atmosphere of the room. Every  
 sitter should at some time before or after a sitting have  
 brought to their notice the various enlargements, miniatures,  
 and pastels that surround every up-to-date reception-room.  
 They may not be intending purchasers at the time, but the  
 possibilities of such are, although unknown, very far-reaching.  
 With all respect to my sex, I have always found them the  
 strongest of advertising mediums, and a miniature of a well-  
 known leader of society in a prominent place in my reception-  
 room has brought me incidentally more orders than I shall  
 probably ever trace.

### The Studio Advertises Itself.

Attention to minutest detail is a very essential part of  
 my duties. I have known untold damage done to a firm  
 through one influential lady, whose disregarded directions on  
 some minor point of retouching has set a whole snowball of  
 damage rolling against their reputation for high-class work.

On the other hand, twelve well-finished photographs should,  
 on an average, bring in at least three more clients. Of the  
 absolute necessity for keeping all promises for proofs and  
 finished prints for a certain date, under all circumstances. I

need not dwell upon, this being the A B C of all successful business.

Lastly, and most important of all, a receptionist must bear in mind that "every day is a new day," and unless this is

realised in these strenuous times, and that her is bent on keeping up to date and ahead of her competence, her value can only be that of the second-rate order.

E. E. BARR

## HOME PORTRAITURE.

[The following address to the Convention of the Photographic Association of Vancouver and Connecticut deals so practically with the factors which enter into home portraiture as a branch of the professional photographer's business, that we have led to give the text of Mr. Hearn's advice in full. The paper is deserving of a careful perusal.—Eds. "B.J."]

HOME portraiture is all the more interesting and fascinating on account of the rather tough propositions that are always coming up during the process of making it. As an offset to the difficulty at times experienced, is the development of yourself as a resourceful worker, which is most valuable, and also the great variety of work that you produce, making a collection of pictures all the more interesting to the public, to whose taste we cater. It is, as we all know, very hard in the practice of our profession, under ordinary circumstances, to prevent our work from being all more or less of the same character. This fails to create the enthusiasm over our pictures by the possible purchaser who visits our studios, which is very necessary to encourage their sitting frequently, and otherwise extend our business. Whether we make much of a pursuit of the work or not as a business proposition in itself, it surely is advantageous for our indirect success that all of us at times go into these things, like home portraiture, as a trade-getter.

As a means of livelihood for the professional, considered independently of a regular studio with complete appointments, I should with much earnestness advise considerable caution. Our ranks are to-day provided with a number of amateur, semi-professional, and strictly professional home portraitists, among whom, in the professional class, Messrs. Histed, Pierce, Koshiba, and Henderson are among the more prominent. These latter gentlemen do work of a very high order, and their success here attracted a great deal of attention, and yet only one of the three mentioned, Mr. Henderson, is absolutely without studio appointments within his control.

### The Business Aspect of Home Portraiture.

At first glance it may appear that making a specialty of home portraits is a good money-making way of doing business, as the rent and other expenses of running a studio are done away with, and one could have his office at his residence; but the amount of the work done in the locality in this way is rather limited, besides requiring peculiar gifts in the ability to get a constant flow of customers.

When business is done with the magnitude or extent that Mr. Pierce accomplishes, north, south, east, and west, over large areas of the country, with the necessary extensive measures to accomplish its attainment, and the final execution and delivery of his work, with railroad and hotel expenses added, it eats into a great deal of money, and even the large price he receives is no more than the excellence of his work and the expenses attached to it entitle him to.

The rumours of high prices in connection with this work are, I think, the cause of so much attention being given it, whereas the pictorial effects so easily possible when making the work should attract all photographers to it.

The people who can afford to pay high prices for these pictures naturally expect to receive value for their money. It is evident, therefore, that he who would do this work should have a superior knowledge of pictorial effect, and ability to produce it. Added to this is the ability to accomplish all kinds of faking to overcome difficulties and assist in the carrying out of good ideas. This faking of the negative and of the print also during print-

ing is ever present with you. To succeed, it is of vital importance. The mere process of development is not a mechanical one, but requires slow, careful work, to obtain the very possible out of an exposure which, if it had been made in a studio, would have been discarded.

### The Wisdom of Reasonable Prices

Then again, the high prices themselves, often obtained, often an injury to the future of your business, if these prices impress people as unreasonable. It is also a mistake to think that even the very wealthy don't object mentally, if they do pay the bill. This fact has within a few months come to my attention in connection with an artist in a city where I reside. He informed me that he knew positively that his trade had been hurt in a certain section or because a patron who was well able to pay what she ordered paid him a large amount of money for a large order. She gave him, knowing full well what the bill was to be, told her friends what the price was she paid, without informing them particularly how much work she had. It spread rapidly, and her friends, less wealthy than this patron, went elsewhere for their work. He had expected great results from this of friends, but never had one of them.

In passing, it may be well for us not to pat ourselves on the back (nor hire someone else to do it if we can't reach it ourselves) when we receive a large remuneration for a limited number of pictures. It is well to bear in mind that the product is such that we wish and hope for other work to come from it, it would be far better in the end if we arrange prices, to some extent at least, so as to render possible the patronage of a number of her friends. Arrange these things, therefore, to bring some returns for this special fine you've made, and not let it go to waste, with only the person as the result of it.

The ability of the artist and the excellence of the work should receive proper returns, without giving the public an impression that the prices are extortionate.

### Practical Matters in Home Portrait Work

In the making of home portraits, the general illumination of a room in a house is far less than under our skylights if the surroundings be also dark, then there are no reflections and the results will likely be black and white; hence the use of a small reflector, which may be nothing but a towel or newspaper held up by an assistant or some member of the family, on the shaded side of the customer, and a little in the front. In doing this, watch that you do not reflect much light to spoil the shadow eye, or flatten out the shadow of the ear, making a noticeably dark and inky place from the nearly to the ear, and there very light.

Placing towels over the top of a two or three-flap screen be found in most every house, answers the purpose very nicely as at three or five or even more feet away it reflects sufficient light to illuminate without destroying the character of the sitter's expression. Blue tissue paper laid over the screen instead of white towels or cloths is also very good, and perhaps better.



Mr. Steadman, who makes marvellously fine home portraits with a kodak, has written a little booklet for the Kodak Company, costing about fifty cents, wherein, by drawings and text matter, he much simplifies the difficulties experienced by the beginner. I advise all those interested to obtain a copy of the book and practise in his own house with a 7 by 5 or 10 by 8 camera, with members of his own family, till he has become quite successful, before he attempts more serious cases. By this means he will also have practice in the development, which is a large part of the work.

Get a lens that works quickly, cuts well, and doesn't require a great distance, working reasonably near without distortion. A quick-acting, good lens is of great advantage.

### Hints as to Lighting.

A general rule for lighting the subject is to place her as far away from the light as the width of the window, and a little back from the window sash or pane-work. By this means the ill, direct light from the window, continued in a straight line as it travels, will pass practically in front of the face. The subject, however, will receive a mellow and powerful light, and by placing the chair a few inches this way or that, with suggestion to the subject of changing her position so she will face the window more, or vice-versa, very beautiful effects of lighting are easily obtained in the face (the more especially) and on the figure.

A narrow window and bright light will most likely produce strong contrasts, but this can be easily modified by changing position of the chair. Work to do all you can with the light itself, and make it a point to only use a reflector when absolutely necessary.

If in lighting you can get a little of the natural light on the other cheek, and still find room for your camera, the results are better. If you do this, and this light on the shadow cheek appears as very hard and sharp, then without changing relative position of chair with the window, place the chair a few inches

or a foot further away, and you'll find that the light in the cheek will still be there, but, not being so strongly marked, it will have softened or spread over the rest of that side, thus reducing the contrast, rendering almost unnecessary a reflector.

In bust portraits try and have the bulk of the light come from the upper part of the sash, screening the lower part of it with blue tissue, being careful in so doing that you don't prevent having a little snap of high-lights on the forehead and nose and a little less on the chin. Avoid extremes, however. A little doesn't mean so much that it merges all of the values of the face into one large white spot. Have just enough to prevent flatness, and so the head will be admired on account of the character or feeling that it has substances, and the face well delineated because its various facts are well indicated.

Fine pictures are made by experts where all sorts of combinations are made as to location, strength or weakness of the light, combined with the successful carrying out of all sorts of seemingly impossible effects; but you grow to this. Be satisfied in the first place to succeed in the preliminary stage, then your ability will be such as to successfully tackle and overcome more difficult things.

I have left for the last what is of vital importance, and that is the plate you use. By all means, for serious work of this kind, use ortho or iso-chromatic plates. All good non-chromatic plates will make house portraits, but it seems to me that with house portraiture a colour plate only should be the one generally used. Why? Because all the things in the room that take black, strong shadows in the face, etc., with an ordinary plate all take the same quality of black, or very nearly so, and the white objects are now unduly white amidst the gloom.

The isochromatic plate, used without a screen or filter, will show great differences between the darks in the negative, and will hold down too pronounced whites, or at least bring them nearer together as they appeared at the time. Don't try to make a reputation in home portraits with ordinary plates. Give it up and start straight.

CHARLES WESLEY HEARN.

## IMPROVEMENTS IN THE PRISMATIC DISPERSION PROCESS.

It seems fairly obvious that this particular process is attracting somewhat greater attention in France than here. The advantages are that it entirely does away with the use of filters other than the obviously necessary compensating or correction one that enables to obtain equal density throughout the spectrum. M. Cheron, whose previous work we have already recorded, suggests, in the present number of "La Photographie des Couleurs," further improvements in the apparatus.

One of the great difficulties in this process is obtaining the spectra equally sharp throughout the whole image. A microscopic examination of the negatives will show that as one proceeds further from the centre the spectral colours become confused, and are reduced to merely iridescent colours round the edges of the image.

The reason of this is very easy of explanation: the dispersion is not perfect, the colours not being well separated unless the light falls on the prism at the angle of minimum deviation. This particular condition is naturally very easy of attainment in an ordinary spectro-scope, but not so simple when one has to deal with the innumerable sources of light in the shape of the transparent parts of the screen. Another fact which is prejudicial, not only as regards the uniformity of the spectra in different parts of the image, but also to the sharpness of each spectrum, even in the centre, is that each beam of light passing through the transparent parts of the screen is conical, and therefore composed of rays which are not parallel, having their points in the transparent spaces of the screen and the surface of the lens as base, although to obtain perfect sharpness each beam should be composed of parallel rays, which should fall on the prism at the same angle, that of minimum deviation.

These two sources of aberration should be eliminated to obtain satisfactory results.

It is naturally impossible to obviate both at once, and to imagine an arrangement in which not only each beam should fall on the prism at a constant angle, but that each beam should only be composed of parallel rays. We must be content with eliminating one of the sources of aberration, and endeavour to correct the other as far as possible.

It is obvious, Fig. 1, that, although the extreme rays from the

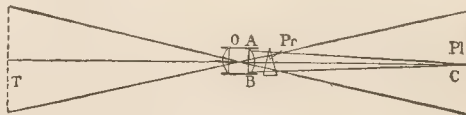


Fig. 1.

edges of the screen *T* form when falling on the prism *Pr*, an angle of about 40 deg., the screen and the plate being placed each at double the focus of the second lens, the angle formed by the extreme rays of the same beam is relatively insignificant with a second lens working at full aperture *f*/6.

In fact, although each of the spectra formed by the beam falling on the prism at the angle of minimum deviation is really very sharp, in spite of the different inclination of the rays which has produced it, the difference in sharpness between the spectra of different parts is, as we have seen above, so considerable as to prevent one obtaining a satisfactory result.

It is chiefly the aberration resulting from the different beams falling on the prism at varying angles which we should endeavour to correct, so as to obtain on the plate spectra equally sharp in all parts of the image.

The arrangement which appears to be the most simple in appearance consists in suppressing the low-angled prism placed in front of or behind the second lens *O* and replacing with a prism *Pr* of greater angle placed close to the plate *Pl*, and placing a lens *L* of the size of the picture in front of this prism, so that its focus would exactly coincide with the diaphragm of the second lens, Fig. 2.

In fact, under these conditions, and to simplify the experiment, and taking into account the axes of the light beams, all the rays proceeding from the screen cross at the centre of the diaphragm of the second lens, and may in consequence be considered to issue from this point. Arising from the focus of the lens, on which they fall at an angle of about 40 deg., they are converted by it into parallel rays, and they meet the prism, interposed between the lens and the plate, at a constant angle for all rays of the image. This arrangement, so

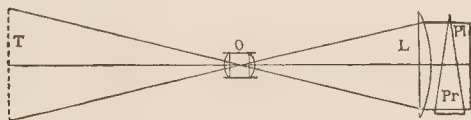


Fig. 2.

simple in appearance, does not, however, give good results, for a reason which is very easy to understand: the lens, placed in front of the prism, not only gives refraction, but also dispersion. It acts, to some extent, like two prisms turned in opposite directions for the two sides of the image, and although this dispersion is added to that of the prism at the top where the angles of refraction are in the same direction, it totally destroys it towards the bottom, where the angle of refraction of the lens and that of the prism are in the reverse direction. It is obvious that one might use an achromatic lens, but in this size it would be difficult to make and its price high, but also, in all probability, its dispersion would still be evident, and would be augmented and decreased as described above.

A better solution is arrived at by modifying the shape of the prism and such a curvature to its faces, so that for all parts of the image the beam would fall on the refractive face at an angle which, if not absolute, would be more or less constant.

Supposing that, in lieu of using prisms with plane surfaces, we use one with curved surfaces, and that one of these faces, *LBM*, for example, is a section of a sphere having its centre at *O'*, that is in the centre of the diaphragm of the second lens, and for the radius *O'B*. All the axes of the beams will cross at *O'*, and may be considered as issuing from this point, it follows that they are all radii of the section of the sphere *LBM*, and, falling normally on it, will suffer neither refraction nor dispersion. But suppose that the exterior

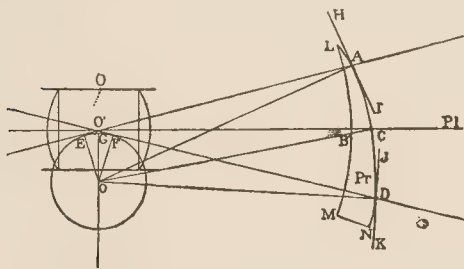


Fig. 3.

face of this prism is also formed by the section of a sphere, which has its centre at *O''* instead of *O'*, the point *O''* being determined by the crossing of the line *BO'* by a straight line drawn from the point *A*, and making with *O'A* a given angle. If we now examine the dispersion suffered by the axes of the extreme rays *O'A* and *O'D* we shall find that it is exactly the same, inasmuch as these rays have not undergone any deviation in their passage through the first spherical surface of the prism, on which they fall normally, but that they suffer deviation and similar deviation in traversing the second spherical surface, which may be considered at the two points *A* and *D* as equivalent to two plane faces formed

by the tangents *III* and *JK*, and the two radii, *O'A* and *O'D* perpendicular to these two tangents form with the radii *O'A* and *O'D* angles, which are equal as having an equal distance from the points the radii *O'E* and *O'F* of the circle *O''*.

However, if the axes of the beams *O'A* and *O'D* suffer a small deviation, it is not absolutely the same for the axes of the beams for the centre of the image. In fact, for the central ray *O'C*, for example, for which the difference is greatest, it will be seen that the angle *O'CO'* is larger than the extreme angles by the distance *GO'*, which is, it is true, practically negligible. The results obtained with a prism of this sort are much better than those given by a prism with plane faces.

Unfortunately, the aberration, which is the result of the want

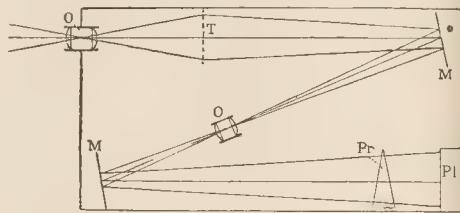


Fig. 4.

parallelism of the rays of each beam, is with this slightly greater than with the first arrangement. In fact, the curvature of the faces makes the extreme rays of the same beam cut this at a greater angle than if the surfaces were plane.

Finally, there is another solution, which is much simpler, and which gives excellent results. It consists in using a lens of very long focus to project on the plate the image formed by the screen. This projected image is comprised entirely in the region of sharp spectra formed by the rays falling on the prism with plane faces at the angle of minimum deviation, or at an angle very close to it.

One may use, for example, a lens of about 240 millimetres focus, screen *T*, and the plate *Pl* being placed at double the focus of the lens; there will then be an extension of 48 centimetres from the screen to the second lens, and an equal extension to the plate. If one adds a mean extension of 10 centimetres for a 6 x 6 cm. image, necessary to form the image on the screen *T* by a first lens, which can be done away with in any case, we shall obtain an apparatus absolutely ungainly proportions, 110 cm. long and 9 cm. deep. The rays are reflected twice by means of the mirrors *M*, or to reflection prisms in the body of the apparatus, its dimensions would be reduced, for stereoscopic pictures, 6 x 13 cm. to 38 x 20 x centimetres, Fig. 4.

As regards the second aberration, which so far has only been mentioned, the result of which is that each of the beams is not compo-

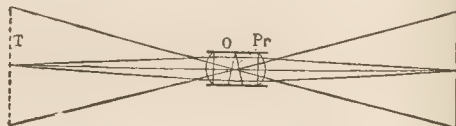


Fig. 5.

of parallel but oblique rays, this destroys, even in the better part of the spectra, the perfection of the same and the good division of the colours.

As we have already seen, this second aberration is more feeble than the first, for, although the angle formed by the extreme beams falling on the prism, in the absence of a long focus lens, is relatively considerable, yet the angle formed by the extreme rays of each beam is considerably less.

Still, it would be advantageous to eliminate this secondary aberration, and M. Lippmann has kindly suggested an arrangement which will obviously give every satisfaction. It consists in using a symmetrical doublet *O* to project upon the plate *Pl* the image formed by the first lens on the screen *T*, Fig. 5. It is well known that a symmetrical lens is composed of two lenses, or, rather, two combin-



tions, of equal foci, so that each has just double the focus of the whole.

Proceeding as we have already done—that is, placing the screen and the plate at double the focus of the second lens—it will happen that the screen is at the focus of the first combination, and the plate at the focus of the second combination. Under these conditions it is obvious that every conical beam of light proceeding from any point of the transparent spaces of the screen and passing through the first combination to the second, is transformed by this lens into a parallel beam, which, in passing through the second combination, is again converted into a beam of conical rays, which will converge on the plate into a point symmetrical with the point of the screen whence they emanated.

All the beams will then be conical in their paths in front of and behind the second lens, but in the interior of the lens each will be composed of parallel rays. All that remains to be done then is to place a prism with plane faces and low angle between the two combinations of the lens to obtain, at least where the beams fall on the prism at the angle of minimum deviation, spectra of absolute purity and with their colours perfectly separated.

This arrangement cannot evidently be combined with the two previous, which have been described, to correct the first aberration, unequal sharpness of the spectra in different parts of the picture, or they necessitate the use of a prism on the outside of the lens; but there ought to be every advantage in using it with the last arrangement—that is, with a long focus lens—so that the image could be entirely composed in the better region of the spectra. We could thus correct at once the two aberrations.

#### STAINS ON P.O.P. AFTER FIXING.

HAVE, during the past few weeks (writes Mr. E. C. Cripps in "Photographic Scraps"), had several small batches of prints, made in Ilford glossy P.O.P., spoiled by the appearance, generally during the final washing, of yellow or brownish yellow stains. The bath used was a combined toning and fixing solution, and although this is not the best method of toning, yet, having used it for many years and found it satisfactory, I was unwilling to believe that this was some obscure way the cause of the mischief. Thinking, however, that it might possibly have been the case, and knowing that inefficient fixing will cause trouble, and that a fresh combined toning and fixing bath will sometimes tone before the print is properly fixed, a separate fixing bath was used. Although the stains showed less often, they still occasionally manifested themselves. Their appearance was quite uncertain. One batch would be quite free, the next lot was hopeless! Needless to say, every precaution was adopted to prevent this staining. The prints were always kept in all solutions, and all dishes were used for nothing else but the same solutions. As far as I could judge, scrupulous cleanliness was always observed.

The cause of the stains has now been discovered in the shape of a duster hanging in the dark room, and used for wiping the fingers. While the prints were being washed plates were being developed and fixed in the dark room, and my assistant, wishing to take out washed prints, would wipe his fingers free from fixing solution on a duster badly contaminated with hypo, by this means making them rather worse than they were before.

His practice, of course, caused all the blemishes. It is a trite but very valuable saying that hypo, like fire, "is a good servant, but a bad master." A minute quantity in the wrong place will cause serious damage, in fact, most of the difficulties encountered during toning and washing are due to it. The obvious moral is that all operations should be conducted systematically, and that the photographer should do one thing at a time, and make haste slowly. The most important to thoroughly wash the hands between each operation, and scrupulous cleanliness in dishes, drying clips, and ferrotype plates and squeegees, should be always insisted on.

THE SILVER MEDAL given by the Morpeth Y.M.C.A. Camera Club for the best picture taken on the occasion of the visit of the Federated Photographic Societies of Northumberland and Durham to Morpeth on June 27, has been awarded to Mr. E. T. Robson, of the Dudley Camera Club, for his picture, entitled "A Sunlit Path," being a photograph taken in Bothal Woods. Mr. F. J. Mortimer very kindly acted as adjudicator.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received between August 19 and August 24:—

**FOCUSING SCREEN.**—No. 18,737. Improved focussing screen arrangement for photographic cameras. James Lindsay Harvey, 100, Wellington Street, Glasgow.

**DAYLIGHT LOADING.**—No. 18,860. Improvements relating to methods for loading and unloading photographic plates and the like in broad daylight. Silvio Mela, 7, Southampton Buildings, London.

**CAMERAS.**—No. 18,934. Improvements in folding cameras. Cranley Lancelot Perry, 73, Cheapside, London, for Emil Wünsche, Aktiengesellschaft für Photographische Industrie, Germany.

**KINETOSCOPES.**—No. 18,945. Improvements in or connected with kinetoscopes and like apparatus. August Muger, 173, Fleet Street, London.

**LAMPS.**—No. 19,014. Improvements in lamps, more especially intended for photographic purposes. James Yate Johnson, 47, Lincoln's Inn Fields, London, for Jupiter Elektrophotographische, G.m.b.H. Germany.

**CAMERAS.**—No. 19,021. Improvements in folding cameras. Arthur Lewis Adams, 24, Charing Cross Road, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**COLOURED PHOTOGRAPHS.**—No. 22,196. 1906. The invention consists in first leaving certain light spaces blank in the darkest portions of the picture when printing, and afterwards colouring these by any suitable process. The blank spaces may consist of fine lines, dashes, dots, or other blanks, and where lines or dashes are employed they may be of any desired pattern and inter-crossed or otherwise. The colours are then more effectively or satisfactorily applied by hand or otherwise to such lined portions or blanks of the print, because the shadows or dark portions of the print normally show through too heavily, whilst the shadows crossed with blank lines or spaces, according to this method or process, show up and display the colours very effectively.

The blank spaces may be formed on the sensitised surface in several ways. They may be obtained by ruling or be caused to appear upon ordinary sensitised paper, or alternatively, lines or rows of dots in some non-actinic or opaque colour or medium may be applied upon the surface of the negative so that the sensitised surface of the positive when printed shows the desired blank lines or spaces. Or, again, the sensitised surface of the positive may be ruled or printed before being darkened by the effect of actinic light, with opaque or non-actinic lines or marks of some medium, such as suitable pigment and water, which will first shield the parts of the sensitised surface lying thereunder from the action of light and will afterwards be washed off or leave such sensitised surface so that the lined or blank portions are produced.

If preferred, these blank lines may be obtained by interposing a line screen between the negative and the sensitised surface at the time of printing. The negative, the screen, and the sensitised surface are packed together in any suitable manner, so that the print is made as a contact print. The screen may be a lined screen, resembling that which is used in half-tone work mounted on a thin backing, or it may be a fabric of a textile nature or delicate lace or network, sufficiently open to allow the passage of light between the lines. This fabric will, by reason of the regular crossing of the threads, form a lined screen. Other forms of lined screen for this purpose may be produced by a ruled sheet of celluloid or tracing paper, suitably lined, dotted, or otherwise marked.

These blank lines or spaces may be hatched lines, and the lines may be crossed at right angles or otherwise. The lines, dashes, or spaces may be of any desired fineness of pitch, of one-half to one-fourth of a millimetre thickness and the same distance apart, affording satisfactory results in the case of whole-plate

photographs. For smaller photographs the lines might with advantage be finer and closer together. Barnard James Cooper, 31, York Place, Bedford Street, London, W.

**COLOUR PRINTS FROM ONE NEGATIVE.**—No. 716. 1907. The invention, which is an improvement upon the prior patents, Nos. 8,390 of 1896 and 15,185 of 1905, refers to a process of producing partial images "in closed tones," that is to say, without their elements being separated by interstices, from a negative taken under a three-colour filter, according to the known Smpolo-Brasseur process, described in the earlier of the two patents above mentioned, and so simplifies this process that but little practice or experience is necessary for carrying the same into effect, and it is especially applicable for taking small pictures.

According to the Smpolo-Brasseur process, either the negative obtained by means of the three-colour ruled colour filter or a diapositive printed from the negative, is so placed on the black and white ruled screen (composed of black and transparent colourless lines) used in this process for printing that the screen only leaves uncovered one of the three partial images.

This negative (or diapositive) thus covered is printed in such a manner that, during the exposure, the plate is moved through the distance of two colour lines of the colour filter by means of a fine threaded screw, and thus a partial image is obtained in "closed tones," that is to say, one in which the composite elements are not separated by interstices, instead of one formed by a series of lines and intermediate spaces. The other partial images are printed in a similar manner. Three plates are thus obtained, which are printed in the corresponding colours in order to produce the three monochromes by the superposition of which the final coloured image is obtained. By this process in the final coloured image, the colours do not contrast with each other as lines.

In order to simplify this printing process the present invention consists essentially in substituting for the displacement of the plate during exposure a partial rotation of the negative (diapositive) of the black-white screen and of the plate as a whole, first to one side, and then to the other side, around an axis parallel to the lines of the screen, so that the rays of light impinge at a corresponding angle; those parts of the plate covered by the black lines of the screen are also exposed, thereby "closing up" the elements of the partial image.

The process is carried out as follows:—

The negative produced under a three-colour ruled screen is fixed in a suitable printing frame, and the black-white screen made of thin glass or mica, and suitably framed, is then so placed upon it that it leaves uncovered only one of the three partial images. The sensitive plate is then laid on the screen and pressed closely against it by spring action (as in the ordinary printing frame).

The printing frame is so arranged on pivots that it can be turned around an axis running parallel to the lines of the screen. It is preferably arranged in the lower part of a deep box, the printing being effected by means of intense light, preferably sunlight. Whilst printing, the frame is turned slightly, first to one side and then to the other side. All the three partial images are printed in a similar manner. Charles Louis Adrien Brasseur, 121, Potsdamerstrasse, Berlin.

**FOLDING REFLEX CAMERAS.**—No. 17,359. 1906. The invention consists essentially in constructing a focussing device comprising a focussing screen and a mirror for inspection thereof, mounted so as to be instantly brought into their respective positions (in combination with a film pack carrier, plate carrier, or film roll holder), and capable of being instantly removed again out of the path of the rays of light, as the film or plate carrier is moved into position for an exposure.

In the arrangement shown in Figs. 1 to 3, the mirror is hinged to the adapter A by one edge in such a manner that when the focussing screen B is vertical in the focal plane the mirror C will fall to an angle behind it that will enable the operator to see the image thrown upon the focussing screen by the lens. And when the focussing screen B is folded forward out of the optical plane the mirror C can also fold or fall forward out of the optical plane. Behind the mirror C a frame or carrier D to carry films or plates is hinged. The carrier D is so hinged or pivoted that it can be swung round to bring the sensitive surface into the

optical plane in the place of the focussing screen B, while focussing screen B and mirror C swing forward out of the optical plane and clear of, or out of the path of, the rays from the lens. A link *c* is pivoted to the focussing screen with a slot

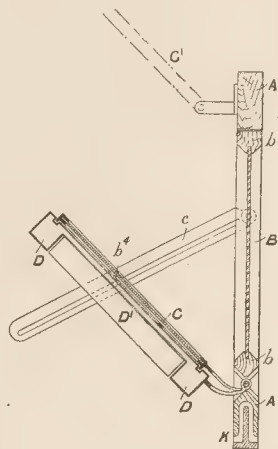


Fig. 1.

notch to engage a pin *b*<sup>4</sup> on the mirror C to hold them in their respective positions when focussing, and by which the focussing screen B can be manipulated to move it from one position to another. The mirror C may be held in contact with the carrier D by a catch, and may be caused to fold out of the optical

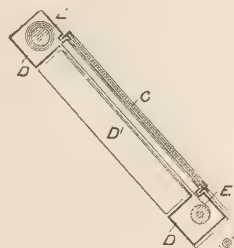


Fig. 2.

by a spring placed upon its pivot. An auxiliary mirror C<sup>1</sup> may be hinged to the adapter frame A if desired. (See Fig. 1.)

The focussing screen B, the mirror C, and the film or plate holder D may be geared to operate together by pinions *d*, their respective pivots, and rods *d*<sup>2</sup> provided with racks *e* and

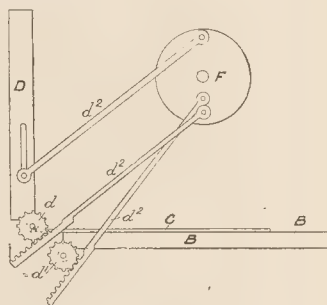


Fig. 3.

ally pivoted at one end to a disc F, by means of which, as the holder D is moved, the focussing screen B and the mirror C are raised or lowered to their respective positions. (See Fig. 1.) The holder D may carry a roller blind shutter E of any ordinary construction (see Fig. 2), or the shutter may be applied to



lens in any ordinary way. To focus a picture the film carrier D is drawn back to its limit, which will be an angle of about 45 degrees with the foundation frame, at the same time bringing the mirror C back to the same angle. The mirror therefore serves as a protection or opaque cover to the sensitive films (when a focal plane shutter is used the films have the further protection of the shutter blind). By the same movement the focussing screen B is also brought exactly into the focal plane. The several parts are retained in their respective positions by suitable catches or detents. To expose the sensitive plate the carrier or holder D is moved back to the focal or optical plane, the focussing screen B and the mirror C moving forward into a position outside the focal rays. The shutter is then operated in the usual way, or it may be so arranged that the closing of the carrier or holder D into position for exposure will simultaneously release the shutter.

The specification also includes a description and drawings of a similar principle, involving the use of a flexible mirror and focussing screen. John Edward Thornton, Altrincham, Cheshire. SELF-CAPPING BLIND SHUTTERS, No. 17,358, 1906.—The first claim is for a roller-blind shutter constructed with two blinds geared together to move as one, the rollers of the blinds geared together to move in unison and reciprocating mechanism by which the two blinds are moved together in one direction for one exposure, and in the opposite direction for the next exposure, with or without means for adjusting the exposure aperture, such shutter being applicable either as a focal-plane shutter, a hood shutter, or a between-lens shutter.

Instead of using a pair of rollers of the kind generally employed for blind shutters (one being a plain roller and the other a tube having a spiral spring inside which drives the roller), two plain rollers are used, and the two ends of the blind attached as usual. These two rollers are mounted to turn in suitable bearings at opposite ends of the case or framework, and are geared together in such a manner that they always turn together, the rollers and blind moving in unison as one piece. They are best connected with the endless chain and sprocket wheels.

In use, the blind is rapidly moved in one direction to make an instantaneous exposure, and in the opposite direction to make the next exposure; whilst for prolonged exposures, generally called "time" exposures, its movement is arrested at the "full open" position for the desired period of time.

Motion is given to the blind by connecting up a strong spiral spring in such a way that it will operate some portion of the movable parts, such as one of the rollers, or the chain, preferably the latter. On one side of the case or framework is mounted a disc capable of rotating freely upon a fixed stud attached to the case, or else attached to a shaft that turns in suitable bearings. This disc is connected to the working part that operates or connects the two rollers, by a connecting rod, or other suitable mechanism for converting rotating into reciprocating motion. This disc makes half a revolution (or less, for instance one third) for each exposure, and the relative range of movement of the roller sprockets and the driving disc are such that the small angular movement of the driving disc carries the blind far enough to complete its movement from start to finish.

Adjacent to this main driving disc is mounted another disc capable of turning loosely about the same shaft or centre. The edge of this disc is grooved, like a pulley, with a deep half-round groove. Around the disc is placed a long pulling spiral spring of steel wire, secured at one end to the edge of the disc by a pin, and at the other end to a movable piece or key on the case, whereby the tension of the spring may be increased or diminished. In use this spring lies in the groove, and passes round the disc when the latter is turned by the operator, by means of a stud, crank, or key attached thereto.

The driving disc and spring disc are connected together by means of a ratchet and pawl, in such a manner that the spring disc can be freely turned in a backward direction to wind the spring thereon and place it at full tension ready for working the blind, but the blind is held from moving by a detent, and not until this is released by the operator does the spring disc become free to turn in the forward direction. The moment this detent is removed, however, the tensioned spring immediately turns the released spring disc, and the pawl carries the main driving disc round, thus operating the shutter blind instantaneously; upon

re-winding the spring the movement can be repeated as often as desired. The motion of the driving disc is always in one direction, and the reciprocating piece connected thereto gives the blind a to and fro movement, to enable an exposure to be made at each half of the movement.

A single blind shutter such as described may be made in various sizes and forms of case to suit the several positions already named, and in each form it dispenses with the necessity for any lens cap or auxiliary self-capping safety blind to the shutter in order to protect the plate during setting.

For a focal-plane shutter, however, it may not only be constructed in the simple form described, but may be provided with means for varying the height of exposure aperture in the blind, commonly understood as an "adjustable slit." For this a duplicate blind is used of exactly the same size and construction as the one first described. This is placed in close proximity to the other, the respective pairs of rollers being one in front of the other, or one above the other. The two sets of rotating parts are then geared together, so that all move in unison. This gearing and means of adjustment may be varied to suit circumstances. Suppose, for instance, the top roller of each blind carries a pinion that gears into the similar pinion of the other; both blinds would move together, and the height of slit be a fixture. But if one of these pinions was loose, that is to say rotatable upon its blind roller shaft, upon rotating the shaft whilst the pinion was loose, and then clamping the pinion and shaft securely together, it will be obvious the height of the slit would be varied to any desired degree. This is the simple principle of the arrangement, the two blinds are locked and travel as one for exposure—first in one direction for one exposure, and then in the opposite direction for the next exposure—and are unlocked to alter the slit, then clamped again for exposure. The means for carrying this out are modified to suit the maker's requirements.—J. E. Thornton, Altrincham, Cheshire.

SIGHTING AND PHOTOGRAPHING OBJECTS.—No. 10,701. 1906. The invention consists of apparatus adapted for sighting surrounding objects otherwise concealed from view, as, for example, the sighting from a submarine boat, when below the surface, of objects above the surface between it and the horizon, or it may also be applied in photographic surveying of objects comprised in the surrounding landscape between the apparatus and the horizon.

The invention has for its principal object to provide means whereby it shall be practicable to obtain at one time an angular field of vision having a range of 360 degrees.

The apparatus comprises an annular transparent and stationary prism in combination with one or more lenses, whereby the prism is adapted to simultaneously receive light rays proceeding from objects that may be located at widely different points of the compass and to reflect such rays, which, after emergence from the prism, are taken up by one or more lenses and, for observation or other purposes, projected on to a suitable surface or screen, or in some cases the produced image may be viewed direct as through a lens that constitutes an eye-piece or ocular. If it be desired to alter the direction of the rays that emerge from the annular prism, one or more mirrors or auxiliary prisms may be provided in suitable relation to other optical portions of the apparatus. Horace Frederick Denston, 178, Clapham Road, London, S.W.

## New Trade Names.

IMPERIAL.—No. 294,497. Photographic sensitised paper. The Imperial Dry Plate Company, Ltd., Ashford Road, Cricklewood, London, N.W., manufacturers of photographic materials. July 11, 1907.

THE COLOUR PHOTOGRAPHY EXHIBITION.—The annual exhibition of the Society of Colour Photographers will be held at the house of the BRITISH JOURNAL from September 30 to October 26. Full particulars were given in our "Colour Supplement" for July 5, page 54. Entry forms, which may be obtained from the hon. secretary, Mr. H. J. Comley, Surrey House, Stroud, Glos., must be sent to that gentleman, duly filled up, by September 10, and exhibits must reach the "B.J." Offices by September 13. Entry forms and full particulars may be obtained from Mr. Comley at the above address.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### The Value of Silver Residues from the Fixing Bath.

If we take as a rough average (writes Mr. H. Lloyd Hind, in "The Photogram" for September), 0.06 gramme (= .0025 ounce), as the amount of silver dissolved from one half-plate in fixing, we arrive at the fact that one ounce of silver is obtainable from the residues left after fixing 400 half-plates, which residues are consequently worth about 2s. To most amateurs, who do not expose half that number of plates in a year, the amount saved is inconsiderable, and would not repay the trouble of collection. But to the professional the waste of exhausted fixing solution may represent a serious leakage.

### Reflex Cameras for Animal Subjects.

One objection made to the reflex camera for animal studies (writes Mr. W. T. F. Wastell, in "Photography,") is that the focal plane shutter makes a great noise and is likely to frighten one's subjects away. Certainly I have never known a focal plane shutter that even approximately merited the term "silent." On the other hand, I have never found any disadvantage from the noise. The other day I had sidled up as close as possible to a parrot on an outdoor perch, and was standing at still closer quarters to another. When the shutter went off the parrot at my elbow fell off its perch with fright; but I got the other one all right. The fact is that even if the subject one is taking is startled by the noise, there is no harm done: the exposure is made. I have even known the clicking sound made by winding up the shutter to be useful in attracting attention.

### Autumn Mists.

In many scenes on autumn mornings (writes Mr. A. W. Cooper in "Focus") contrasts are at once sharp and soft, sharp in that the heaviest shadow can be placed against the lightest misty background, and soft because the outline grows more and more suggestive as the planes recede. To secure such effects, backed plates are an absolute necessity, the negative requiring to be kept soft and silky without excessive contrasts, and such as would delight the enlarger's heart. This type of negative can be got by giving a full exposure, any tendency to under-exposure resulting in the foreground being rendered too darkly, and effectually spoiling the feeling of lightness and buoyancy so prevalent in pictures of this type. Care should also be taken that the printing process chosen is in keeping, a rough, heavy paper or a warm tone being equally out of place. Smooth platinum or bromide papers seem most suitable, and are preferably mounted so as to carry out a scheme of harmonious greys, cool, delicate colours being more in keeping than heavy contrasty ones.

## New Materials.

"Adhero" Matt Tints. Made by the Adhesive Dry-Mounting Company, 27-28, Fetter Lane, London, E.C.

In introducing this series of mounting papers, the Adhesive Dry Mounting Company are catering specially for those adopting multiple mounting in their exhibition or commercial work, in both of which spheres of photography the exquisite process which bears the name of their firm has proved its value. And it is true to say that in both the importance—in fact, the necessity—of the perfect adherence and flatness which are obtained by dry-mounting are becoming widely recognised. The series of mounting papers, specimens of which have been submitted to us, represents a further advance in the convenience of the dry-mounting method, inasmuch as they are coated with the resinous adhesive, and do not require the separate use of the "tissue" which in the ordinary way is interposed to attach the prints to its mount. A saving of time, the incorporation of the adhesive with the tint paper is also advisable when, as is often the case, a considerable number of mounting papers are employed in the presentment of one single photograph. When that is done, the extra thickness of the tissues may detract

from the neatness of the mounting, and for this reason the self-adhesive papers will be welcomed.

The choice of colours in which they are obtainable is ample for the most varied forms of photographic print, since it includes two fine matt blacks, several good greys, and a selection of quiet browns and greens. There is not a single paper which can be called asstative—each in colour and texture has the quality of reserve in accordance with a style of mounting which from its nature must be employed with niceness and neatness in order to obtain its full effect. The names of the papers at present available are as follows:—Ash grey, Maltese grey, Scotch grey, slate, steel black, black, carbonette (a buff), light Napoli, dark Napoli, brown, sage, light blue, ivy green, and dark blue. In each of these colours the paper is sold in 24 by 20 sheets at 8s. per quire, or in 1s. packets containing a number of pieces of any desired size.

We can cordially recommend these accessories to dry-mounting as certain to still further recommend that valuable process.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### SATURDAY, SEPTEMBER 7.

Leeds Camera Club. Excursion to Bolton Abbey and Woods.  
North London Photographic Society. Outing to Edgware.  
North Middlesex Photographic Society. "Record" Outing to Bury Street.  
Hackney Photographic Society. Outing to Bostal Heath.  
Rugby Photographic Society. Outing to Warwick.  
United Stereoscopic Society. Outing to Hyde Park.  
Bowes Park and District Photographic Society. Outing to Great Bookham.  
Bristol Photographic Club. Outing to Frampton Cotterell.  
South Suburban Photographic Society. Outing to Leigh and Benfleet.  
Edmonton and District Photographic Society. Outing to Waterlow Park.

#### MONDAY, SEPTEMBER 9.

Bradford Photographic Society. "Discussion on Winter Syllabus."  
Southampton Camera Club. Discussion, "The Aim and Scope of Photography."

#### TUESDAY, SEPTEMBER 10.

Hackney Photographic Society. "Photography by Night." W. H. Witts and J. Linley.

#### WEDNESDAY, SEPTEMBER 11.

Edmonton and District Photographic Society. "Velox Papers." Competition, August 5 Prints.  
Worthing Camera Club. Outing to Burpham, via Arundel.  
Leeds Camera Club. Evening Exhibition of Members' Work.  
North Middlesex Photographic Society. "Copying." S. H. Bentley.

#### THURSDAY, SEPTEMBER 12.

London and Provincial Photographic Association. "Ortho Plates for Landscape Work." W. T. Wilkinson.  
Handsworth Photographic Society. "Bromide Toning." J. A. Swift.  
South Suburban Photographic Society. Outing to St. Paul's Cray.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—On Monday last, before the members of this society, Dr. A. R. F. Evershed gave his interesting and instructive lecture, entitled "A Little Light on Lenses." In the choice of a lens the lecturer advised the sacrifice of a little quality in other apparatus, if necessary, in order to get the best lens possible, as nearly everything in photography depended on this, and he would give his preference to a second-hand R.R. lens by a maker of high repute above a cheap anastigmat. The lecturer then described the various types of lenses now in use, their faults and virtues, and gave instructions how photographers might find out themselves such things as focal length, aperture, hyperfocal distance for fixed focus cameras, etc. The method of testing a lens for astigmatism, actinism, spherical aberration, etc., was shown, and the action of supplementary lenses also described. These are often, but wrongly, called magnifiers, but they do not magnify the image, but only alter the focus of the lens to which they are attached. Several diagrams explanatory of the action of a lens were shown on the screen, also photographs of a test chart taken with various types of lenses, single and compound, showing the aberrations produced by each, together with those taken with first-class modern anastigmats, the difference being very apparent. Some portraits and landscapes were also shown, produced by the Puligny lens and the adjustable landscape lens, both of which have considerable outstanding spherical



ration, but have their advantage in giving softness and roundness of image, this being well exemplified in the portrait work shown. The adjustable landscape lens is especially useful for its work, as the lens can be adjusted to anything from about 6 in. to 28 in. or so, but, of course, at the long focus adjustment the lens is rather slow, as diaphragm aperture remains the same. These lenses being unexpected have the additional merit of being cheap. Mr. G. F. Evershed, in proposing a vote of thanks to Dr. Evershed, remarked that this lecture might well have been entitled a "lot of light on lenses" for the thoroughness with which it had been got up, and that it had cost the lecturer a great deal in time and labour. A final vote of thanks to Dr. Evershed was then carried.

**BERKEEN PHOTO-ART CLUB.**—The annual general meeting of the Berkeem Photo-Art Club was held at the club rooms, 62, Fonthill Road, last night, Mr. G. L. Smith, president, in the chair. The Treasurer's report showed the funds of the club to be in an exceptionally satisfactory state. An interesting and instructive programme was arranged for the coming winter. The following were appointed office-bearers for the ensuing year:—President, Mr. G. L. Smith; vice-presidents, Mr. James T. Jeffrey and Mr. W. R. Gregor, M.A.; secretary, Mr. John Rae; assistant secretary, Mr. A. Kennedy; treasurer, Miss M. R. Smith; lanternist, Mr. J. D. Stephen; assistant lanternist, Mr. W. Cook; committee, Messrs. H. Smith, A. Dalgity, M. Robb, C. Stephen, and Messrs. J. McCulloch, C. Smith, and H. Webster.

## CATALOGUES AND TRADE NOTICES.

**SECONDHAND APPARATUS.**—An after-season sale of secondhand and soiled apparatus is now being held at the various houses of City Sales and Exchange, and the manager of the branch at Aldersgate Street has forwarded us a copy of the list of "bargains" which is obtainable at that establishment. These include a large variety of cameras (hand, field, and studio), lenses, and enlargers by a number of well-known makers, all of which are being offered at prices far below their original cost. The list will be sent post free on application to the above firm at 81, Aldersgate Street, London, E.C., and any apparatus will be forwarded to would-be purchasers on approval against deposit. The sale is now in progress, and early application for a copy of the list is therefore to be advised.

## News and Notes.

**MATTHEW'S (BOOTLE) CAMERA CLUB.**—A change has been made in the secretaryship of the above club, and communications should be addressed to Mr. J. B. Potter, 19, Somerset Road, Bootle.

**SUNDAY TRADING.**—A curious defence was set up by a photographer from Saginaw, U.S.A. When charged the other day with Sunday trading he stated that he was an Adventist, and observed Sunday holiday!!

**WOMEN PAPER.**—Mr. H. Johnstone, Castle Douglas, N.B., writes: "With reference to question asked in your last issue, 'Lady' should try a carbonate of soda bath for purple tones on minimised paper."

**THE BIRMINGHAM PHOTOGRAPHIC COMPANY, LTD.,** announce that prize-winners in their recent postcard competition were: First (one guinea), W. Cheetham, Oldham; second (one guinea), R. H. Fry, Manchester; third (half a guinea), W. M'Lean, Belfast.

**GLASGOW PHOTOGRAPHIC ASSOCIATION.**—The annual exhibition will be held from December 31, 1907, to January 4, 1908, inclusive. Entries close December 18, 1907. Further particulars and entry forms may be obtained from the Hon. Sec., Mr. R. Telfer, 138, Glasgow Road, Glasgow, N.B.

**THE LATE PROFESSOR CZAPSKI.**—Dr. Moritz von Rohr, of the technical staff of Carl Zeiss, contributes to the "Zeitschrift für Instrumentenkunde" (Heft 8), a review of the work of the late Professor Czapski in optics. Dr. Czapski's earlier work, in association with Professor Abbe, had an important influence on the theory of

optical instruments, not only from his original research, but as a consequence of the editorial labours with which, especially towards the end of his life, he occupied himself. The science of optics lost one of her most brilliant students in the early death of Siegfried Czapski.

**AN OLD FRIEND.**—Much has been said about the aid which photography gives to the police in the identification of criminals. We are told that from Rome the other day six photographs, in different poses, of the same criminal who had escaped from prison were sent to all the different communes. From one official came the following letter:—"Five of the criminals of whom you sent the photographs have been arrested; we are on the track of the other." The last time this story went the rounds the scene was laid at Moscow.

**INTENSIFYING BROMIDES.**—The circular of the Manchester Amateur Photographic Society recommends the following process:—

- (1) Bleach the print in:
 

Copper sulphate .....	200 grs.
Potassium bromide .....	200 grs.
Water .....	20 ozs.

(This bleaching solution will also serve for sulphide toning.)

- (2) Wash well for five minutes and then—

(A) If the image is flat from over-exposure develop with rodinal 50 drops, water 3 ounces.

(B) If the image is flat from under development, develop with silver nitrate 10 per cent. 50 drops, water 3 ozs.

Finally wash well and dry.

**PHOTOGRAPHING WOUNDED ANIMALS.**—"English Sportsman" writes to the "Spectator" to protest against the habit lately come into vogue of photographing wounded animals for the purpose of publishing pictures of them in books of travel and sport. "I am informed, on good authority, that animals are often kept in this condition for long periods until they can be photographed. The reason for it is doubtless in order that the shape of the animal may in some measure be retained, and a little life put into the illustration. And life is put into it, consisting of a piteous appeal in the eyes of a dying creature. I am even informed that animals are purposely wounded instead of being shot outright in order that the desired effect may be attained. This fashion—for that is what it is becoming—is not sportsmanlike. It is no use scientifically, and it is brutal and a bad example, and I hope that, through public opinion, it may be stopped."

## Correspondence.

\* \* \* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\* \* \* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### PATENTS IN COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—The dominant factor in Colour Photography finds it necessary to call me to order, I am therefore compelled to Reply—ergo beg to be excused for the Echo.

I cannot recollect having come across "Compensation for Refraction" except when recommending parallel prisms, in any of Mr. Ives' English Patent Specifications; perhaps Mr. Ives will enlighten His English Admirors by telling them, where to find it; but if he has taught it, his teaching seems to have been lost this side of the pond.

If Refraction Compensation has been taught by Mr. Ives as being a necessity in Three Colour Cameras in which the conical Rays are coming from One Optical Center, how does it happen that people with knowledge put their Name to such Construction as given page 854, 856, Br.J.Ph. Alm. 1906; or to, last year an English "Encyclopaedia" in Photography giving the exact measurements for such a Camera; or to, also Prof. Miethe's in his "Driefarbenphotographie nach der Natur" 1904 page 27, he also giving a Camera with two Reflectors; but nowhere is a suggestion, that something has to be compensated, if such a Camera is intended to furnish

three Negatives of same size,—nowhere—Mr. Ives—how do you account for this Ignoring of your teaching after years.

Mr. Ives says, he has corrected the Reflected Images with the insertion of slanting Colour screens (without disclosing their purpose in 1894 till 1899!) the latter, I understand, more or less parallel with the Reflectors; and that, he advances as a complete compensation for what will distort the reflected Image also.

I do not distort the Reflected picture, but I compensate after the Refraction has taken place, and I compensate in such a manner, that all sides are equally shortened and by placing the Focus at a further Distance, I arrive at the proper solution of having all pictures equal and properly compensated. Result: If I copy a Square it will be square, by Ives System the copy will show an oblong, the difference is about Half the Glass thickness of a Reflector.

A Camera like Patent 4290 '05 and shown page 856 in Br.J.Ph. Alm. 1906, will give three pictures in three different sizes, and if in this Camera we insert a Compensator (a plain Glass or colour Screen à la Ives) parallel with the Reflector "A" and above the Lens, then I think it will fairly represent (I quote from Memory) the U.S. Patent 635,253, quoted by Mr. Ives; I assert a Construction like this can have only two Negatives of same size and the third Negative at the back will still be shorter from Top to bottom in comparison with the other two. Both these Systems are therefore only "Viewing Instruments, Kromoscopes," and are no good for Colour photography in Pigments.

Ives introduced the prismatik Reflectors with the idea to throw off the Double images, caused by Double reflection, but nowhere does he introduce them in his Specifications as compensators for Refraction.

If Mr. Ives knew all the "ins" and "out" of Reflection and Refraction, why did he not compensate his Camera 635,253 1899 all through? Ives has done in compensation also 630,442 1900 and 703,929 1902 U.S., but both of them do not show balanced compensation or three Focus planes of equal size; how in face of his own Works and Patents as Evidence, can he claim Refraction-Compensation as his own since 1894; his "own" Refraction-Compensation evidently refers to something else.

My Fig. 11 given in the Abstract in Patent News 2. Aug. 1907 Br.J.Ph. is the simplest Form for a Reflector Camera, holds the simplest and the correctest Refraction Compensator, and is devoid of any delicate Mechanism or any expensive insertion, permits a View of up to 30°, and it is impossible to put it in a more useful and compact form; if Mr. Ives had invented it, I should envy him for it. I am pleased to say, there is really nothing in common with any of Mr. Ives published patents to the best of my knowledge, and I think to his own Wonderment as his letter testifies.—Yours truly,

Brighton 1/9 1907.

OTTO PFENNINGER.

[At the particular request of our correspondent, we allow his letter to appear precisely as received.—Eds. B.J.]

#### REFLEX CAMERAS.

To the Editors.

Gentlemen,—Apropos of the recent exhibition, which I unfortunately could not visit, I venture to inquire whether there is yet a decent reflex on the market for amateurs. The Pressman has to use the most efficient tool he can get, regardless of its weight, cost, and inconvenience. The amateur is not bound to make a beast (of burden) of himself. Though I have never exhibited but once (officially, and getting a medal), I have practised photography in most of its phases since about 1870 continuously, making my own dry plates of various kinds in the early days. Apparatus has always interested me, but I am unaware of a really good reflex. A camera limited to one focus does not constitute a really good one. This cuts out the cheaper forms. Neither does a camera costing £30 meet the case, for the cost is unreasonable (I speak as an amateur mechanic and joiner), and the tool is a burden to boot. I call it a burden, because of the reversing back and consequent weight. For an ordinary camera the reversing back is, in my opinion, a cunningly devised snare for inducing people to lug about cameras far bigger and heavier and more costly than they need. For me the ideal camera is one taking a long plate, not a square one, and simply turning on its side where the picture is wanted vertical. If you turn a reflex on its side the

mechanism works quite differently, and if you want to put it on a stand or table you find (in nearly all cases) that you cannot on account of the numerous knobs and handles. The focal-slutter I consider a very doubtful advantage. The leather cover so much in vogue, is a mistake in the tropics, if not everywhere, especially on metal cameras. The leather and the glue become by mould and mildew. Metal does not hold to glue at the times, still less when great changes of temperature cause expansion and contraction. The glue also acts on the aluminium producing lumps of white powder, and eventually holes. Pos size is about the largest focal-plane reflex that is not a burden; this size is only recently made by one or two firms. It is also the largest size in which the film packs can be relied on to work without hitch. The camera I should like would be a reflex about 7½ taking either one picture or a pair of stereos, with lenses of 5, 5 inches, 10 inches, and 16 inches focal length, also the "A." I hope for the day when we shall get an "Adon" with rapid definition, and covering power enough to enable us to dispense with other lenses, but that day is not yet. The ideal amateur size for me is 8 x 5 for stand work, but for hand work the lenses and conditions of working so large a size introduce difficulties. A card camera (cut films) will go into the pocket as easily as a quarter plate, and so gets carried when a bigger camera would be left at home, but it is hardly large enough for the amateur's principal work.

It may be a new and interesting matter to mention that some of our celluloid film negatives that have been stored away for years have now adhered together, and become utterly ruined, the surface of one negative adhering to the celluloid of the next. Moral: Lay up paper between.

Indian Forest Service

[The answer to our correspondent's letter is our issue of July 1907, in which practically every reflex camera on the market is described. Our correspondent's letter is yet another instance of dictum that there is no best camera, and that it is impossible for one worker to argue from the personal preferences of another. We ourselves cannot concur in certain of our correspondent's criticisms of existing types of camera. Most certainly we are with him in requiring a double extension of camera, but we would not dispute with the reversing back of a reflex, for the very sufficient reason that it seems to us, that we should be sacrificing the facility which a reflex provides of photographing the subject certainly and accurately on the plate. It is significant that one maker of standing, in providing a non-reversing reflex, does not leave the user to focus with the camera turned on its side, but provides a scale and finder, attaining great portability at the sacrifice of efficiency. Moreover, not all reflex cameras have knobs projecting in a way to interfere with their use on a table. Our correspondent cannot be thinking of the reflex type of camera, when in his penultimate paragraph speaks of one of postcard size going into the pocket. Such an instrument has yet to be made.—Eds. "B.J."]

"BULLETIN OF PHOTOGRAPHY."—A "weekly magazine for the professional photographer," is the description of itself which our American contemporary prints on its front page. In typography and printing it is on a par with the excellent production of American technical journals. The text of the journal, which is agreeably interspersed with advertisements, is evidently representative of the professional feeling of the American professional, from the prominence it gives to the Convention season, which is in full swing in the State of New York in August and September. The "Bulletin" also shows its interest in providing plenty of news items, and is evidently aiming at a wide reading matter of the "enthusiastic" character which appeals to the American reader. The new journal is edited by Dr. Bartlett, and published by Frank V. Chambers, 606-608, Sansbury Street, Philadelphia.

RUGBY PHOTOGRAPHIC SOCIETY.—The annual exhibition will be held in the Benn Buildings, Rugby, from November 12 to 16, inclusive. There will be five open classes, in each of which a bronze medal and a picture of the catalogue, value of 12s. 6d., selected from the exhibition, will be placed at the disposal of the judge, the Rev. F. Lambert, M.A., for award. Entries close October 29, and entry lists and full particulars respecting the exhibition may be had from Hon. Sec., Mr. R. H. Myers, 13, Bridge Street, Rugby.



## Answers to Correspondents.

All matters intended for the text portion of "THE JOURNAL," including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Wick, 84, Union Road, Nottingham. Photograph, Group of Notts County team, 1907.  
 Stainer, 2, North Parade, Taunton. Photograph of an Engraving of the Queen and Somerset Stagbonds.  
 Whitaker, Post Office, Bolton Abbey. Six Photographs of the Interior of the abbey, Bolton Abbey.  
 Iaine, Bushy Cottage, Park Road, Teddington. Photograph of a Rabbit taken.  
 Greenway, 27, Abington Street, Northampton. Photograph of the Northampton Town Football Club.  
 Phillips, 45, Donegall Place, Belfast. Photograph of Locks and Keys of the gates of Londonderry with Coat of Arms.  
 Chapman, Majdale, Emsworth, Hants. Photograph entitled, "His Majesty's cat."

**HIDE TONING OF P.O.P.**—I should be greatly obliged if you would answer me a few questions. I have been trying the sulphide toning for P.O.P., and met with very fair success at first, but now it is a complete failure. My methods of working are the same as were published in the "British Journal" on January 12, 1906, recommended by Mr. A. J. Jarman, and also in the "Almanac" for 1907, recommended by Mr. R. E. Chesterman. Enclosed are five prints on Wellington's paper, numbered 1, 2, 3, 4, and 5. No. 1 was placed direct in fixing bath and toned with sodium sulphide. No. 2 was placed in solution of salt (2 oz. in 20 water), fixed and toned as for No. 1. Both results are all that can be desired. No. 3 was placed direct in hypo, and showed yellow high-lights before toning. No. 4 was placed in salt and showed yellowness after toning. No. 5 placed direct in hypo at exactly same time as No. 4, fixed and washed exactly the same time in separate dishes, and toned in same bath. Result: Whites clear, but full of yellow spots, as in No. 4. The fixing bath is made for each batch, the strength being: Hypo, 3 ozs.; water, 20; and timed for fifteen minutes. Each batch of prints is tested for the last trace of hypo with the potass hydrate and permanganate test. Sometimes the prints, being "white as crystal" after toning, turn yellow after alum, but formalin does not seem to affect them. As I have been successful the fault must be in the working, so I should be glad if you will answer the following questions:—(1) Where, in your opinion, does the fault lie? Is it possible that the hypo or salt is contaminated, or even the paper, by the sulphur fumes? (2) Do you think it possible to be successful with quantities where, owing to limited space, the toning has to be done in the fixing and washing room, and where the sulphur fumes are sure to penetrate to the changing-room, and so where the hypo is stored? (3) The cause of the fading and staining of the high-lights, as in No. 3 print, during fixing? (4) Is it possible to use alum after the sulphide? And (5) the cause of the spots on Nos. 4 and 5. I have tried paper of nearly all the well-known makers, the results being the same.—**SULPHIDE.**

We have never recommended the sulphide process, as the results, in our experience, have been often erratic. (1) The variations are due most probably to access of acid to the hypo in some way, possibly from the small proportions of free acid in the paper. We suggest the use of the salt and carbonate bath, page 778 of the "Almanac," which we see has not been used at all. (2) Sulphur fumes which reach the paper at any stage before it enters the hypo will certainly lead to yellowing. (3) We can only suggest that the bath had become acidified by a number

of prints being fixed in it. The remedy is to add a little carbonate or bicarbonate of soda to it. (4) Yes, with a wash between. (5) We have not seen spots of this kind, and find it difficult to suggest a cause other than particles of rust in the water, though the salt should prevent their effect. We advise you to try a little carbonate of soda in the hypo and salt bath.

**COMBINED BATH.**—(1) I have used a combined T. and F. bath for some years—hypo and sulphocyanide of ammonium only—adding gold as required. I am satisfied as to permanency of prints thus toned, but should be glad if you would tell me cause and how to avoid dirty yellow tint in high-lights, as seen in scrap of print enclosed; it is only now and again that this happens. (2) When I tone and fix a batch of prints in new bath, next day solution is too dirty to be again used, though, of course, far from being exhausted. Can you give formula for combined T. and F. bath, where faults I have pointed out are not so likely to occur?—**COMBINED BATH.**

(1) Due to over-working of the bath. We advise you to take bath containing enough gold for prints to be toned, and not tone more without addition of gold. (2) If you have no other fault than this we advise you to stick to the bath, which is less open to objection than many others. A very good and similar formula.

### STOCK SOLUTIONS.

No. 1.—Hypo, 12 ozs., dissolved in water, and made up to 2 pints.

No. 2.—Ammonium sulphocyanide,  $\frac{1}{2}$  oz., made up to 5 ozs.

No. 3.—Lead acetate,  $\frac{1}{2}$  oz., made up to 5 ozs.

No. 4.—Gold, 15 grs., made up to 5 ozs.

Take:—No. 1, 7 ozs.; No. 2, 1 oz.; No. 3, 1 oz.; No. 4,  $\frac{1}{2}$  oz. Wash thoroughly, tone and fix in the above bath, and finally wash in running water for about one hour.

**TONING BATH.**—I am enclosing a small bottle of toning bath. I should be glad if you can tell me the cause of it going this colour. It is the ordinary P.O.P. bath (ammonium sulphocyanide). I have tried with both hard and soft water. It acts all right the first time, but the next day I find it this colour and no use.—**G. S. P.**

Soft water is very likely to throw down the gold—which is what has taken place—owing to the organic impurity usually in it. Deep spring water is almost always better, and if boiled for ten minutes, allowed to cool somewhat, the sulphocyanide dissolved, and then the gold (in small doses of solution) will give a bath which will retain its toning powers for some days, though not indefinitely. If your water supply will not enable you to do this, there is nothing for it but to use distilled water.

**IRON.**—We doubt if there is much in the idea as a saleable article. It is a poor camera nowadays that has not a short focus movement sufficient for all ordinary work. We suggest that before spending any money on it you obtain the views of one or two leading makers of apparatus as to the demand for such an appliance.

**W. CHARLES.**—We do not supply books. Apply to your dealer or to Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C.

**AGREEMENT.**—I am an assistant photographer at the above-mentioned town, and in November, 1897, my late employer offered to teach me the business on the following conditions—viz., "that I should not on any account have any connection with another photographer, or commence business for myself within a four-mile radius, four years from the severing of the connection between us." He first employed me November, 1897, as above mentioned, and on July 20, 1902, dispensed with my services. A year later he bought a business at —, and wrote me offering a position (which he led me to think was permanent and greatly to my future betterment) at the — studio. He, however, sold the latter about fifteen months after, and asked me to stay with purchaser. Could he prevent me opening business in this town, as I signed nothing when I returned? I am very anxious to know, as I am well known here. You will see we parted five years ago, in the first instance.—**F. B.**

The original agreement was obviously binding on you only in the first instance, and not in the second. Unless a second arrangement was entered into, there is nothing to prevent your opening business.

**E.**—It is out of our province to tell you how you can avoid paying

for what you purpose to buy. You had better apply in some other quarter.

J. H. P.—Indentures must be stamped with a 2s. 6d. stamp, otherwise they are not binding.

DUSTING-ON PROCESS.—I am pretty familiar (by reading) with the method of producing burnt-in pictures by the dusting-on process, but I have an idea that I have read of a method of making them by what is analogous to the carbon process—that is, the pigment in the tissue is a vitreous one, which can be burnt into the enamel or porcelain, as the case may be. Can you tell me where I can get such tissue, as I do not see it quoted in any of the lists I have?—ONE WHO WANTS TO TRY IT.

No such tissue is on the market, and we much doubt if any of the manufacturers would make it to your order. It is true that ceramic pictures can be, and have been, made by this method, but not very successfully. The difficulty is that when the pictures are "fired" the gelatine splits off taking the vitreous pigment with it. If you are desirous of producing ceramic pictures, we should recommend you to adopt the powder process, which is the one universally employed by those who make them commercially.

ENAMELLING PRINTS.—We do a good number of enamelled prints—that is, enamelled with collodion in the usual way. Using —'s enamel collodion, the pictures are all right, and we get extra prices. But some of our customers have complained that the surface of the collodion is so easily scratched, and then becomes unsightly. We have been told there is a method of enamelling pictures with thin celluloid, which is much harder and does not scratch like the collodion. Can you kindly tell us how it is done?—PROVINCIAL.

It is done in this way: The picture is first soaked in alcohol—methylated spirit will do—then drained and placed on a piece of thin transparent celluloid. A heated, heavy, iron roller is then slowly passed over, which causes the celluloid to adhere. A special roller is required for the purpose. Fallowfield's make a specialty of the necessary materials for this class of work. We should advise you to get their price-list of the things required.

RIGHT TO PUBLISH.—A few weeks ago I took two photographs of the interior of a village church not far from here and published them, with one of the outside, in the neighbourhood. Last week the vicar came to me and was very indignant about it, as I had not asked his permission, and told me that unless I immediately stopped the sale he would consult his solicitors and take proceedings against me. Will you please tell me if he can do what he threatens, and how I should proceed if he does, as I do not like to stop the sale, as the photos are selling well as postcards?—C. J. W.

Our advice is to let the vicar consult his solicitor, who will tell him that he has no power to prevent the sale of the pictures. It is merely bluff on the part of the vicar, as he must, or should, know that he cannot interfere with the sale of the pictures.

DEFECTIVE NEGATIVE.—We enclose herewith a rough specimen print from a negative taken by us recently, taken at seven o'clock in the evening—dull, misty rain hanging about. Ross W.A. doublet lens. This print is the first exposure. Second exposure, without altering the camera in any way, except to reverse slide, is quite perfect—same kind plate. Should be glad to know your opinion as to cause of halation.—BROMIDE.

The trouble is due, we think, to thin coating of the plate towards one end, which has caused the peculiar appearance.

H. F.—1. See our issue August 30. 2. It would be very much better to use a diffraction grating as regards the distribution of colours, but there would be a difficulty in getting rid of the central white image, and there is, of course, considerably greater loss of light than with a prism. 3. The patent you refer to is No. 24,234, 1902, so that we have not yet reached it.

COPYRIGHT.—We shall be glad if you will kindly say what the law is on the following question: In the absence of any agreement, if a firm of press photographers employs a man at a weekly wage to photograph events or happenings for the Press, is the

copyright of his pictures the property of his employers?—

The copyright is vested in the employers.

COPYRIGHT.—If A obtained a photograph from me with intent publishing, and on finding it copyright declined (by let publish (but did not return photograph), and subsequently reproduces a number of copies and circulates to different who reproduce them under A's name, does he infringe my right? I considered my offer closed after his refusal to copy. Does permission given to one give him the liberty to duplicate in this manner? If so, there is little use in registering a photograph copyright.—CARBON.

The newspapers in which your photograph has appeared infringe your copyright, as has also A by circulating copies. A can act as he has done with impunity only in the cases of subjects in which no copyright subsists.

DEVELOPER FOR BLACK AND WHITE.—I should esteem it a favour if you could inform me of a developer to get a good hard negative for titles for postcards. I have had a dozen titles set up printed (black on a white card), have used several plates but cannot get the desired result.—W. T. Cook.

A suitable formula is:—

Hydroquinone .....	130 grains.
Soda sulphite .....	6 grains.
Formalin (commercial) .....	3 drachms.
Water .....	20 ounces.

Use as above. It acts slowly, but without veil. Are you aware of a "process" or "photo-mechanical" plate? You should use it for the maximum clearness of the lines, but the above developer will improve your results in any case. Another formula acts quickly and which in conjunction with Farmer's reducer applied afterwards, will give very clear lines, is:—

A. Hydroquinone .....	160 grains.
Sodium sulphite .....	2 ounces.
Citric acid .....	60 grains.
Potass bromide .....	40 grains.
Water .....	20 ounces.
B. Caustic soda .....	160 grains.
Water .....	20 ounces.

A, 1oz.; B, 1oz.; water, 2oz.

ARISTO'S.—I wrote to Messrs. Dawbarn and Ward, Limited, asking for two ago for the "Photo-miniature" (How to make Aristos). It is sold out. 1. If there is another book, please give the title. 2. Where to get it, with price. 3. If no book, what paper is there on the subject?—J. Cook.

If by Aristos's you mean prints in collodio-chloride paper, we can best refer you to articles in the "B.J." November 10, 1901, which you will find abstracted with others in the "C. Almanac," p. 786. There is no special book on collodion printing.

G. W. S.—Certainly we should call the photographs "good," those marked A and B very good of their kind. We have no objection, and suggest that a larger picture of the diver on the plate is desirable, though we are fully aware of the difficulty of the work.

\* \* \* NOTICE TO ADVERTISERS.—Blocks and copy are received for the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears on the text portion of the paper.

## The British Journal of Photography

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PRICE TWOPENCE.

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## SUMMARY

**Colour Photography.**—We publish the first account of important advances in the screen-plate, one-exposure method of colour photography. The process known as the Warner-Powrie permits of the printing of colour negatives and of the preparation of a set of continuous-tone, colour-sensation negatives from the single exposure in the first instance in an ordinary camera. The process requires no registration at any of its stages, and further supplies a means of using the bleach-out "Uto" paper. (P. 688.)

**Colour Photography.**—A detailed description of the method followed in making the screen-plate for the one-exposure method of Hauron, to be issued commercially as the "Omnicolors," is published on p. 696.

**Colour Photography.**—Professor Cajal has published some practical details of his working of the Lippmann process. (P. 691.)

**The Exhibition Season.**—A list of exhibitions already announced appears on p. 695.

**The Photographic Salon** opens to the public to-day. A first impression of the pictures and their hanging appears on p. 692.

**The special adaptation** of the card-index system to a photographer's system was described before a recent convention by an American professional, Mr. G. W. Harris. (P. 693.)

**We draw attention** to some of the provisions of the Factory Act which require to be observed in photographic establishments. (P. 687.)

**A serious accident** in the exhibition of cinematograph pictures took place at Newmarket last week, one member of the audience sustaining injuries which proved fatal. (P. 686.)

**The full prospectus** of photographic and process instruction at the Manchester Municipal School of Technology has been published. (P. 700.)

**A curious case** concerning the construction of an overhead bridge between two buildings of a photographic factory is reported under "Commercial and Legal" intelligence on p. 700.

## EX CATHEDRA.

### A New Prospective in Colour Photography.

We ask a very careful reading of the article, "Latest Developments in Screen-Plate Colour Photography," which appears on another page. In giving the first account of the progress made in the Warner-Powrie process it has been our desire to state the plain facts, as they have come to our knowledge, in such a way as to allow our readers to judge for themselves the part which the process is likely to play in the practice of colour photography. But a close acquaintance with the methods and results of the new process, with the successive steps which have been taken to bring it from failure to success, and, lastly, with its unassuming originators, makes it impossible to commit to paper a quite unimpassioned recital of a veritable scientific triumph, which is at the same time a commercial asset and of far-reaching importance in the graphic arts. The description, as we have said, requires a careful reading; if we now enumerate what has been accomplished it will perhaps be seen that it also deserves it.

\* \* \*

### The Warner-Powrie Process.

The manufacture of a screen-plate of a finer ruling than is actually necessary has been reduced to a factory system calling for very little skilled labour, and capable of adjusting itself to alterations of temperature and humidity of the air. With the emulsion-coated screen-plates a negative in colours (complementary) is made at one exposure in an ordinary camera, and can be at once converted into a positive in colours. Either, however, may be copied on to another screen-plate, and any number of brilliant positives obtained, the complementaries in colour and in light and shade of the negative. This "colour printing" can be done without register in an ordinary printing frame in an ordinary dark-room. Further, from the first colour negative on the screen-plate a set of three full-tone colour-sensation negatives can be made by an equally simple series of printing in a frame, and, once more, without register. We might name one or two other side issues of the method, but the above description will suffice to show the commercial possibilities of the process. A hint of some other facilities provided by the Warner-Powrie method may be gathered from the article on another page.

\* \* \*

### Warner-Powrie Literature.

Less has been written of the progress of the Warner-Powrie process during its ten years of development than of many another method which in that period has had its little day and ceased to be. In the "B. J. Almanac," 1906, page 863, is a brief reference to the Florence screen-plate

from the "Illustrator," a process journal edited at that time by Mr. A. C. Austin, to whom Mr. Powrie had shown some of his early results. Some short notes on the manufacture of the screen-plates were contributed by Mr. Powrie to Penrose's Annual for 1905-6 ("B. J. Almanac," 1907, page 850), and in June, 1906, the English patent specification of the process was issued. With the exception of an account of the process which M. Quentin contributes to his journal, "La Photographie des Couleurs," these references constitute the chief published information in regard to the process, which is probably better known, even from these meagre details, in England than in America. Great interest is certain to be aroused in the results produced by the almost incredible procedure, and we may therefore say, without committing any breach of confidence, that Miss Warner and Mr. Powrie are sending a selection of earlier and later results to the exhibition of the Society of Colour Photographers, which opens on September 30.

### Intensifying Lumière "Autochromes."

The "Amateur Photographer," which has in the past consistently discharged its duties to its readers in keeping them *au courant* with progress in colour photography, not excepting the now much-talked-of Lumière process, points out in its issue of September 10 an alleged error in the formulae for intensifying the Lumière plates. Our respect for the well-informed notes which our contemporary has published compels us to say that in our own experience the formula for the F pyro solution of 3 gms. pyro and 3 gms. citric acid per litre, as given by the Lumières (not 30 gms. citric acid, as stated by our contemporary to be correct and that actually employed in the commercial Lumière carton), works efficiently in the time specified in the Lumière instructions. We have made up our intensifier according to this formula (of 3 gms. of each), and have usually found a minute to two minutes required for intensification, whereas a tenfold proportion of citric acid would retard intensification considerably and would accentuate the frilling of the plates, which is apparently very common.

### Celluloid Accidents.

On Saturday night last an alarming accident happened at the Town Hall, Newmarket, during a cinematograph exhibition. One person was killed and many others seriously injured. It appears that the apparatus was overturned by people leaving during the interval by the main entrance, close to which it was planted. Some of the films then took fire, the cry of fire was raised, and the usual

stampede took place, with injury to several persons in the rush for the doors. The fire, which was confined to the apparatus and the woodwork near, was quickly put out by the hose within the building. It was pretty obvious that the restrictions placed upon cinematograph entertainments by the London County Council are not enforced in Newmarket, or this accident would not have occurred. Another accident reported last week is attributed to spontaneous ignition of celluloid. It appears that a lady was sitting in a garden at Crowborough, Sussex, when her friend noticed that a celluloid comb in her hair was flaming, having been affected by the rays of the sun. The comb was quickly removed, and no injury was sustained. One has been continually reading for some years past of someone or other has invented a substitute for celluloid that is not inflammable, but it has not yet been heard of in practice. As we have said more than once before, a substantial fortune awaits the inventor of a celluloid substitute for it, which is non-inflammable, while retaining its utility.

### Oil

#### Printing.

It has several times been pointed out that it would be very desirable to give a new name for such productions as oil prints, on grounds that all essentially photographic features vanish in the pigmentation process. In the hands of people who do not produce something different from a photograph, an oil print can speedily lose all its photographic quality, and those who can see no art in purely photographic work, seem to find a very desirable characteristic of the oil process. The majority of persons, however, and especially those who have been trained as artists and are artists by profession, do find many artistic virtues in straightforward photographs, and it is rather unfortunate that so many seem to think that all photographic quality must necessarily be lost in oil printing. In the majority of results that have been shown, all such quality has been deliberately obliterated, but it is by no means essential that this should be so, nor is it at all difficult to preserve it. And from our own experience it is quite possible to preserve the best qualities of both the photograph and the pigment process. One of the good qualities of the process is the surface texture. This, in careful and practised hands, is a very fine granular texture of just the kind many have long wanted to produce with rough papers. Our mind it is better than the paper texture, for it can be modified in parts, and so does not become so monotonously uniform. Another good quality of the oil process is the fact that it allows us to make very readily on print the slight alterations in emphasis and values

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

SCREEN-PLATE THREE-COLOUR PROCESSES and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1908 will be

modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1908 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the next edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.



marily we have to make by dodging in printing or  
ing on the back of the negative. Such slight modifi-  
cations and also spotting and retouching can be done with  
greatest ease on the oil print, whereas in the ordinary  
it is by no means easy to "dodge" the negative to  
the right extent. To speak quite frankly on the  
subject, we have a very small opinion of the art value of  
usual oil print that is neither a good photograph nor  
good oil painting, and we feel pretty certain that this  
of production will not be in favour very long. On  
the other hand, we feel that the oil process has features of  
undoubted value, and we strongly advise photographers  
to turn their attention to its possibilities in the way of  
light photography.

### of dividuality.

The admiration that some people pro-  
fess for hybrid productions, such as the  
oil prints that we have referred to as  
neither good photographs nor good paintings, is obviously  
in many cases to want of sufficient knowledge of either  
the art or to be able to detect faults. The worst  
error will pass as verse to the man who knows no  
body. But more generally the cause of the admiration  
may be traced to the heretical worship of so-called in-  
dividuality. If it is possible to recognise the handiwork  
of Mr. Jones in his productions, then Mr. Jones's  
work has some claim to be considered artistic. That is  
the result of the heresy. Another, and a necessary  
consequence, is that all art productions must, of course, betray  
the handiwork. All this is directly opposed to the great  
aim of the true artist, which is that his work shall appear  
something superhuman, and altogether beyond a mere  
accomplishment. He never reaches the ideal, but  
his attempt to reach the ideal of perfection that stamps  
as an artist, while it is by his sticking-places that we  
recognise his individuality. If his sticking-places are  
places, then they are places of honour, and this kind  
of individuality is virtuous and honoured. A mere trick  
of brush or of technique, or a dodge as regards materials,  
mark of individuality in one sense, since it is a means  
of identification; but it is no virtue, though the innocent  
times take it for one. Has it never struck photo-  
graphers that the feature of photography that most appeals  
to the artist is the purely impersonal touch of the  
camera and the extraordinary superhuman accuracy and  
fidelity of the delineation? These are just the features  
despised by the would-be artist photographer, because  
they are features of a would-be artist and not a real one, but they are  
features most appreciated by the real artist because  
they represent a sort of approach to the absolutely imper-  
fection that is his ideal.

### FACTORY AND WORKSHOPS ACT AND PHOTOGRAPHERS.

There are occasions when it falls to our lot to administer  
justice to photographers seeking encouragement or  
protection in practices which are often illegal, and some-  
times immoral. Among these none are perhaps more fre-  
quent than those whereon we are solicited to sympathise  
with some proprietor of a photographic establishment  
who has addressed to him an (alleged) unreasonable  
demand from the factory inspector of his district as to the  
conditions made for his work-people or the hours which  
they have been employed. Our friend will sometimes  
remark that if these interferences with his liberty  
be, the economical conditions under which he obtains  
his labour will be disturbed, and good-bye to a substantial  
income from the sale of photographic art. We admit the  
force of the objection in these hard times, but nevertheless

the law has penalties for those who offend its provisions,  
and nothing will be gained by shutting the eyes to them.  
On this account it may be well for us to draw attention to  
the provisions of the Factory Act which bear upon photo-  
graphic establishments; in doing which we would point out  
that the Act is calculated to benefit equally employers and  
employed, for the latter can discharge their duties satis-  
factorily only when they are properly housed and placed  
in healthy surroundings, and not subjected to excessive  
spells of labour. For the employer to regard the Act as  
a tax which he must pay without securing any return is,  
we think, a mistaken view, as a study of the provisions of  
the Act will show.

The first question which arises in the mind of a photo-  
grapher who has received an official reminder of the Act,  
or of his infringement of a provision of it, is that the work-  
rooms of a photographic business cannot be looked upon  
as a factory; but the comprehensive wording of the Act  
leaves no doubt that they are actually so regarded. A  
workshop as defined by the Act means "(a) Any premises  
or places named in part two of the sixth schedule of this  
Act, which are not a factory; and (b) Any premises, room,  
or place, not being a factory, in which premises, room, or  
place, or within the close or curtilage or precincts of which  
premises, any manual labour is exercised by way of trade,  
or for purposes of gain, in or incidental to any of the follow-  
ing purposes, namely—(1) In making any article or part of  
any article; or (2) The altering, repairing, ornamenting,  
or finishing of any article; or (3) The adapting for sale of  
any article; and to or over which premises, room, or  
place the employer of the persons working therein has the  
right of access or control." After reading this no one need  
be in doubt as to whether photographic work-rooms are  
workshops within the meaning of the Act.

This fact having been digested, it may be well for the  
photographer to become familiar with one or two other  
regulations of the Act. It is necessary that an abstract  
of the Act itself be affixed at the entrance of the workshops,  
or such other parts as the factories' inspector may direct,  
so that the employees may read it and make themselves  
fully acquainted with its enactments. The object of this  
is that the employees may be fully apprised of the law  
relating to the conditions under which they are employed.  
For the non-display of the abstract the occupier of the  
workshop is liable to a penalty not exceeding forty  
shillings.

By Section 119 of the Act, an inspector has power "(a)  
To enter, inspect, and examine at all reasonable times, by  
day and night, a factory or a workshop, and every part  
thereof, when he has reasonable cause to believe that any  
person is employed therein, and to enter by day any place  
which he has reasonable cause to believe to be a factory  
or workshop. . . . (f) To examine, either alone or in  
the presence of any other person, as he thinks fit, with  
respect to matters under this Act, every person whom he  
finds in a factory or workshop. . . . (4) Where an  
inspector is obstructed in the execution of his duties under  
this Act, the persons obstructing him shall be liable to  
a fine not exceeding five pounds." From this it will be  
seen that the inspector has the right to ask any questions  
he chooses of any of the employees with regard to their  
conditions of working, hours they are working, or any other  
relevant matter.

The term "women" applies to all females over eighteen  
years of age. The term "young persons" applies to all  
under the age of eighteen. It should here be mentioned  
that it is illegal to employ any "young person" under the  
age of sixteen, unless the employer has ascertained from  
the certifying surgeon of the district that such young  
person is fit for the employment.

The period of employment, except on Saturday, may

begin at six in the morning and end at six in the evening, or it may begin at seven in the morning and terminate at seven in the evening, or begin at eight in the morning and end at eight in the evening. One hour and a half must, however, be allowed for meals, and no woman or young person must be employed continuously for more than five hours without an interval of at least half an hour for meals. Furthermore, the meals must not be taken in the workshop. On Saturdays the employment may be from six in the morning till two in the afternoon, or from seven till three, or from eight till four. But in all cases half an hour must be allowed for meals. No woman or young person must be employed in a factory or workshop on Sundays.

In England there must be allowed as whole holidays Christmas Day, Good Friday, and every Bank Holiday, unless in lieu of any of these days another whole holiday or two half holidays, fixed by the employer, are allowed. Eight half-holidays a year, fixed by the employer, must be given, but a whole day, also fixed by the employer, may be allowed in lieu of two half holidays. At least half of the whole holidays or half holidays must be allowed between March 15 and October 1 in each year. In these holidays Christmas Day, Good Friday, and Bank Holidays do not count—they are in addition to the above. A half holiday must comprise at least one half of the period of employment on other days than Saturdays. These being holidays prescribed by the Act, no deduction of wages must be made for them.

In addition to the abstract of the Act before mentioned there must be posted up in the workshop details of the

hours of employment, times for meals, holidays, etc., which must be signed by the owner of the workshop. With the sanction of the Secretary of State—whom the local inspector of factories represents—another day in the week may be substituted for the Saturday half holiday.

Women may be employed overtime, as from six in the morning till eight in the evening, or between seven in the morning and nine in the evening, or between eight and nine in the evening, if they are paid in accordance with the following, Section 49 of the Act:—“(a) There must be allowed every woman for meals during the period of employment not less than two hours, of which half an hour must be after five o'clock in the evening; and (b) A woman must not be employed in the whole for more than three days in any one week; and (c) Overtime employment under this section must not take place in any factory or workshop on more than thirty days in the whole in any twelve months, and in reckoning that period of thirty days, any day on which any woman has been employed overtime must be taken into account.” When overtime is to be worked notice must be given to the inspector.

Section 137 of the Act is to the effect that where a person is employed in a factory or workshop, contrary to the provisions of it, the occupier of it is liable to a fine not exceeding three, or if the offence was committed during the night, five, pounds for each person so employed.

The above constitute the most important provisions of the Act as it may be applied to workshops of the kind which are to be found in photographic establishments. There are some minor enactments, to which we may refer at a future opportunity to refer.

## LATEST DEVELOPMENTS IN SCREEN-PLATE COLOUR PHOTOGRAPHY.

[In publishing the following account of the progress made in collecting all the news relating to colour photography in the *THE BRITISH JOURNAL OF PHOTOGRAPHY*, yet we believe we are giving information as to this new departure which has become available

THE greatest interest is bound to be created in the announcement of the progress made in the method of colour photography in which the filters are distributed in the plate itself. Up to now the Lumière “Autochrome” plate has monopolised public attention to such an extent that it is easy for those who have not followed the work of the past few years to associate such one-plate processes exclusively with it. There is, however, to be shortly available a new screen colour plate which is a further development of the original Joly linear method, but embodies advances of such importance in this latest of colour photographic systems that an account of what has been accomplished appears to be called for. It is scarcely necessary to explain that the Joly process, as it has hitherto been known, consists in the use of a filter of fine ruled bands, alternating red, green, and blue, which is placed against the sensitive surface of a panchromatic plate, and exposure made through it. From the colour-record negative thus obtained a positive is printed by contact on a transparency plate, which positive transparency, on being bound up in register with a ruled screen, similar to that used when making the exposure, reproduces the colour of the original object. It will be within the recollection of many persons that this system, as first worked out by Professor Joly, of Dublin, and afterwards by the late Mr. MacDonough in America, proved capable of being easily employed once the screen plates had been produced, but that the regular manufacture of the screens on a large scale proved a task beyond the powers of both the com-

mercial undertakings which were formed to work the process. Moreover, even with a perfect screen, there were certain obstacles in the way of absolute certainty—chiefly the difficulty of securing uniform contact between the screen and the sensitive plate in the camera—which limited the application of the process in practice. It has been left to Mr. John H. Powrie and Miss Florence Warner, of New York, to successfully combine the screen with the plate, to perfect the manufacture of the screens, and to induce important developments of the process which enormously increase the possibilities of the one-plate linear colour system. In short, to briefly anticipate what we have to describe, the Warner-Powrie process, as it is to be called, (1) combines a linear screen with the plate, forming a “screen plate” ready for exposure, at a price which, we are informed, will not be much greater than that of ordinary plates; (2) provides means of duplicating the colour results; and (3) permits of a so-called full-tone negatives, that is without the linear ruling, being prepared from the single negative, from which set prints of any size by the pinatype or other process can be prepared.

### A Factory Process.

The series of experiments which has now led to a successful issue was commenced by Mr. Powrie ten years ago, the greater part of which time has been taken up in making the experimental success of the first year practicable upon a commercial scale of any required magnitude. It would take too long



scribe the chemical and mechanical expedients, chiefly the filter, which have been tried and abandoned; but Mr. Powrie and Miss Warner have together worked out a manufacturing process which they have already proved to have nothing in common with its predecessors, and is, in fact, an original application of Du Hauron's principle to commercial industry. Some particulars of the process, in Mr. Powrie's own words, were quoted from the "Process Year-Book for 1905-6" in THE BRITISH JOURNAL OF PHOTOGRAPHY of 1905, p. 1,029; but if the process it exists to-day were no more than that then outlined it would not merit the description which we are bound to assign it of a comprehensive system of colour photography answering the requirements of both the amateur worker and those who regard colour photography as a serious and commercial pursuit.

#### Manufacturing the Screen-Plates.

The basis of the process is a combination of the linear filter and emulsion, which the promoters name the "Florence Heliochromatic Screen Plate." As in the Lumière process, the filter is placed between the glass and the emulsion, but in fine lines. The method of producing this banded filter of the fineness of 1,000th to 1-1,000th of an inch constitutes the first step in advance of the Warner-Powrie process. Joly ruled his screen with a travelling pen; MacDonough did so, too, and also applied a band of colour from the ruled edge of a wheel. Mr. Powrie compares his by printing from a grating an image in bichromated

Warner-Powrie process is that, without in any way altering this preliminary operation, the colour negative or positive is available for:—

1. Preparing duplicates.
2. Preparing prints on paper.

Both of these developments are possible only with a screen plate with linear ruling, and both are carried out in the simplest manner conceivable by a method, indeed, which is so simple that it is hardly possible to suppose that it was not tried by early experimenters with the ruled filter-plates. It will help an understanding of this method if we first take No. 2 of the appendages mentioned above, and explain how a set of full-tone negatives is obtained from the line negative made in the first instance.

#### Three Negative from One.

The triple-line screen-negative in colours is placed in a printing frame with its filter side (i.e., the glass) towards a source of light from which parallel light falls upon it. The light passes through a filter which allows only light of one of the three colours of the screen plate to reach the printing frame. In contact with the film side of the plate is laid a sheet of glass (or celluloid or a metal frame), the thickness of which is chosen in relation to the distance of the frame from the light, and also to the angle through which the frame is subsequently turned during part of the exposure. On this glass again in the dark-room is placed a sensitive plate, and the whole set up in readi-

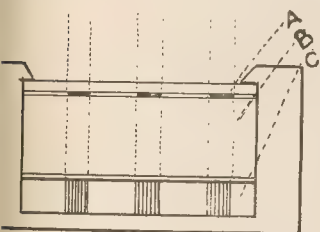


Fig. 1.

Showing the printing of a positive copy from the Warner-Powrie negative, A, behind which is placed a sheet of glass, B, and the sensitive screen-plate, C.

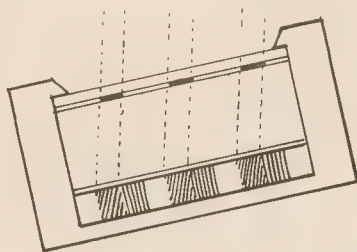


Fig. 2.

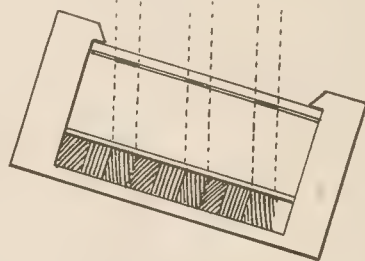


Fig. 3.

loid, which is converted into a transparent gelatine relief, is stained so as to form one series only of the three bands of the filter. A second series is printed after shifting the grating a determinate distance (the width of one line), and a second printing undertaken. The last and completing colour is obtained in the same way, and the method, which, from the description, appears more impracticable than others, has been found to be technically right, and to permit of the manufacture of screen glass of finer ruling than the 300 lines per inch which MacDonough failed in ruling on the manufacturing scale. After the application of a panchromatic emulsion, the "Florence Heliochromatic Plate" is ready for the production at one exposure of a negative in colour, or, if the negative image be reversed, of a direct positive transparency in colours. The above is a very sketchy outline of the system which has been worked out for the continuous production of the screen-plates by cheap and almost automatic means, and without the possibility of unruled or overlapping bands, but the description suffices to indicate the application of a photographic method to the manufacture.

#### Replicas in Colour on Glass and Paper.

Thus far we have a process of preparing colour transparencies which can be put in the hands of the amateur, and will enable him to produce results with no more difficulty than is involved in making a lantern-slide. But the essential feature of the

ness for exposure. One-third of the total exposure is given with the plate at right angles to the rays of light, one-third with the frame inclined towards the light to a certain extent, and one-third with the frame inclined away from the light to an equal but opposite degree. A moment's consideration will show that with a correct adjustment of the three factors of light distance, thickness of glass and angle of inclination, the set of bands occupying only one-third of the plate which are obtained at the first exposure, is duplicated on one side of the bands (first printed) on the second exposure being made, and on the other side of the first set of bands on the third exposure being made: with the result that a full-tone positive is obtained, representing the exposure through, let us say, the blue band. A similar series of exposure enables the same to be done in the case of the red and green sensations, with the result that the worker is in possession of a set of positives which he can use as he thinks fit in any process of three-colour printing.

The originators of the Warner-Powrie process admit that in this process of abolishing the linear formation a slight aberration is introduced, and is inseparable from the manipulation above described, but the amount of variation is found to be negligible in practical work.

#### Reproducing Screen-Plate Negatives.

We can now pass to explain what is actually of more importance to the maker of pictures in colours, namely, the printing of

the negative colour transparencies obtained at one exposure. The method is the same in principle as that just described for three positives, but instead of using three separate plates, one single panchromatic screen plate is used with the linear screen behind the glass, screen side in contact with it, and with its lines crossing those of the colour negative. There is no need to register the two screen plates. As before, the three exposures are given in the perpendicular and the two angled positions, the three stages of the operation being shown in figure 1, where A is the colour negative, B the plain glass, and C the sensitive screen plate on which the positive is impressed.



Fig. 4.

Showing how admixture with two-thirds black with one-third pure colour takes place in printing from a screen-plate positive on "Uto" paper.

Figure 1 shows the first printing at right angles: figures 2 and 3 those duplicating each band on either side of the first; as a result, the copy in colours is obtained of the ruling of the second plate only, and without the introduction of black or of white, which takes place if a copy be made from a negative or positive respectively in the ordinary way.

There are other ways in which this triplication of the negative images may be secured. By the use of mirrors (to multiply the light sources) at such distance from the frame and at suitable angles, the same effect is produced at one exposure as is obtained by shifting the position of the frame.

Three sources of light (incandescent, electric, or gas lights) will also accomplish the same result; or, by covering the window of the room, leaving three, four, or five inches in width and printing by daylight at a sufficient distance from the window, it

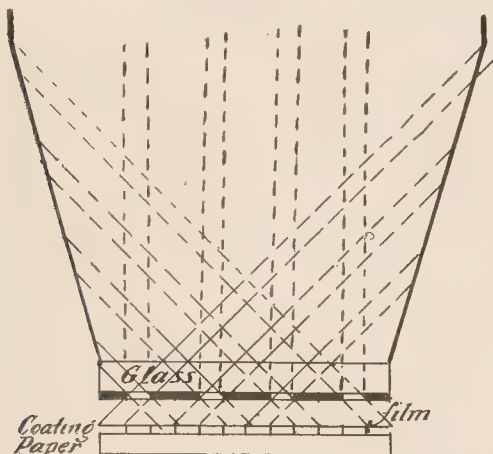


Fig. 5.

Showing how the full colour effect is obtained in printing on "Uto" paper from a Warner-Powrie screen-plate positive by aid of inclined mirrors.

is practicable to secure the necessary sharpness of the image and to eliminate the lines by juxtaposition.

It will be remembered that in the "Colour Supplement" to THE BRITISH JOURNAL OF PHOTOGRAPHY of July 5 Dr. Mees was the first to point out that the printing of a colour-screen positive from a negative (or positive) also on a screen-plate cannot be successfully done, for the reason that in the case of printing from a negative the positive copy is diluted with white and the colours all weakened, whilst in the case of making a positive from a positive the reverse occurs, viz., admixture with black: the colours in the copy being greatly degraded. This fact

was further confirmed by Dr. J. H. Smith in the "Colour Supplement" for August 2, in the case of the "Uto" bleach-out paper, but at the time both these writers were unaware of the method above described which Mr. Powrie employs to get rid of this drawback. Both have since expressed their admiration for the most simple solution of the problem in the case of the Warner-Powrie process. The great transparency of a Warner-Powrie colour print on glass is a good reason for assuming that the lantern lecturer will find in it alone of all the one-ply systems available or suggested the means of preparing slides which can be projected by lanterns of ordinary power.

#### How the Warner-Powrie Process Makes "Uto" Paper Usable.

The difficulty which under ordinary conditions attends the use of the "Uto" bleach-out paper for the copying of a positive transparency on a "Uto," an "Autochrome," or a Warner-Powrie screen-plate will be understood from Fig. 4, where the positive is represented one or two bands of red in the latter screen-plate. On exposure to light only those strips of the "Uto" paper under the red bands will become red, the adjoining bands of blue and green which in that part of a transparency representing a red object are opaque remain black on the "Uto" paper and consequently the region which shows the bright red consists of only one-third the brightest red the paper is capable

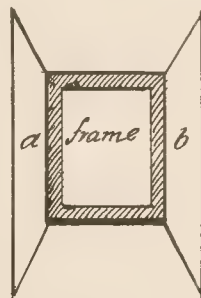


Fig. 6.

Diagrammatic view of the printing frame corresponding to Fig. 5, a and b mirrors inclined at about 110° to the surface of the positive.

and of two-thirds black. The difference between a linear plate and a grain plate in this respect is that in the case of the former there is a quick and easy way out of the difficulty, whereas with a grain colour-screen it is hard to imagine any way of escape. The method used in the Warner-Powrie process is explained by Fig. 5. A mirror is fixed to each side of the printing frame such an angle that the rays of light reflected from them triplicate the action on the paper by bringing into action a band right and left of that impressed on the "Uto" paper by direct light. In other words, the full colour possible by the paper is obtained without dilution with black. Fig. 6 is a rough drawing of the attachment actually used. It consists simply of two mirrors (a and b) inclined at an angle of about 110 deg. to the surface of the frame. The device, of course, greatly accelerates the printing of the paper, which, as anyone using it knows, is capable of great improvement in sensitiveness.

#### The Final Appeal—Results.

It would be easy to pooch-pooch the Warner-Powrie process and the claims of its promoters were unsubstantiated by results. In fact, the almost sensational character of certain of the methods would justify such a prejudiced frame of mind. But the proof of the pudding being in the eating, it is not possible to dismiss this development of the Florence Heliochromatic Plate lightly. It has been our privilege to examine a large collection of the screen-plates used in the process and a large number of the results. These latter consist of the original screen-plate negatives (in the colours complementary to those of the original



transparencies in colour printed from them by contact printing frame without any registration and having all the colours of the original, and sets of continuous tone colour-sensitised positives made from the original screen-plate negatives by the process which we have already described. The last, though not colour, and though differing in no visible way from ordinary positive transparency, were, to our thinking, the triumphant proof of the working quality of the Warner-Powrie process. To see a negative in colours which are dissolved throughout the plate in bands 1-600th of an inch in to the number of, say, 2,000, and side by side a set of positives representing the separation into three separate colours, the blue, the red, and the green in the subject, and all without a single effort to register, was, in our mind, an experience nearer allied to the stories of the days of magic than anything which we can recollect in connection with a "marvellous photography." Yet we handled more than one such set of positives prepared and arranged for the printing of a three-colour set by a subtractive process. The positive transparencies of the Warner-Powrie process differ from any we have seen in their great transparency. They are of so fine a ruling that the effect at about a foot from the eye is a continuous tone. Mr. Powrie, we believe, is right in preferring a fine ruling to any other of the same fineness for its quality of giving into a continuous tone, and though his earlier results of 100 to the inch are hardly coarse enough to attract attention to the structure, those on screen-plates of the finer ruling of 200 to the inch are as fine as can be wanted in prints or transparencies to be examined by the unaided eye. As to the pre-colour rendering we do not feel compelled to speak at length, for its perfection is a question of the adjustment of the filters

to the emulsion. We have been anxious to dwell in this article on the dispersal of the mechanical difficulties in the screen-plate process. Still, the inventors have convinced us of the thoroughly workable character of the method by the exquisite examples they have shown us of a great variety of subjects. Of late their endeavours have been in the direction of the maximum rapidity of emulsion, one specimen of which may be mentioned as an example of what may be expected of the process. It is a colour-screen plate positive of a man stooping over a flower-bed in a garden, and while it could not be claimed that the exposure had been sufficient, the picture is a triumph for an exposure which, as it itself shows, must have been at most one-fiftieth of a second.

#### Screen-Film Colour Photography.

It should also be mentioned that the process of preparing the screen-plates adopted in the Warner-Powrie process is equally applicable to celluloid films, which, in fact, from its facility of treatment in lengths, is more readily handled than a number of plates. The method of duplication above described is equally applicable to films, and it is possible, although we have no experimental data to warrant the assumption, that the great transparency of the Warner-Powrie positives will permit of the realisation of the ambition of not a few inventors, cinematography in colours. Into that, however, there is now no occasion to enter. The process as we have outlined it contains enough to feed the desire to make its more intimate acquaintance. We have not exhausted what there is to say of it, but any further account must be postponed to a forthcoming issue, as must also an article by Dr. Kenneth Mees on the Warner-Powrie method of overcoming the difficulty of duplicating screen-plate negatives and positives.

## THE LIPPMANN PROCESS.

The following is an abstract of a paper by Professor S. R. H. Lippmann, which appeared in the *Travaux du Laboratoire de Recherches Biologiques* of the University of Madrid. The author's researches on the structure of the heliochromes appear in our "Colour Supplement" for August and September. One of the most important points is to procure chemicals of the greatest purity and to see that all vessels used are chemically clean. A bad example of gelatine or inferior silver salt will cause impure whites or degraded colours. The gelatine sold by Lautenschlager, of Berlin, which was first recommended by Neuhauss, gives, the author thinks, more brilliant results than Drescher's. The silver nitrate and potassium bromide used were Merck's, and marked "Purissim pro analyse." The formula is as follows:—

Gelatine .....	62 grs. ...	4 gms.
Distilled water .....	3½ ozs. ...	100 ccs.
Potassium bromide .....	8.5 grs. ...	0.55 gms.

For summer the quantity of gelatine may be with advantage increased by 0.5 or 0.7 gms. (7.7 or 15.4 grs.).

The above should be placed in a glass beaker and heated in a water bath, with constant stirring, until the mixture attains a temperature of between 95 and 105 deg. Fahr. Then the sensitizers should be added:—

Cyanine, 1:500 alc. sol. ....	84 minims ...	5 ccs.
Erythrosine, 1:500 sol. ....	34 minims ...	2 ccs.
Glycin red, sat. sol. in abs. alc. ...	135 minims ...	8 ccs.

The glycin red solution must be prepared only about an hour before use, as it rapidly precipitates.

Immediately after the addition of the above, the silver nitrate should be added all at once:—

Silver nitrate freshly powdered	11.5 grs. ...	0.75 gms.
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The temperature of the emulsion may now vary between 77 and

105 deg. Fahr., but it is better to adhere to between 85 and 95 deg. Fahr.

#### A Point of Importance.

If a very fine grain is desired, the emulsion should be gently stirred whilst the silver bromide is being formed; if, on the other hand, a more rapid emulsion is required, it is advisable to mix the emulsion in a bottle and shake it well. The author's experiences have proved that sensitiveness is to a great extent dependent on the physical phenomenon of agitation. The speed of emulsions can thus be made to vary between 1 and 3. It is also possible to increase the speed by digesting the emulsion for half an hour at 105 deg.

Emulsification will be completed in 3 or 4 minutes, and the mass should be filtered through two thicknesses of filter paper. Enough should be poured on the glass to flow easily over it, and the excess should be drained off. The plates should then be placed on a levelling slab to set. It is advisable to cover them at this point with a cardboard box-lid, or something to prevent dust settling on the film. When it has once set this need not be feared.

The plates may be washed in running water for ten minutes, or merely left in water for an hour and the water changed three times. It is very advisable, as suggested by M. Lippmann, to immerse the plates before washing for a few seconds in absolute alcohol. This removes the air bells, and allows the washing-water to have access to the film.

Too much stress, the author thinks, has been laid on the temperature at which the plates should be dried. Neuhauss states that it is impossible to obtain the colours if the plates are dried under 77 deg. Fahr., but at this temperature the gelatine will melt, and the film almost invariably frills. The author has found that except for a slight increase in speed

in plates dried at 68 deg. in two hours, there is no difference in colour-rendering when they take twenty-four hours to dry.

Considerable stress has also been laid on the thickness of the film, but the author has obtained excellent results on films varying in thickness from 5 to 40  $\mu$ .

#### Aids to Speed of Emulsion.

The most satisfactory emulsions are unfortunately considerably slower than wet collodion. It is possible to increase the speed by raising the temperature of the emulsion to 105° deg. Fahr. The same result can be obtained by adding a drop or two of ammonia to the emulsion; the addition of sodium sulphite proposed by Valenta is also efficacious. All these increase the speed of the emulsion by increasing the size of the grain of the silver halide. The best emulsions—that is, those that give the most brilliant whites and colours—are the slowest. The speed of the plates can be increased by immersing before use in

Acetic acid .....	5 drops	... 5 drops
Absolute alcohol .....	3½ ozs.	... 100 ccs.
Silver nitrate, 10 p.c. sol.....	25 minims	... 1.5 ccm.

This solution must be quite clear when used, and the plates must be exposed within an hour of bathing in this.

It may be taken as a general axiom that it is not advisable to use this or any other speed increaser unless absolutely essential. The silver bath just mentioned has a great tendency to produce metallic fog, though the use of a perfectly clear solution and perfectly pure mercury will get over this trouble.

#### The Filter Developer and Intensification.

It is necessary to use a filter in front of the lens—preferably a cell containing a weak solution of erythrosine and aniline

yellow or potassium bichromate. Any excess of blue and rays makes it impossible to obtain clear whites. On the other hand, when working in the afternoon, when the blue and rays are more or less reduced in intensity, the screen may be dispensed with. It is impossible to give any idea of the effect of the exposure, as the factors are numerous and so varied.

Development should be effected by immersing the plate in

Water .....	8½ ozs.	... 250 ccm.
Pyro (1.25 p.c. sol.) .....	170 minims	... 10 ccm.
Potass. bromide (10 p.c. sol.)	203 minims	... 12 ccm.
Ammonia .....	50 minims	... 3 ccm.

After ten or twelve seconds the plate should be removed and well washed. It is useless trying to obtain the necessary intensification by development alone. Prolonged development merely causes fog in the interspaces between the laminae.

After washing, the plate should be immersed in mercuric chloride solution till it is quite white, then washed for five or eight minutes under a tap, and then re-developed in

Sodium sulphite .....	1½ ozs.	... 50 ccm.
Amidol .....	1 teaspoonful	... 1 teaspoonful

This will keep for two or three days. The plate should always be washed, and then dried.

It is not advisable to fix the plate, as this alters the distribution of the silver between the laminae. There is no fear of any blackening of the silver halide, as a plate exposed for eight days to sunlight suffers no change in colour or transparency.

The finished picture should be mounted with Canada balsam in contact with a low-angle prism, or it may be examined in a tank of benzol. The back should be covered with asphaltum or better still, a solution of gum dammar in xylol and printed ink.

## THE PHOTOGRAPHIC SALON—A FIRST IMPRESSION

THE Press-day of the Linked-Ring Exhibition allows us just time to peep into the Salon and run home to get an anticipatory paragraph into our current week's issue. Obviously, criticism worth the name is not possible; but a forceful impression is probably better gained by such a hasty method than by any other. And this is ours. The gallery, even with half-a-dozen journalistic prowlers in it, appears crowded. Spaciousness has been sacrificed to furniture and garden-stuff. The walls are lined with something that might be named grass-wicker, if the term were not too elegant for the purpose. We understand that a professional "decorator" has been pressed into service: hence the result has the conglomerate appearance that comes of too many brilliant ideas, and it suggests at once a Munich picture-gallery, a Continental restaurant, and a packing-shop of a furniture manufactory. There seems to be no reason why, upon the closing day, the committee should not stand by to rip the packing material off the walls and wrap up the purchasers' pictures in it. The buyer of Mr. Rawlins's twelve-guinea work might be favoured with an extra outside piece of the brown variety from the dado; but, joking apart, this stuff carries the old "Lessian" idea too far. We are not sticklers for precise neatness, but the

joints and rough-and-ready appearance of this stuff are not to be overlooked. It should also be mentioned that the loose particles from it cloud the air affect the nasal membranes and induce the symptoms of hay-fever. The velarium is also too fussy, being pieced and patterned, and these embellishments appear irritating to all the glasses to the great damage of the pictures. By having an extremely low the velarium has a depressing and stuffy effect spite of its blow-holes.

The show as a whole is again not a great one. Several members have made creditable efforts to send fine things, and among these the works of Mr. Arbuthnot and Mr. Horsley Hinton are not the least remarkable. Dührkoop is great in his "Convention," but some of his other works do not stand out. A fine view of Harlech will reinstate Mr. George Davison's reputation in the minds of many. Two American ternerities bearing the name of Cavendish Morton are full of that rare quality "style." Other Americans are less than scarce. There is Coburn, no Steichen, no Stieglitz; but as against this credit to the Linked Ring make a special point of a selection made in Paris by the French Committee. Many of these are presumably oil-prints; but the selection is of varying merit.

"LONDON" is the title of a compact and handy guide for the use of the visitor to the metropolis, which contains much useful information in a comparatively small space. It gives a list of the chief places of interest in and around London, accompanied by brief descriptive notes, together with information as to the various exhibitions, art galleries, places of amusement, hotels, etc., the latter

portion of the book being devoted to the more picturesque suburban resorts and the facilities they afford to the sportsman and naturalist. This little volume, which may be obtained for the small sum of 1s. 6d. is published by the proprietor, Mr. J. W. Cundall, at 8 and Essex Street, Strand, W.C., and by Messrs. Greening and Limited, 91, St. Martin's Lane, London, W.C.



## THE COLOUR OF URANIUM-TONED IMAGES.

June, 1906, a discussion took place in this paper on the subject of uranium toning, and Mr. E. J. Wall kindly sent some plates that had been exposed in an H. and D. machine for further experiments. The point of the discussion referred to was the colour obtained by varying the proportions of the solution. The following experiment was tried with Mr. Wall's test, using strong solutions, as I had before fairly well determined the possibilities of weak solutions that are quickly exhausted. A plate was cut into two strips, and No. 1 was immersed in a solution containing 4 grs. of uranium nitrate and 8 grs. of potassium ferricyanide per ounce, while No. 2 was treated with a solution containing 8 grs. of uranium and 4 grs. ferricyanide per ounce. The strips were immersed simultaneously, and were both examined in about two or three minutes. No. 1, in the bath containing an excess of ferricyanide, was then distinctly redder than No. 2. They were placed in the baths and left for an hour, at the end of which time the two strips were apparently the same colour in the highest densities, while No. 2 was faintly redder than No. 1 in the lower densities. The colours in the low densities were thus reversed in the course of an hour. The difference between the two colours was at no time very striking. No further brown was produced. The two colours were brownish, one being slightly browner than the other. It does not appear to me that the assumed existence of two ferrocyanides of different colours will account altogether for these results. The most rational explanation seems to be a different rate of action and a different rate of exhaustion. Some toned prints that I made long ago, and recently submitted to the Editors of this journal and to Mr. Wall, show distinctly that true brown (even sepia) tones can be obtained by slight toning conducted with weak solutions that are quickly exhausted, while red tones are normally obtained when a sufficiently concentrated solution is allowed to act for some time. In the case of these recent experiments the solution containing the maximum amount of ferricyanide may be expected to act more rapidly than the other, and therefore in a given short time to produce a redder tone. In a longer time we might reasonably expect both

images to be equally affected and of the same tone, provided neither solution has become exhausted. This appears to have been the case in the higher densities. The reversal of the tone in the lower densities is a curious feature, and does not apparently accord with either Atterburg's theory or with the one I feel most disposed to believe in. The difference is, however, very slight; so slight that I should not like to say too positively that it is confined to the lower tones. If it really exists throughout the tones the explanation appears to be simple, for we may most reasonably assume that the solution containing the excess of uranium retained its power of action for a longer time, and so carried on the toning in No. 2 to a slightly further and redder stage than in No. 1. In this case solution No. 1 must have become exhausted, or nearly so. It is impossible to say whether this was so or not, but both solutions showed signs of decomposition long before the time was up, and as a matter of fact several of the first experiments failed from this cause. Finally, I had to conduct the operations practically in the dark to avoid this decomposition, and even then the plates were badly stained.

These experiments are thus inconclusive, but they have not tended to confirm Atterburg's theory in my opinion, while they do seem to me to be in accord with my own idea that the slight variations produced by different formulæ are due mainly to different speeds of action. I may add that strip No. 2 shows a more matt surface than the other in all tones, which seems to suggest that the solution applied to it retained its power longer. The gelatine is badly stained in both strips, especially No. 2, and there is obviously some reaction between the gelatine and the solutions. This is the case in many photographic operations, and when it is so we may reasonably suspect that the reactions produced in the image are different from those that would occur in a test tube. I do not know if the Atterburg theory depends on test-tube experiments or not, but it seems highly probable, for the difficulty of analysing the results (which difficulty must have been considerable) would not have been lessened by the presence of the gelatine.

C. WELBORNE PIPER.

## A BUSINESS SYSTEM FOR PHOTOGRAPHERS.

[The following address on the employment of the card index in the photographic portrait business re-asserts the advantages of that method, which were pointed out in the paper by Mr. Pirie MacDonald in our issue of August 16. Yet the subject is of such pre-eminent importance in a photographic establishment that the professional may be advised to make further acquaintance with it in the notes by Mr. G. W. Harris, which we take from "The Photographer's" report of a recent convention in Dayton, U.S.A.—Eds. "B.J."]

Our best business men say that "the only way to learn to do a thing is to really do it." Everyone knows that if you are told, or shown, how to do a thing, it will not stamp itself on your memory; yet if you do it yourself it not only forces itself upon your brain, but it stays there, and it immediately forms a basis for further improvement, no matter how small the point it may be; for when we gain a good idea it grows and advances us in practical experience. The photographers, at their annual meetings and exchange of ideas, have raised their purpose and have made a plan of "give and take" of photographic knowledge that has helped every one of us. We know that no one can know it all, and that each of us can make a beneficial trade by giving his knowledge and experience for that of another; for while he gives the knowledge to one man, and that without loss of anything to himself, he is handed back plans and thoughts of others.

I had been asked by our president to give a paper on any subject, and had decided on "System in Plan of Business" (see "B.J.," August 16, p. 615), and found that the President of the New York Society at that convention was giving a part of the idea I had intended giving here. It was so well received that it strengthened in me the belief that the idea was a good one; hence I give the plan and system of our studio in Washington.

Of course, there are parts in this system which may not fit in your business, while others may see good in the part you reject. If I give some of you a good idea to think about, I am well repaid. I have made a sketch of the main features that I wish to call your attention to.

The features are, first, the ledger card, where you find the name, the address, the number, the order, the cash paid, the date, and when promised; second, the sitting slip, that tells

the operator the sitter's name, the size wanted, the date, the number of plates exposed and how many are good; third, the proof that the original order is written on; fourth, the proof sack, that holds the proof and that gives the name, the address number, the order, the date the photographs are promised, and what disposition to make of the work when finished, and the date of delivery.

The best way for me to tell you my story is to take a customer in our studio. When Mr. Jno. Doe comes in for a sitting we do not try to sell him photographs; and let me explain

Name		DOE, Mr. JOHN,		1,000	
Address		No. 8, John Street, New York.			
DATE.		DEBIT.	CREDIT.	DATE.	
6 30, 1907	12 Cat. Plat. Black	\$12.00	\$5.000 CASH.	6-30	
	July 10				

The Ledger Card (reduced in depth).

right here that I find I must talk a little about business, which I will avoid as much as possible while explaining our system; but we show him sizes and styles until the reception lady finds out what he wants, then, taking him to her desk, she writes the ledger card in this manner:—

Mr. Jno. Doe.

No. 8, John Street, New York City ..... 1,000  
after which it is placed in a card cabinet case marked "Sittings," where it stays until the order is given. We also at this time make out this sitting slip, which goes to the operator; the name, the number, the size, the date slip, giving the whole cue to the operator without any further instructions of the reception lady. He then proceeds with

M		DOE, Mr. JOHN,					
No.		Cds.	Cabs.	P.P.	8.10	11.14	14.17
1,000							
Negatives Made		6	3	4			
Negatives Good.							
Date		6-20-1907					
Special							

The Sitting Slip.

the sitting, and when through marks the number of plates he used in each size. This slip is placed on one exposed plate, and when the holders are changed the number is placed on one plate. The sitting slip goes to the typewriter, who makes as many stickers as there are plates numbered on the slip. The stickers are all made on gummed paper, and have the number and name on them. The next morning these stickers and plates go back to the operator, and he cuts them apart and fastens one on each negative. The negatives are then

counted and the total of good ones are marked on the sitting slips. The slips are then filed away by number for future reference. Of course, the proofs are made as usual, the negatives being filed away by the number, the proofs going to the customer. When the proofs are returned, then is the

1,000
12 Cat. Plats
Black
White Mounts
\$12.00
Make 20 × 24
Proof Enlargement
June 30
July 10

The Writing on Back of Proof.

for the order, and after the order is taken we write it the back of each proof as given, using as many proofs are accepted, making the charge on one proof and make the corrections on the face of the proof. This order and necessary information goes on the charge, and is then placed on the ledger card, which we have taken from the sitting b

No. 1,000	
Date of order	June 30
Date promised	July 10
Amount of order	12 Cat. Plat.
Amount paid	Black
Amount due	1 Neg.
Notify	Name JOHN DOE
Mail	No. 8, John Street,
Express	New York.
When delivered	

The Printing on Proof Sack.

and then the card is placed in the order box, where it left until paid.

The proof is now placed in an envelope, the face of which is like this: The number and order goes in the corner, name and address in the middle, and the date in the upper left-hand corner, the word left to read that tells what



with it when the order is completed. This order-envelope, with the proof inside, then goes with the negative to the retoucher, who notices the proofs for correction and changes hair, dress, etc.; then to the printer, who need not ask any questions, for the whole instructions are on the proofs. When it goes to the finisher, who sees readily what mount they are on and how to trim. They are then sent to the receptionist for delivery. She looks up the card in the order book and places on the envelope the amount of order, cash paid, and total due. Then she notifies the customer by postal card at all is ready, or delivering the work as per her customer's instructions if to be mailed or sent by express, as it is shown on the face of the proof sack. On the lower line of proof sack she notes when and to whom she delivers the work. The transaction closed, the proof sack is filed by number, and waits a duplicate order, and the card is filed by letter, if account is paid in full, where it also rests until a duplicate comes in.

Now the points that I wish to call to your particular attention are, that this whole system is so arranged that nothing is forgotten, not even to the promised date, and that no questions need be asked by any one of the help, for such department has its own complete instructions. First, the sitting slip. We use this that the operator may know at all times who the sitter may be, that the number of the order is always before him for the marking of the plates. By the way, this serial number is placed on the sitting slip when the proofs are printed for us. For the line it gives you on knowing how many plates the operator uses and how many failures he had, which is a good rule to follow, even if you do your own operating.

The ledger card. This is where you control your whole business, for in the card system you have, first, your sitting card, where you place all the cards that show you the sittings you have made, and as they stay in this box until photographs are ordered, you always know in at least a few minutes to have not ordered, and if you use a good "follow up" system you can readily find out why your sitters do not order, and by using a little time once each month you can keep your box fairly clear, and you readily find out why your customers are not pleased with proofs. Next, the order box. You never place a card in this order box without first putting an order on it, and you never leave a card in this box when it has been paid in full, for the paid cards go into boxes marked "Closed," etc. Hence you know that all the open accounts, or all money due you, is in this box, and when the first of the month comes you are not running back through a ledger or register book, passing over numerous closed or paid accounts, to find your money due you, but there they are, every card showing money, money, money. You cannot miss an account, nor is it too much trouble to write your bills when the first comes. It is all packed in a nutshell, so speak, easy to handle and easy to control.

The reason of our not taking an order when the sitter comes, unless, of course, it is an out-of-town customer, is that we found people continually changing their order when they saw the proofs; second, that we make the proofs the original order, and it is written on the back of each proof as the order is given. This system allows none to say: "I did not order this, etc."; and, third, the printers and finishers can make no mistake, for each proof is marked plainly how many each, what paper to use, the size and kind of mount, while on the face of the proof the retoucher looks for all changes that are to be made.

We use the envelope to hold the proof, for delivery, instructions, when, how, and to whom delivered, and for filing away by number, so that when the duplicates are desired we get the proof for second order, that no mistake is made in finishing from the wrong negative.

We make all proofs on 5 by 7 paper, therefore we use the regular 5½ by 7½ cheap manilla envelope. We find that it is much more convenient than other sizes, for we use this same kind of envelope for accepted negatives.

Experience has taught us that the best card to use is the regular Yawman and Erbe stock 4 by 6 ledger card, as we find that it is sufficiently large to hold all orders, and yet not too big for easy handling. It also has the advantage of keeping both money columns together, and, being a stock card, there is no extra printing expense.

I have tried to give you all the main points of our system, and I hope I have made it plain to all.

G. W. HARRIS.

#### FORTHCOMING EXHIBITIONS.

- September 13 to October 26.—Photographic Salon. Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.
- September 19 to October 26.—Royal Photographic Society. Sec., J. McIntosh, New Gallery, 121, Regent Street, London, W.
- September 30 to October 25.—Society of Colour Photographers. Sec., Henry J. Comley, Surrey House, Stroud, Glos.
- October 5 to 12.—Bristol Photographic Club. Entries close September 23. Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.
- October 10 to 12.—Dumfries and Maxwelltown Photographic Association. Sec., T. Armstrong, 41, Moffat Road, Dumfries, N.B.
- October 16 to 19.—Rotherham Photographic Society. Entries close October 7. Sec., H. C. Hemingway, Tooker Road, Rotherham.
- October 17 to 26.—Edinburgh and Midlothian Industrial Exhibition (Photographic Section). Sec., A. T. Hutchinson, 15, Leith Street, Edinburgh.
- October 30 and 31.—Watford Camera Club. Sec., W. R. Gunton, 139, High Street, Watford, Herts.
- November 5 to 27.—West of England Industrial Exhibition (Photographic Section). Entries close October 5. Sec., A. D. Breeze, Great Western Chambers, 41, Union Street, Plymouth.
- November 6 to 8.—Bedford Camera Club. Entries close October 31. Sec., P. C. Penny, 64, Harpur Street, Bedford.
- November 6 to 9.—Hackney Photographic Society. Sec., Walter Selfe, 70, Paragon Road, Hackney, London, N.E.
- November 12 to 16.—Rugby Photographic Society. Entries close October 29. Sec., R. H. Myers, 13, Bridget Street, Rugby.
- November 19 to 23.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- November 25 to 28.—Lancaster Photographic Society. Entries close November 16. Sec., Walter Gunson, Manesty, Scotforth Road, Lancaster.
- Southsea Photographic Society. Sec., Gilbert Wood, 10, Pelham Road, Southsea.
- December 11 to 14.—Hove Camera Club. Sec., Stanley Read, 12, Old Steine, Brighton.
- December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1908.

- February 20 to 22.—South Manchester Photographic Society. Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.

THE "RAJAR" CAMERA, offered monthly by Rajar, Limited, of Moberley, Cheshire, for the best print on "Rajar" P.O.P. has been awarded to L. T. Hibbert, of Matlock, his entry having been judged the best received during August. The paper on which the print was made was purchased from W. Pilkington, Dale Road, Matlock.

THE ROTARY PHOTOGRAPHIC COMPANY'S employees held their annual sports in the grounds of their social club at West Drayton on August 31. There were all kinds of athletic competitions, including some suitable for the lady members of the staff. There was much keen, but friendly, rivalry between the offices and works contingents which kept matters in full swing till about 7 p.m., after which the prizes were distributed. Dancing on the lawn followed, the proceedings terminating with a concert and dance in the large hall.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between August 26 and 31:—

**CAMERAS.**—No. 19,108. Improvements in reversing backs of photographic cameras. Herbert Holmes, Albert Edwards, and Houghtons Ltd., 88, High Holborn, London.

**SHUTTERS.**—No. 19,177. Improvements in shutters for photographic cameras. Jules Richard, 53, Chancery Lane, London.

**PRINTING FRAMES.**—No. 19,220. Improvements in photographic printing frames. John Wilkinson and Alfred Wilkinson, 3, Brown Street, Market Street, Manchester.

**LIGHTING APPARATUS.**—No. 19,333. Portable lighting apparatus for indoor photography. Joseph Leclerc, 8, Quality Court, Chancery Lane, London.

**TRIPOD HEAD.**—No. 19,391. Improved stand-head for easily fixing and loosening cameras. Gustave Geiger, 68, Alterwall, Hamburg, Germany.

**FILMS.**—No. 19,433. Improved means of carrying and protecting photographic films. Fred Taylor Fletcher, Imperial Chambers, Albert Street, Derby.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**SCREEN COLOUR PLATES.**—No. 194, 1907. The invention consists in the production of a screen plate for colour photography at one exposure, the screen being formed by lines in oil or greasy paint of one or more colours, which are applied by a ruling machine or by printing, the spaces left being filled up by dyeing the whole plate in a liquid which does not act upon the oil or greasy impression. On a sheet of glass, celluloid, etc., covered with a material which is permeable to water, such as gelatine, there is spread a coloured varnish, such as green for example, which is impermeable to water. Then, by means of a plane or circular ruling machine, there are drawn small parallel bands or tracks which are separated by intervals equal to their width. Then the sheet thus prepared is dipped for a few seconds into a water-colour, such as orange-red, for example, which impregnates the gelatine throughout where it has been exposed, leaving unacted upon the parts covered with varnish and only dyeing superficially the layer of gelatine.

The surface being cleaned, one will have a screen composed of green and orange-red bands which are arranged exactly by the side of each other and capable of producing by the two-colour process, beautifully coloured photographs.

A third colour will be distributed as follows:—

There is spread over a surface provided with two series of bands or lines, a second varnish which is impermeable to water, is colourless, and is designed to serve solely as a protector; one then produces fresh tracks which are a little deeper than those above referred to, in such a manner as to expose the lower layer of gelatine which the first bath did not have time to reach. These tracks will intersect the first-mentioned ones either perpendicularly or obliquely, and should be separated by spaces equal to twice their own width. The sheet will be then dipped for a few seconds into a blue-violet water-colour bath and a three-colour screen will be produced.

One may also take a transparent sheet covered with a thick layer of gelatine which is superficially coloured green, for example, on which is spread a varnish impermeable to water. After having drawn the first series of bands or tracks, the sheet is dipped into a second water-colour bath, then a colourless protective varnish is spread thereon, the second deeper series of bands or tracks is drawn, and finally the sheet is dipped into a third water-colour bath.

Also celluloid which is superficially coloured green, may be employed; this is covered with colourless gelatine and the first

series of bands or tracks is drawn sufficiently deeply for them to expose the colourless celluloid. The sheet is then coloured with a pigment dissolved in acetone, amyl acetate, or any other liquid which will bite on or penetrate the celluloid. There is then spread over the whole surface a second layer of gelatine, then the second deeper series of bands or tracks is drawn, and finally there is spread over the whole surface a third colour having base of acetone or amyl acetate.

The gelatine having protected the parts of the surface not acted upon by the chisel or tool of the ruling machine, and, after having freed the celluloid from the gelatine, there will be produced a screen which is capable of resisting water and a large number of other liquids.

As a third modification, the material employed is again celluloid. It is covered with a thin layer of gelatine which is coloured by means of a water-colour, then the first series of bands or tracks is drawn through the gelatine; the sheet is coloured with a second colour having amyl acetate or acetone for its base, which only acts on the exposed parts of the celluloid; the whole is then covered with a second layer of colourless gelatine; the second series of bands or tracks, which are deeper than the former ones, is drawn, and a third colour of the same nature as the second is spread over the sheet.

In all the above cases, the first series of bands or tracks can be drawn in such a manner that the interval which separates them shall be equal to twice their width. Then, after soaking and varnishing, similar bands or tracks are drawn extending nearly to the middle of the space which is afterwards soaked in the third colour. In this manner the screen is formed solely by bands which are parallel to each other; but this process has the disadvantage of only overcoming part of the difficulties of registration, whilst the method in which the lines cross over comes them entirely.

Thus, the second series of bands or tracks can be hollowed out to the same extent as the first; in this case, two colours are superposed at the point at which the series of lines cross each other and will form small squares which are black or have a dark colour and which have no other disadvantage than that of rendering somewhat darker the general appearance of the screen.

As a fourth modification, instead of forming the lines direct on the surface which it is desired to convert into a screen, the transfer method can be employed, that is to say, the lines are drawn by means of the machine on a hard accurately planed material, such as copper, zinc, lithographic stone, etc. Afterwards the parts in relief are coated, or the hollows thus formed are covered with a greasy colouring material, such as printing ink, and, by means of pressure, the series of lines is reproduced on a sheet of gelatine, for example. After drying, one can by the same means make a tracing of another colour crossing the first, then the bare intervals are coloured by floating the sheet on to a colour dissolved in water, to which the greasy colour will be impermeable.

In most cases, the gelatine may be replaced by collodion or by any other material which may be easily spread in a thin layer and is capable of absorbing colours having water, alcohol, etc. as their bases.

Also, in order to produce filmlike screens, one can use a circular ruling machine, which consists of a movable cylinder around which the sheet is rolled and of a chisel or cutting tool which is fed along by a leading screw and toothed wheels, the pinion is attached to the shaft of the cylinder.

In use, the screen produced by one of the methods described above, is covered with an emulsion which is sensitive to colour; and is placed in the plate- or film-carrier or frame of any suitable photographic apparatus, the emulsion being turned towards the inner face of the said carrier or frame in such a manner that the rays of light pass through the screen before reaching the said emulsion. A view will be taken in the ordinary manner and developed, then the negative so obtained will be converted into a positive, and after fixing one will have a photograph having all the natural colours. At the same time, one can employ the following process when it appears to be more advantageous by reason of its permitting the production of a large number of prints:—

Instead of spreading the emulsion on the screen itself, the



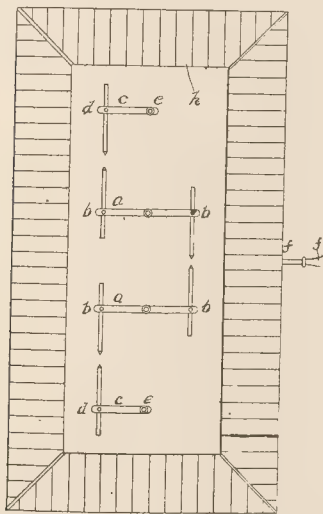
is placed in the carrier or frame, in the ordinary manner, a sensitised plate to which the screen is applied by putting the coloured surface of the latter against the emulsion on the plate. The view is taken, then the plate is developed after having been separated from the screen. The selectively acted-upon negative thus produced, when fixed, will enable an indefinite number of black positives to be obtained which, when suitably placed against similar screens, will immediately exhibit by transmitted light all colorations of the model. Theoretically this adaptation or fitting of the screen to the positive should be made in such a manner that each of the small coloured figures should coincide with the point of the image which it has selected, but since these thousands of figures or devices are similar to each other, are of equal dimensions and are symmetrically distributed over the whole surface of the screen, by reason of the regularity of the work done by the ruling machine, the registration may easily take place in an infinite number of positions.

The transparent support of the improved screens serving for the selection may be coloured slightly yellow so as to moderate the activity of the blue-violet rays.

The successive crossing of the two series of lines thus avoids the complications of registration in the manufacture of the screens. Moreover, the successive soakings each time exactly filling up the spaces produced, it follows that all the small colour-compartments are automatically juxtaposed without any space being left between them, a condition which is especially advantageous in the production of phototypes in which the selective effect is produced by light-filtration. The perfect regularity of the screens enables them to be applied to any positive produced by a similar screen, and consequently to enable the prints to be multiplied indefinitely. Louis Ducos du Hauron and Raymond de Bercegol, 17, Avenue Pauline, Joinville le Pont (Seine), France.

**ELECTRIC ARC LAMPS.**—No. 9,574, 1907. This invention relates to electric arc illuminating apparatus, which comprises a number of arc lamps enclosed in a single casing. Illuminating apparatus of this type is already known, but the constructions have the disadvantage that the carbon pairs are placed parallel side by side, so that the arcs produced by each pair are too close together; consequently the distribution of light is not satisfactory for the purpose required.

In the present invention this disadvantage is removed by



placing the carbon pairs, and consequently the arcs, at different levels and at comparatively large distances apart, so as to secure a favourable distribution of light and good lighting effects for photographic purposes.

A construction embodying the invention is illustrated in the

annexed drawing. Three carbon pairs are provided, for producing three arcs. The carbons are carried by pivoted lever arms all arranged in the same vertical plane. The two central arms *a* carry at each end *b* a carbon, and the lateral arms *c* carry carbons at their ends *d*. The carbons carried by the arms *c* are in alignment with the carbons at the upper ends of the adjacent arms *a*, and the carbons at the lower ends of the arms *a* are in alignment with each other. The arcs are struck and regulated by actuating the arms *a* by means of worm and toothed gear *f*, *g*, *h*, *i* arranged at the rear of the case. The worm *g* at the upper end of the spindle *f* meshes with two pinions *h*, which it rotates in opposite directions. Each of these pinions meshes with a toothed segment *i* fixed outside the case to the pivot or axle *e* of one of the arms *a*, so that the arcs can be struck and regulated by actuating the spindle *f* by means of the handle *f*<sup>1</sup>. The arms *c* are at the same time actuated by means of rods *k* which connect their ends *d* to the lower ends *b* of the arms *a*. The arrangement may also be so made that the worm and toothed gear only directly actuate one of the arms, movement being communicated to all the other arms by means of connecting rods.

An indefinite number of additional arms and connecting rods may be provided for carrying and controlling additional carbons, the connections being so made that all the arms can be controlled by means of a single regulating device. The provision of a plurality of carbon pairs enables the apparatus to be used with different voltages, since the lamps can be connected in series or in parallel.

As has already been mentioned, the arrangement of the arcs at different levels causes the light to be very effectively distributed, and the distribution may be improved by covering the inclined walls of the case *h* with ribbed or corrugated mirrors and by placing frosted glass or gauze screens in front of the lamps. Jean Schmidt, 70, Bleichstrasse, Frankfurt-on-the-Main, Germany.

## New Trade Names.

**IMPREGNITE.**—No. 293,709. Chemical substances used in manufactures, photography or philosophical research and anti-corrosives. Standard Varnish Works (a corporation organised under the laws of the United States of America), 23, 24, and 25, Billiter Street, London, E.C., manufacturers June 12, 1907.

**ACIFIX.**—No. 294,316. Photographic Chemicals. John J. Griffin and Sons, Ltd., corner of Kemble Street and Kean Street, Kingsway, London, W.C., photographic apparatus manufacturers. July 4, 1907.

**ULIILUX.**—No. 294,317. Photographic lenses. John J. Griffin and Sons, Ltd., corner of Kemble Street and Kean Street, Kingsway, London, W.C., photographic apparatus manufacturers. July 4, 1907.

**THE CINEMATOGRAPH IN GERMANY.**—The Kaiser (according to the "Tribune's" correspondent) has lately displayed great interest in the progressive development of cinematographic displays. Instruments for obtaining pictures of the recent fleet manoeuvres were conveyed by the Emperor's orders, both on the flagship "Deutschland" and on the Royal yacht "Hohenzollern." Similarly elaborate arrangements were made for recording the autumn parade on the Tempelhofer Feld last week. These series of pictures will be produced before the Kaiser at the Castle of Wilhelmshöhe at the close of the autumn manoeuvres. The development of cinematographic displays, especially in Berlin, is altogether remarkable. Cinematograph theatres appear to spring up like mushrooms all over the city, and to do good business. Recently school authorities and others have begun to raise a protest against these exhibitions, owing to their supposed deleterious effect on the minds of the children who frequent them. It is pointed out that these shows are often attended by crowds of children until late at night. Moreover, despite the severe censorship, it is declared that the scenes are frequently quite unsuited for children. It is urged that the cinematograph, instead of being left to such exploitation, should be much more utilised than is the case at present for educational purposes. It seems probable that a movement in such a direction will have emphatic Imperial support.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Pigment Prints from Bromides in 30 minutes by the Oil Process.

Mr. C. Welborne Piper, writing in the "Photographic News," gives the following instructions for an amended and more rapid process of preparing a pigment print direct from a bromide:—

Soak the dried print in water until limp, then bleach it in the following freshly mixed solution:—

Ozobrome stock solution .....	4 parts.
10 per cent. potash alum solution .....	4 parts.
10 per cent. citric acid solution .....	1 part.
Water, to make .....	20 parts.

When bleached, rinse very briefly under the tap, or dip into a dish of plain water to remove surplus bleaching solution, and then immerse in:

Sulphuric acid .....	1 part.
Water, to .....	20 parts.

Leave in this acid solution until the brown bichromated image has disappeared, and only a faint whitish image is left. If in a hurry use several acid baths in succession, until the bath ceases to be stained yellow, otherwise leave the print to soak for about twenty minutes.

Next rinse print well under the tap and immerse it in the following fixing bath to remove the silver bromide image that is left:—

Hypo .....	4 ozs.
Sulphite of soda .....	1 oz.
Water, to .....	20 ozs.

Fixing is very rapid, two or three minutes being ample. After fixing wash the print and pigment. Time in washing can be saved if the print is simply floated face down on the hypo solution. Fifteen minutes' washing will then be enough. If the print is soaked in the hypo half an hour's washing should be sufficient, as minute traces of hypo left in the print are of no consequence. After washing it is well to pigment at once, but if more convenient the print can be dried and pigmented later. Ten to twenty minutes' soaking will be enough before pigmenting. It should be noted that, though the print will pigment very readily after the acid bath and before fixing, yet the fixing is necessary, otherwise the silver image left will rapidly darken on exposure to light. The ultimate image left is a very faint yellow or yellow-green. It is almost invisible, and is quite unaffected by light, at any rate so far as the colour is concerned. When the acid bath has acted there is fairly strong relief in the print, enough to be felt when the finger is passed over the surface of the image.

### Brushes for the Rawlins Oil-Printing Process.

So much depends upon the condition of the brushes (says Mr. G. E. H. Rawlins in "The Amateur Photographer") that it pays well to take care of them. Although they last a long time, they naturally deteriorate with use, and the washing "takes it out of them," even more than hopping and dabbing. It is therefore advisable to avoid washing them if possible. My plan is to wash my hands instead of my brushes! I keep two or three old brushes for the heavy pigmenting and rough preliminary work, and these I wash as usual after use. To distinguish them from the rest, I have stained their handles black. Their condition is not very vital, as they are never wanted for fine work, so washing does not affect them much. But for the gentle hopping work I keep all my best brushes, and as they never become heavily loaded with pigment I find careful rubbing on an old print, and then on the palm of my hand, generally cleans them quite enough to make washing only an occasional necessity.

### A Dust-proof Drying-Box for Lantern Slides or Negatives.

Every photographer (says a writer in "Focus") who has ever made a lantern slide has experienced the difficulty of drying his picture free from dust. Several expensive contrivances with gauze panels are on the market to accomplish this end, but the following arrangement will be found to be much superior to any of them. Purchase an ounce of dry granular calcium chloride at a chemist's; it will cost a penny. Place this in a small tin—one of those pressed-out tobacco

tins is the best, that is, one that is not soldered together, but stamped out of one piece of metal. Remove the lid, so that the drying agent is free to do its work, and place it inside the ordinary grooved lantern slide box. The newly-washed slides are then placed in the box, the lid closed, and in a few hours it will be found that the calcium chloride has extracted all the moisture from the films. The salt will in due time become fluid, owing to its absorption of moisture. All that is necessary to restore it is to take out the box and heat it on a gas stove or over the fire, until its contents are again solid and dry. The reason for the choice of a seamless box is now apparent. If the lid of the slide box does not fit tightly, it may be made airtight by gluing pieces of thin rubber around it, so that the rubber comes between the lid and the box. The hinges will yield a little and allow of the box being closed, notwithstanding the packing. If rubber sheeting is not available, pieces of blotting-paper will serve almost as well. A similar device could, of course, be constructed for use with a negative drying-box, although such is hardly necessary for negatives.

## New Books.

"How to Ensure Correct Exposure." By A. Horsley Hinton. 4d.  
 "Home Portraiture Made Easy." By A. Horsley Hinton. 4d.

In these "Little Books" from the office of "The Amateur Photographer," Mr. Hinton engages in what, we believe, an evangelistic preacher would describe as a "heart to heart talk." That is to say the moral pill is coated heavily with sugar, only in Mr. Hinton's case the medicine is technical, but administered with an abundant flow of explanatory notes, which nevertheless do not stray from the point in process of being impressed upon the youthful seeker after photographic guidance. The titles of the two booklets sufficiently describe their contents. In each case the reading matter runs to sixty-four pages, and the illustrations to a number of examples which do actually give a pretty good idea of mistakes which a beginner can make. The books are avowedly intended for photographic light reading; to be quickly scanned and their hints as quickly applied to difficulties into which the amateur has fallen. Such a purpose the admirably fulfil, and we can recommend that a pile of them be placed on a dealer's counter as a ready means of vicarious answer, at 4d. time, to a beginner who is in trouble with the two very common difficulties of photography, calculating exposure and arranging a "at home" portrait. Nos. 1 and 2 of the same series, we should add deal with "Development Made Easy," and "How to Make Bad Negatives into Good."

WE HAVE RECEIVED from the Scientific Shop (Albert B. Porter 324, Dearborn Street, Chicago, a series of circulars relating to the Ives replica gratings and spectroscopes. A reproduction, very much enlarged, is given of the test lines which are used for determining the quality of the gratings. The reproduction is about 6 in. long, therefore the complete spectrum would be no less than 18 in. With regard to this illustration the circular states that much detail has, of course, been lost in reproduction, but the line midway between E and b at wave length 5,227, is shown clearly resolved into a triplet. In testing the gratings all are rejected which do not resolve this line in the second order spectrum. As the lines are about twenty times as far apart as the adjacent lines in this triplet, it will be seen that these replicas have a resolving power in the second order spectrum twenty times as great as that needed to resolve the D line and ten times that required to show the nickel line between the D's. This is the guaranteed minimum resolving power of the smallest of these gratings. To secure full advantage of this resolving power it is, of course, necessary to use good slit, a high eyepiece, and to focus the image of the sun on the slit. It will be noted that the second order spectrum is used, but still this is a very good test, and speaks well for the quality of the gratings, though personally we should prefer the Nickel line between the D's in the first order, which is that generally used in practice.



## New Materials.

"Isostigmat" (Anastigmatic) Lens. Made by R. and J. Beck, Ltd., 68, Cornhill, London, E.C.

We have received an example of this lens for test and review. It was very fully described some months ago in Messrs. Beck's paper, read at the R.P.S., and reproduced in this journal, it is necessary to go into the details of its construction. The lens submitted to us is No. 4, Series II., of 6 inches focal length and apertures 8 to  $f/22$ , and is recommended for use on a  $5 \times 4$  plate. At full aperture it covers a half-plate with very fine definition. Tested on a small source of light the visible aberration is as small as we have seen with any other anastigmat; very much smaller than is often the case with more expensive lenses of high quality. The field also seems to be remarkably flat. The single back combination at  $f/11$  covers the half-plate very satisfactorily. The single front combination seems to be not quite so good, but is quite serviceable. We did not detect any flare image, though one can be readily found if the lens is reversed. Apparently, the non-symmetrical construction does not cause flare. There is no doubt that this is an extremely good lens, and it is remarkably cheap at the list prices. The low price is due to the fact that the lenses are uncentred, and all of power, with flat curvatures that are easily worked. There is no sacrifice of cheapness in the performance of the lens, though we suggest that it might very well be sent out in a somewhat cleaner condition as regards the interior. The mount is very small and light, and is well suited for a light hand-camera. As the lens has been on the market for a considerable time and many photographers have tried it, it is unnecessary to say much about it. But those who have not tried it can be assured that it is remarkably good value for the money. The prices in magnalium mounts are only £2 12s. 6d. for a 4.5-inch lens at  $f/5.8$ , Series II., and £1 17s. 6d. for a similar at  $f/7.7$ , belonging to Series III. These prices compare very well with those for modern "aplanats" or R.R. lenses.

Gold Chromium Intensifiers. Made by Burroughs, Wellcome, and Co., Snow Hill Buildings, London, E.C.

Just as is the number of compounds at the photographer's disposal for the intensification of negatives, there is still no single one which is in itself all the qualities which constitute a reagent, the ideal for a given purpose. Nevertheless, the chromium intensifier, which owes its recent re-introduction and improvement to the efforts of Messrs. Douglas Carnegie and C. Welborne Piper, possesses certain important and valuable features, which give it a high place among the intensifiers which can be used with confidence. In the first place, the results are of unquestioned permanence; in the second place, the process can be applied within a few minutes of the negative being out of the fixing bath; in the third the action is completed at every application of the process; and, lastly, the process is repeated to give any desired degree of intensification without staining or otherwise impairing the negative. The formulae and directions for the use of the intensifier, as Messrs. Carnegie and Piper recommend it, were the subject of an article by the latter in our columns not long ago, so that it is not necessary for us to recapitulate them. We may, however, give the procedure recommended by Messrs. Burroughs, Wellcome, and Co., which is as follows:—Dissolve one 'tabloid' in each two ounces of water, immerse the film, or print in this solution, gently rocking the dish, until the image is bleached to a buff tint. Wash under the tap until yellow disappears (10 to 30 minutes). Then re-develop fully with any 're-developer'. If greater density is required, repeat the process. One application will give sufficient increase of density, except in the case of very weak originals. When it is necessary to repeat the operation, the 'tabloid' is the best for re-development.

Our own trials of the 'tabloid' preparation have satisfied us of the stability of the intensifier in this convenient form. In place of the old, which we usually prefer to use as the re-developer, but had in hand, we employed rodinal, about 1:20, which gives a fine image on treatment of the buff coloured image produced in chromate bath.

We should like to draw special attention to the chromium intensifier for the improvement of lantern slides and bromide prints. Any

transparency which is to be subjected to great heat, as a lantern slide may, is best intensified by a method which does not involve the volatile mercury compounds. Uranium is unsuitable, on account of the toning action, and we are therefore forced to fall back on acid-silver, which was the best intensifier for lantern slides until the chromium process was worked out by Messrs. Carnegie and Piper. Despite the care and extreme cleanliness necessary, we may still use acid-silver for giving exceptional vigour to a lantern slide, but the chromium solution gives us all the power we need in ninety-nine cases out of one hundred. For bromides the chromium solution is even more useful than for lantern slides, since it gives just a slight intensification, with, at the same time, a change of colour to a beautiful slightly warm black, which is an immense improvement on the developed tone. We advise any one who has not tried the experiment to make a few bromides just on the under-side of full strength, and to submit a few of them to the chromium intensifier. They will be greatly surprised with the result, and for this and any other purpose we can recommend Messrs. Burroughs Wellcome's preparation, which is sold in 1s. bottles, holding enough for 50 oz. (usable several times) of bleaching bath.

## CATALOGUES AND TRADE NOTICES.

A CATALOGUE of the lenses of Planbel and Co., Frankfurt-on-Main, reaches us from this firm. It gives full particulars of the several series of anastigmat objectives sold as "Orthar," and obtainable at as large an aperture as  $f/4.5$ . The firm also issues telephoto attachments, among which is a lens, the "Tele-Peconar," which is placed on the front of an ordinary hand-camera objective to give a telephoto of various magnifications. The "Tele-Peconar," which appears to resemble the Dallmeyer "Adon," can also be used alone. It is sold of aperture  $f/9$  and  $f/5$ , at prices ranging from £2 to £2 14s. Messrs. Planbel's list contains many admirable examples of the use of these and other of their lenses.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### SATURDAY, SEPTEMBER 14.

Hull Photographic Society. Excursion to Bolton Abbey.  
Uddington Amateur Camera Club. Outing to Lanark and Falls of Clyde.  
Chelsea and District Photographic Society. Outing to Greenwich.  
North Middlesex Photographic Society. Excursion to Sutton.  
North London Photographic Society. Outing to Sewardstone.  
Manchester Amateur Photographic Society. Outing to Thames Embankment.  
West London Photographic Society. Outing to Hoylelake.  
West London Photographic Society. Outing to Richmond.

#### SUNDAY, SEPTEMBER 15.

United Stereoscopic Society. Last Day of Entries, Landscape Competition.

#### MONDAY, SEPTEMBER 16.

South London Photographic Society. "Lantern Slide Making." John A. Hodges, F.R.P.S. Monthly Competition—(Lantern Slides).

#### TUESDAY, SEPTEMBER 17.

Royal Photographic Society. Annual Exhibition. Press View.  
Hackney Photographic Society. Presidents' Outing Lantern Slides. Lantern Lecture by F. W. Gosling.  
Blairgowrie and District Photographic Association. Lantern Slides. J. B. MacLachlan.

#### WEDNESDAY, SEPTEMBER 18.

Royal Photographic Society. Annual Exhibition. Private View and Soirée.  
North Middlesex Photographic Society. Lantern Slides. G. E. Williams.  
North Suburban Photographic Society. Print Competition.  
Evertown Camera Club. Ten Minutes Papers.

#### THURSDAY, SEPTEMBER 19.

Royal Photographic Society. Annual Exhibition Opens.  
London and Provincial Photographic Association. "Theory and Practice of Time Development." W. K. Slater.  
North London Photographic Society. "The Oil Printing Process." A. W. Green.  
Handsworth Photographic Society. "Lantern Slide Making by Reduction." A. E. Teague.

JANDUS PHOTOGRAPHIC LAMP.—Messrs. Drake and Gorham, Limited, advise us that by an oversight the price-lists recently sent out had no notification of the 10 per cent. advance which they were compelled to put in operation some little time ago on account of the continued rise in the cost of raw material, which advance is still in force.

## Commercial & Legal Intelligence.

**CHARGE OF EMBEZZLEMENT.**—At the Birmingham Police Court, on September 3, William Henry Evans, 36, of The Brooklands, Albert Road, Stechford, a Birmingham cashier, was charged with embezzling certain sums of money belonging to his employers, Messrs. Hurman, photographic apparatus dealers, of Victoria Square. Mr. Adcock appeared on behalf of defendant. Detective Inspector Goldrick explained that the prisoner was charged with embezzling £16 0s. 3d. on July 16 and £6 on July 20. He understood that the prosecuting firm did not wish to deal harshly with the prisoner, and would like the case settled that morning. It was agreed to take only the charge relating to the £16, and to this the prisoner pleaded guilty.

Mr. Arthur Webb, manager to the prosecuting firm, said that the prisoner had been employed by them since April, 1906. He received the money in question from one of the assistants, and failed to enter it in the cash book or to account for it. Replying to Mr. Adcock, witness said the firm did not know that the prisoner was actually carrying on other businesses on his own behalf. He had had transactions with the firm, but not to the extent of £200 worth of goods. There was some money still owing on the account, but the firm would say nothing about that.

Mr. Adcock said that it was an exceedingly sad case. The prisoner had a young wife and four children. He commenced to work for Messrs. Hurman at 40s. a week salary. A friend was interested in the photographic line, and prisoner was foolishly persuaded to go into the business. He had instructed him to say that he had spent £200 with the prosecutors since he started. He was not trying to justify his position, but if he had not been interested in these businesses he would not have been where he was to-day. The concerns had not prospered, and the money had evidently been expended in them. He had done his best to dispose of the businesses, and if he had done so certain moneys would have been paid to Messrs. Hurman.

Replying to the Deputy Stipendiary, Mr. Webb said that the total defalcations amounted to a little over £100, there being thirty different items. He did not think prisoner had been living above his means, he seemed to be a very careful and hard-working man.

Inspector Goldrick said that prisoner had explained to him that the businesses, which were at Coventry and Ashted Row, Birmingham, had been a great worry to him. The defalcations extended over ten or twelve months. There was nothing wrong before he embarked on this venture.

The Deputy Stipendiary said there were certain extenuating circumstances in the case, and prisoner was sentenced to four months' imprisonment.

**THE RIGHT TO SEE FIXED STARS.**—Sheriff Campbell Smith, Dundee, on Tuesday issued an interlocutor "recalling and quashing" a deliverance by Dundee Town Council authorising the erection of an overhead bridge across Westfield Avenue by Valentine and Sons, Ltd., photographers.

The appellants were Dundee Tramway and Carriage Company, Ltd., and their contentions were that the Town Council have only rights over the street, so far as is necessary for its use as a highway or for the purposes of laying under it pipes, drains, or sewers, and that nothing can be erected above the street without the consent of those owning or having a right of access along the solum of the avenue. They further contended that the Council acted illegally in delegating to the Burgh Engineer the power to approve of the overhead bridge proposed to be erected by the Messrs. Valentine in so far as regards its design, size, and construction.

The Town Council were called as respondents in the appeal, and subsequently Messrs. Valentine were also cited as respondents.

Both respondents pleaded that the appeal was incompetent, and the appellant's averments were irrelevant. The Town Council further pleaded that their approval of the plans and sections submitted to them was expressly sanctioned by statute, and that for almost forty years the Police Commissioners and Town Council had dealt with the applications for the erection of gangways over streets, and either approved or disapproved thereof.

Messrs. Valentine and Sons pleaded that the proposed gangway was in the public interest, and lessened the traffic in Westfield Avenue, and that such gangways were common in the cities and

towns of Scotland, and that having obtained statutory authority erect the bridge the appellants had no right to interfere therewith.

In a note to his interlocutor, the Sheriff says he has looked at plans and other papers also by the naked and assisted eye at Westfield Avenue itself. He has the impression that the money value of the question between the present pugilistic litigants cannot, in present state and complexion of the locality, be a large sum. He formed, however, a clear opinion that the appellants, be they many or few, whose property abuts on this lane, and who have an unputable right-of-way through it, have the right to see the fixed stars from any part of it free from all artificial obstructions that have not become unchangeable by the lapse of forty years.

The magistrates and Town Council, he continues, are the trustees for the citizens of Dundee, and have the right to manage the property of the corporate inhabitants with the same care, intelligence, integrity and circumspection that they manage their own property. The magistrates of Dundee are also the judges in the Burgh Court, under Charles II.'s charter, and pretty much in accord with it under the Common Law of Scotland, which grew to be applicable to burghs, the power of feudal lords grew weak. Town Councils may manage and throw away at less than its value the property of the inhabitants, and after forty years' acquiescence or silence the generation of citizens may have no redress, as was made terribly apparent in the great Dundee stipend case of fifty years ago. Before the civil law of the country as a litigant a Town Council stands on the same platform as any other litigant, the individual litigant being, in the eye of the law, not distinguishable in quality, however petty in quantity, from the corporate litigant, however large the census may be.

Police Acts, written many of them under the inspiration of a love of power, have in them concealed by their verbosity many quibbles, provisions, comments the Sheriff, but it may be said broadly that as a rule, these queer provisions must be construed in the light of indisputable general law of the country. They can never be strained to warrant interference with private property, except on some plausible pretext of tax-gathering, necessary for the obtaining of money for general advantage of the community.

**THEFT BY A PHOTOGRAPHER.**—William Weare, of 4, Tickle Street, Wigan, appeared at the Wigan Borough Police Court, on September 3, on a charge of being drunk and disorderly. He admitted it. Chief Constable said there were circumstances in that case which made the charge against the prisoner that day simply trivial compared with the one that might follow. He was a tramping photographer taking photographs of shop fronts and so forth. A few weeks ago he went to Pemberton to two young men who had just started the business there, and submitted what appeared to them—and it appeared to be honest—some flowery testimonials, on the strength of which they "took him on." They lent him a camera to go and get orders for photographing shop fronts, small parties, etc., he disposed of the camera, which was worth £5 or £6. Then he went and got some things—plates, films, etc.—from Mr. Phillip, the name of his employers. Two charges might be taken against him, one of disposing of the camera, and another of obtaining goods by false pretences. The camera had been recovered, and it depended upon what the magistrates did with the prisoner that morning whether or not the other charges would be preferred against him.

The Magistrates' Clerk: Have you a complete answer to the charge, Prisoner: Yes.

The Chief Constable: All right; if the prosecution is gone on with I am prepared to prove the case.

The magistrates, without regard to the other alleged offences, fined Weare 2s. 6d. and costs.

**MIDLOTHIAN PHOTOGRAPHIC ASSOCIATION.**—This association has been recently formed in Edinburgh for the promotion of artistic and scientific photography, and several names of well-known photographic workers are amongst its members of council. Spacious lecture committee rooms have been secured at 5, St. Andrew Street, where lectures, demonstrations, discussions, and meetings for social intercourse are held at least twice during each month. Those in the neighbourhood interested in photography who may be desirous of joining such an association would do well to communicate with the hon. secretary, Mr. Robert Oliver, 6, Murieston Terrace, Edinburgh, who will be pleased to supply any information.



## News and Notes.

**THE BRISTOL PHOTOGRAPHIC CLUB'S COMMITTEE** have decided to buy as many as possible of the pictures gaining awards at their exhibition next month, with the double object of encouraging competitors and forming the nucleus of an interesting permanent club collection. The committee have also arranged that the judge—Mr. F. M. Sutcliffe—shall give two whole days to the judging, as they feel strongly that this important matter requires more time than is usually allowed for it.

**REFLEX-CAMERA PHOTOGRAPHS.**—The Kodak Company announce the opening of an interesting exhibition at their gallery, 115, Oxford Street, W. There are on view a number of remarkable instantaneous photographs made with the "Graflex" camera. Among these photographs is an extraordinary one of a horse throwing a somersault, the horse being snapshotted completely in the air wrong way up. The exhibition also includes some very ingenious and artistic articles for wall decoration and furniture, in which enlargements on Kodak Royal Bromide paper have been utilised. These have been specially designed to demonstrate the possibilities of Kodak photography applied to home decoration. The exhibition opens on September 12.

**GRIMSEY AND DISTRICT CAMERA CLUB.**—The annual general meeting of the above club took place on September 4. There was a good muster of the members, Mr. A. H. Hewitt being in the chair. A report and balance-sheet, covering the period elapsed since the formation of the society and showing a balance in hand, was placed before the meeting, and was considered highly satisfactory. The following were elected officers for the ensuing year: President, Mr. P. W. Riggall, J.P.; vice-presidents, Dr. G. A. Grierson and Messrs. A. H. Hewitt, W. A. Vignoles, and S. E. Ward; treasurer, Mr. J. N. Benson; council, Messrs. W. J. Brumpton, G. H. Glover, V. W. Green, F. W. Healey, H. Johnson, L. Towle, and F. Poisey; secretary, Mr. H. S. Ogley, 17, Edward Street; portfolio secretary, Mr. W. B. Johnson, 46, Ainslie Street. The question of a photographic exhibition was discussed, and the council were requested to draw up a scheme and report to a future meeting. Votes of thanks to the officers for their services during the past year brought the meeting to a close.

**SOLUBILITIES IN GLYCERIN.**—M. Ossendowski ("C.R. Soc. Chim. class."), using redistilled glycerin obtained by the saponification of tallow, has obtained the following solubility factors. One hundred parts of glycerin (by weight) at 60-62deg. F. dissolve:—

Ammonium carbonate .....	20.00	Sodium bicarbonate .....	8.06
Ammonium chloride .....	20.06	Calcium sulphate .....	5.17
Barium chloride .....	9.73	Copper acetate .....	10.0
Borax .....	60.00	Copper sulphate .....	36.30
Boric acid .....	11.0	Tannin .....	48.83
Benzoic acid .....	10.21	Mercuric chloride .....	8.00
Bismuth .....	2.0	Zinc chloride .....	49.87
Potassium arsenate .....	50.13	Zinc iodide .....	39.78
Potassium iodide .....	39.72	Zinc sulphate .....	35.18
Potassium cyanide .....	31.84	Sulphur .....	0.14
Potassium chloride .....	3.72	Phosphorus .....	0.25
Potassium chlorate .....	3.54	Oxalic acid .....	15.10
Sodium carbonate .....	98.3	Quinine .....	0.47
Sodium arsenate .....	50.0		

**PHOTOGRAPHING CYCLISTS.**—A writer in "Cycling," of September 4, the course of an interesting article on the best way to produce realistic photograph of a cyclist on his machine, recommends the following methods, the results of which are represented by half-tone reproductions of some very satisfactory photographs:—"The method supporting the cyclist needs consideration. That usually adopted at the spur of the moment is the placing of a brick under the lowermost pedal, or resting the same on the kerb, and the result, whatever may be as regards the cyclist, is always a splendid portrait of the brick, which stands out most obtrusively, instead of suppressing itself, as we hoped it would do. I think it almost hopeless to adopt this plan when a broadside-on view is wanted, but if the rider is content with three-quarter one, the task is quite easy. Some part of the machine

or the rider can nearly always be arranged to hide the support, and our first illustration shows how successfully this may be done. I defy anyone to detect the method of support, which was a brick placed under the right pedal. Of course, a stable-yard is not the sort of place in which a cyclist would be likely to ride about at large, and in this respect the picture gives itself away. Also, if it had been taken in sunlight, the shadow of the brick would probably have been very pronounced. But it shows well enough what can be done in the way of rendering the artificial nature of the support unnoticeable. Undoubtedly the most satisfactory plan, however, is to support the cyclist by a length of stout cord, tied at one end to the saddle pillar and at the other to a fence-pole or a strong hedge-stake. This is the plan I have adopted more than once, and always with success. The cord should be long, so that the cyclist may be well away from the hedge or fence—the further away the more complete is the illusion, and the less suspicion is there of the fence serving as a support. If the cord is tied to the top of the saddle pillar, just at the clip, it will not show in the slightest, and, provided it is strong, the rider can adopt any position which may be considered most suitable, without fear of losing his balance. I suggest that the side photographed should always be the right, as the outside of the chain-wheel is generally more pictorial than the inside; and, in this case, the right foot should be forward and the top run of the chain stretched tight. If the machine has a free wheel, and a brake has to be held on to keep it motionless and preserve the tension on the chain, take care that the rider's hand is not in a strained position, the left hand being preferable for this purpose, as being further from the camera. Another way of getting over the movement difficulty is to follow the cyclist round with the camera, and to press the shutter release whilst so doing. This sounds like heresy to those amateurs who have always insisted on the necessity for holding the camera perfectly still during exposure, but it is a very good compromise method when the aim is to secure a sharp picture of the cyclist, irrespective of his surroundings. The cyclist is sharp, but the background of foliage runs into streaks on account of the movement of the camera. It is essential, if this is to be successful, that the rider should "freel" past the photographer, or his moving feet will certainly be blurred and indistinct.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—The committee of the above association have fixed October 10, 1907, as the final date for receiving papers in connection with the Henderson award for the current year. The award (which is open to the photographic world) is one of the value of £5, and may be either in cash, a gold medal, a silver or bronze medal, and part cash, or apparatus, as selected by the recipient of the award. It is made yearly for the best paper upon a photo-chemical or kindred subject, and short abstracts of any competing papers should be sent to the hon. secretary as early as possible. In connection with the above we may add that the L. and P.P.A. are making a very special effort to double their number, in order that the association shall become a monument to its founder (the late Mr. A. Henderson), who died on July 5 of this year. Visitors are ever welcome at the meetings, on Thursdays, at 8 p.m., at the White Swan, Tudor Street, E.C. and may always rely upon hearing some good discussion upon things photographic. The hon. secretary, Ernest Human, 43, Whitta Road, Manor Park, Essex, will gladly answer all inquiries in connection with the work of the L. and P.P.A. and the Henderson award.

**PHOTOGRAPHIC AND PROCESS INSTRUCTION IN MANCHESTER.**—The prospectus of the photographic and printing crafts department of the Manchester Municipal School of Technology—in itself a beautiful specimen of typography—should be of interest to every photographer residing within reach of the educational facilities of Manchester. For this department of the school it may justly be claimed that in no other institution in these islands and probably in none in Europe can an equally comprehensive course of instruction be obtained in the graphic arts, from the making of the original for an illustration to the binding of a printed volume. Manchester lays stress on the "course" as a factor in education, whether technical or classical, but its photographic department is nevertheless arranged to meet the requirements of those who wish for training in any one or two single branches of their art or craft. It is a regrettable feature of professional photography that many enter its ranks with scarcely more than a smattering of the technical knowledge essential to their work. If we could open the eyes of half the number who

thus "start in" without training the workrooms of the technical departments, such as that in Manchester directed by Mr. Charles W. Gamble, and in London by Mr. A. J. Newton, would be crowded. Yet all we can do is to emphasise once again the great importance of technical knowledge and the facilities which exist for obtaining it. The work of the photography department of the Manchester Municipal Technical School is divided into the following sections: (1) Pure photography; (2) photo-engraving and various photo-mechanical methods; (3) letterpress printing, including composing, reading, and machine and press work; (4) lithography, including drawing, design, and printing; (5) bookbinding, including design, forwarding, and finishing. The scheme of instruction in each section includes lectures and practical work, and courses are arranged in the different branches with the object of giving such preliminary training as will be useful to those who intend to enter the various industries coming under the different divisions. The subject of pure photography may be studied by those who wish to enter the business in its different branches, or who desire to devote themselves eventually to the photo-mechanical industry. In addition, a course is arranged of a more strictly technological character for those students who may desire to study more deeply the various processes and the fundamental principles upon which this branch of applied science depends. This course extends over a period of three years, and leads to a degree of the University of Manchester as one of the optional subjects in the division of applied chemistry in the faculty of technology. For such students who are unable to devote themselves through want of time or other circumstances to an extended course of study in photography or photo-mechanical processes special courses may be taken at the discretion of the director of the department on days and at hours and upon such terms and conditions as may be arranged. The department contains a complete photographic studio with three dark-rooms for general photographic work by daylight and by artificial light, and for the special purposes of photo-mechanical reproduction processes. The studio contains four cameras, on anti-vibration stands, designed for copying by reflected and transmitted light. They are arranged for half-tone reproduction, one of them having a number of additions designed for the specific purpose of demonstrating the principles of half tone screen negative-making. Three sets of arc lamps, one set of four, one pair of open type, and one pair of enclosed type, are arranged on overhead traversing gears by which all the necessary movements can be obtained. A studio camera and portable cameras are provided, as well as other cameras for special purposes. For copying plans and tracings there is a Hall cylindrical copying apparatus, fitted with an arc lamp, by means of which reproductions up to double-elephant size can be made. The three dark-rooms are arranged for wet collodion sensitising, wet collodion development, and for dry-plate and collodion-emulsion work. A complete optical equipment is provided, and all the necessary arrangements for the testing of photographic lenses. The studio is also provided with complete apparatus for various three-colour processes, prism and diffraction grating photo-spectroscopic apparatus, arrangements for the testing of sensitive surfaces, and for the determination of the speed of shutters. A room is fitted specially for the purpose of negative preparation and print-making by the various light-printing processes. The whole of the machinery is driven by electric motors. The lithographic and collotype machine-room is equipped with a combined lithographic and collotype machine, direct driven by electric motor, three hand lithographic presses, a collotype hand press, a copper-plate press, and a "Reliance" hand press for the proofing of process blocks. The lithographic drawing and design studio is supplied with all the appliances for the various kinds of work. The etching and collotype preparation room contains fittings of entirely new construction, and there is a complete equipment for the making of line and half-tone photo-engraved blocks, including three-colour work, and for photo-lithography and collotype. There is also a block-mounting and finishing room, with router, saw, bevellers, and all other tools required in the mounting and finishing of process blocks, electrotype and stereotype plates. The school session commences on September 16, 1907, and continues until July 17, 1908. There are vacations of two weeks at Christmas and one week each at Easter and Whitsuntide. Special attention should be drawn to the course of day lectures by Mr. Gamble on "The Practice of Photography," and to the evening courses in negative-making, portraiture,

silver, platinum, and carbon-printing, retouching, and photo-engraving in its various branches. The school provides great facilities for practical work in these subjects.

**CANVASSING FRAUDS IN LEEDS.**—We are glad to see the "Yorkshire Post" giving prominence to the following letter: "May I be allowed, through the medium of your paper, to warn householders of the methods adopted by certain persons who appear to be now canvassing the city? The modus operandi of these people is to call at the house at a time when the male members of the household are not likely to be at home, and to endeavour to interview the lady of the house. If successful, permission is asked to be allowed to make an enlargement of the portrait of some member of the family free of charge "just as an advertisement." No sensible person supposes that the caller is in the philanthropic line, but the request is not acceded to the lady expresses his great astonishment that Madam really means to say she won't have the enlargement given to her for nothing. The persistence of the man, and desire to get him out of the house, results in his being allowed to take away a portrait, the lady arguing that it can at least do no harm, and that she incurs no expense. In a day or two the man returns with the enlargement, and then introduces for the first time the question of a suitable frame, or which he has samples with him. First by peaceable means, but if these fail, then by adopting a bullying attitude, he more often than not succeeds in disposing of a frame at a price far in excess of that for which it could be obtained in the shops; the lady of the house being in the end only too glad to pay the price to be rid of her objectionable visitor. Let there should be any who imagine that the promise of a free enlargement will be fulfilled, I may add that one case came to my knowledge in which a lady declined to purchase a frame, whereupon her enlargement was destroyed before her eyes and the pieces thrown into the street. Ladies will avoid considerable anxiety and annoyance to themselves by declining to have any dealings with this class of person.—TOM TIT.

**LANCASTER PHOTOGRAPHIC SOCIETY.**—The annual exhibition will be held in the Friends' Hall from November 25 to 28—latest date for entries, November 16. Full particulars and entry forms may be obtained from the hon. secretary, Mr. Walter Gunson, "Manesty" Scotforth Road, Lancaster.

**THE SOUTHERN EXHIBITIONS.**—Again Southampton, Southsea, and Hove societies combine to hold their annual exhibitions in November and December. As before, one entry form and fee is sufficient for all three, and the exhibits are forwarded from exhibition to exhibition free of cost to exhibitors. There are two competitive classes, ten awards being placed at the discretion of the judges. There will also be an invitation section this year. Entry forms can now be obtained from S. G. Kimber, Oakdene, Highfield, Southampton. The dates of the three exhibitions are: Southampton—November 1 to 23; hon. secretary, S. G. Kimber, Oakdene, Highfield, Southampton. Southsea—November 28 to December 4; hon. secretary, Gilbert Wood, 10, Pelham Road, Southsea. Hove—December 11 to 14; hon. secretary, Stanley Road, 12, Old Steine, Brighton.

**PROFITABLE PHOTOGRAPHY.**—We look to our lay contemporaries for news of the things which are about to revolutionise photography—to make the fortune of the photographer, but it is rarely we light on such a really entertaining item as the following, from a newspaper in the Sister Isle:—"Some years ago a bright young girl was employed behind the counter of a London photographer's studio. It seemed that the art of photography had reached its climax; that there was nothing else to be done in the way of its advancement, except to invent a practicable method of reproducing colours. This observation a young woman was impressed by the boredom which posing entailed upon most of the customers. She set her nimble wits to work to devise some improved plan, to evolve an idea that was worth while. She did it. To day she owns one of the most successful photographic galleries in London, and is making her fortune rapidly. She simply makes a photograph of the face, then measures one limb, and from the basis produces a splendid, gracefully-posed portrait of the entire body without worrying the sitter to strike various tiresome attitudes. How does she do it? That is her secret—the profitable idea that sprang from her busy brain."



## Correspondence.

*Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*We do not undertake responsibility for the opinions expressed by our correspondents.*

### PENDULUM ROCKERS.

To the Editors.

Gentlemen,—In an article in your "Ex Cathedra" to-day you commend the use of a pendulum rocker for use in the dark room. I would wish to warn your readers that this pattern is not to be trusted as advertised in the price lists. No doubt, when the weight is very heavy, it will work for some time; but, as usually sold, it soon stops and requires constant attention. When rocked without oil, or with a dry one, it will appear to answer well, but if a few ounces of water be put into the dish it will be found that it very soon comes to a stand. The reason of this is that the water moves in the dish which follows the tilting of the dish; just as the dish is moved and begins to reverse its motion, the wave strikes the end of the dish and checks the motion. This action, repeated at each tilt, finally brings the whole to a stand. A heavy weight is inconvenient, and at best is but a palliative. The clockwork rockers are noisy, and I should think they are liable to injury from solutions being poured over, and, too, they are noisy.

An efficient rocker is still a desideratum. The pendulum as now on the market does not fill the rôle.—I am, Sirs, yours obediently,

J. F. TENNANT.

11, Clifton Gardens, Maida Hill, W.

### SKIN AFFECTIONS AND THE TONING BATH.

To the Editors.

Gentlemen,—I have read with interest the correspondence in the "Ex Cathedra" on above subject, as I have suffered for about twelve months with bad hands, but I notice that most of the correspondents attribute the trouble to the developer. My case is different. I never develop, I only tone (sodium gold and sulphocyanide bath). My symptoms are an itching and burning of the prints, afterwards the skin cracks just as if my hands were frost-bitten, the skin peels off my fingers, and the itching is almost unbearable. I tried a remedy you suggested a few weeks ago—boracic acid, glycerine, and lanoline—but to no purpose. I should be pleased to hear of a remedy for this.—Yours faithfully,

OAK SIDE.

Wentworth, W.

September 6, 1907.

### WATER AS A CAUSE OF BLISTERS IN BROMIDES.

To the Editors.

Gentlemen,—Re your remarks on blisters last week, let me tell you my experience last winter. I have always used the water from the tap near the door of my work-room, but just before Christmas the pump got out of order, and I used the town supply, with the result that I had blisters galore, big, little, and middling size. I, of course, blamed the makers, who said the paper was right, but I did suspect the water. When after a time I had the pump repaired the blisters disappeared like magic, and I have had no more since. The water was extremely "hard," the town supply very "soft." I use hard water for bromide paper whenever possible, and this trouble.

OTHELLO.

VERY BEAUTIFUL but little-known part of Surrey lying among the hills some 700ft. above the sea is to be described and illustrated in the next work which Messrs. Simpkin, Marshall, and Co. will issue. The course of a few days under the title, "On the Hills of Health, and the Week-end Cottage Dweller."

## Answers to Correspondents.

\*<sup>a</sup> All matters intended for the text portion of the JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\*<sup>b</sup> Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*<sup>c</sup> Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\*<sup>d</sup> For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

E. R. Yerbury, 1, Hanover Street, Edinburgh. Two Photographs of the Band of the 2nd Bn. of the Seaforth Highlanders.

V. Andrews, 68, Chepstow Road, Newport, Monmouthshire. Photograph of Mr. F. Richards at his Easel.

F. Ormiston-Smith, 32, Devonshire Road, Forest Hill, London, S.E. Six Photographs of Rudolf Bernet, and Four of Christian Bohren.

C. Smy, 75, High Street, Upper Houghton, Dunstable. Photograph of an Old Print, Priory Church, Dunstable, in the year 1100.

PATENT QUERY.—We have brought out a stand to take two 7ft. vignetted continuous grounds, one on either side, on double rollers, which is very simple, effective, and up-to-date. Same is on castors, and easily moved about to any position. We write to ask you how we could get it protected cheaply till we could offer it to some of the large firms. Will you kindly give us any information you can? Of course, we do not want to go to the expense of a patent till we see if same would be likely to go, but we have no fear on that score.—L. B.

Provisional protection would cost you only £1, or about £2 2s. if you employ a patent agent to draw up the specification for you. You can obtain all the information in a circular, obtainable from the Comptroller of Patents, 25, Southampton Buildings, E.C.

STAINED NEGATIVE.—Would you kindly oblige by telling me how to clear some whole-plate negatives? I develop them in pyro-soda, weakened with water about three times the quantity. After developing and fixing they are very yellow, and I tried to clear them with nitric acid and water. It cleared them a little, but did not clear them perfectly. I took a bromide print off. The exposure was very long. After that I reduced the negatives with ferricyanide and hypo in the ordinary way, and cleared a little more with nitric acid. After that there was a milky appearance on the backs of the negatives, as if they were only half fixed, which made them take longer to print. Would you kindly tell me how to remove this and clear them up; also how to harden the film?—F. E. GRAY.

You have decomposed the hypo by the acid treatment, and the whitish appearance of the negatives is the result. We fear they are beyond recovery now. You may try re-fixing them for 10 minutes in a bath of say, 6oz. hypo per pint, but we doubt if that will clear away the sulphur deposited on the film. You should know that hypo and a strong acid such as nitric, hydrochloric, or sulphuric should never be allowed to act on each other in the film. The best way to harden the gelatin film is in 10 per cent. solution of alum or 10 per cent. formalin solution. We advise you to study a handbook of after-treatment, etc., such as "Finishing the Negative" (Dawbarn and Ward, 1s.).

E. T. BUSE.—W. H. Smith and Son, Strand, and Kingsway, London, W.C.

FLASHLIGHT POWDER.—Please give us directions for making one pound of the new flash powder mentioned in "B.J." for August 23, this is if it is not a patent. Can you say who sells cadmium nitrate free from acid? Also of what fineness does the magnesium powder require to be? Give address of a maker of magnesium powders?—T. H. BAKER.

We can give no further particulars beyond those contained in the article to which you refer. We personally have had no practical experience with any of the compounds mentioned. You will

see by our note on the subject that great risk is incurred in the making of any of the compounds by inexperienced persons. We should certainly not advise you to attempt to make any such quantity as a pound at a time. If you make any at all we suggest that you keep the ingredients separately, and then mix only sufficient for an exposure as required, mixing them on a sheet of paper, using a strip of thin cardboard as a spatula. Magnesium powder, suitable for the purpose, is sold by all the large photographic dealers. Nitrate of cadmium is supplied by such houses as Hopkin and Williams, Cross Street, Hutton Garden, E.C. They will doubtless supply it free from acid if requested. Flash powder is made by Chas. Zimmermann and Co., 9 and 10, St. Mary-at-Hill, E.C.

**LEAKY TAP.**—I have a large jar, containing stock solution of hypo, to which I have fitted a wooden tap. But the solution oozes through the wood and forms into crystals outside, which drop off. Is there any means of waterproofing the tap to prevent this? Your advice would greatly oblige.—CONSTANT READER.

It seems clear that you have not got a good tap, or it would not act as you say. We should advise you to get a good boxwood one. Failing that, you had better soak the hypo out of the one you have, thoroughly dry it, and then well rub in tallow or vaseline, so as to fill up the pores of the wood.

**TEST FOR HYPO.**—I should be extremely grateful if you would tell me through your columns what percentage permanganate should be mixed with water to tell whether the hypo is properly extracted from prints and plates after they have been washed.—F. W. DRAKE.

The test is simple. Add a few crystals of the permanganate to, say, a pint bottle of water so as to give it strong tint only. This may be kept as a stock solution. To test: Let a few drops of the water drain from the prints or negatives into a test tube, then add a drop or two of permanganate solution. If the colour is discharged you may know that hypo is still present. If the colour remains the whole of the hypo is removed.

**FADING PRINT.**—(1) Will you kindly tell me, if possible, the reason for this print (and others) fading? I always take every care to fix properly, and also wash all prints by hand, after fixing, in twelve changes, draining each print separately; they are dried as quickly as possible (spontaneously), and mounted by the dry-mounting process. This print has only been made about two months, and has been in the window for about three weeks, on and off. Would it be detrimental to prints if I used a stronger fixing bath than the one recommended with the paper, which is: Hypo, 1 oz.; water, 15 oz.? I should be grateful for any hints you can give me to ensure permanency of my work; the paper is C.C., and gives excellent results except for this. (2) Is there any book dealing with studio portraiture in colours? By this I mean real colour photography, and not hand-coloured portraits. If so, will you kindly give me the name of book and author, and say where I can get it?—C. C.

(1) We suspect that the cause lies in the treatment of the print, though in precisely what respect it is not easy to say from your description. It is the general experience that platinum toning alone gives results of less permanence than gold, followed by platinum, though a gold-toned print will not begin to go off, as a rule, until a year old. We advise you to adopt gold, followed by platinum, if you have not already done so. The numerous hints on C.C. paper on pages 786-9 of the current "Almanac" ought to assist you. (2) There is none. We should advise you to join the Society of Colour Photographers (secretary, Mr. Henry J. Comley, Surrey House, Stroud, Glos.), whereby you could come into communication with those willing to assist you personally.

**SHOWCASE RIGHTS.**—We should be much indebted to you if you would advise us on the following matter: We have recently opened a business at the above address, and for show purposes have placed in the front garden of the house a showcase. The case is the usual thing, about 11ft. long, 6ft. high, and 2ft. deep, standing on six wooden legs, sunk in ground. The case is back from the front railing 18 inches, and no part hangs over the footpath. A few doors above our premises (which is one of a row of private houses) shops have been erected, and the line of these shops, although in advance of the houses adjoining, is about 6 feet behind the line of the front palings of the houses. The case has been erected now about eight weeks. We have just received

a visit from the district surveyor, who says his attention has been called to our case, and that we must move it, as we have not got permission from the council to erect it, and that in any case it must not be advanced in front of the line of shops above, which would be some 7 feet back in garden, and that we must send sketch to the council and get permission to erect. We remember reading some time since in the "B.J." a case similar, in which a council went to law to compel the removal of a photographer's case, and to the best of our knowledge, lost. If you could advise us as to how we stand we should be extremely grateful, as to put back the case would be very detrimental to our business. STILLIARD AND CO.

Two summonses of a kind almost exactly similar to yours were brought last year, and were both lost. The first was that of Mr. H. Ernst, of 14, Finchley Road, N.W., who was summoned by the London County Council. The magistrate before whom he was heard described it as a piece of paltry interference which almost took his breath away. ("B.J.," January 19, 1906, p. 5.) The second case was that of Mr. W. P. Marsh, of Chichester, and was withdrawn on the magistrates holding that the showcase was not a building. ("B.J.," March 23, 1906, p. 235.) We advise you to acquaint a solicitor with these cases, and defend the summons.

**LENS QUERY.**—I have a lens (portrait) engraved T. Slater, London, which seems a remarkably good instrument, and with an unusual flat field, but not having heard the name, can you tell me if he was a maker or a dealer, and how long ago did he carry on business?—OTHELLO.

Slater was a maker of lenses, and his premises were situated in what is now the Euston Road. He was amongst the earliest English makers, and his lenses were in good repute at the time. He ceased, we think, to make photographic lenses somewhere about the early sixties.

**POSTCARDS.**—(1) Can you tell me if the pretty coloured postcard actresses are done with tints that we use to colour photographs, and how they are got so highly glazed, which I think must be done after tinting them? (2) I should also like to know how tinselling on them is put on, and where it can be obtained. I have a clouded background, which has become very creased, and whenever rolled up makes the marks worse on it. Can I do anything to it? I had thought of gluing some brown paper do the creases on the wrong side, but was afraid it would show through. I have had it taken off the roller and re-nailed on to try and do away with them.—B. D. G.

(1) Special aniline colours which dry glossy are sold by houses such as Fallowfield. (2) In tinselling, a little fixative or adhesive is painted on, and the jewelling powders dusted on. Reinemund and Co., New Zealand Avenue, Barbican, E.C., will give you prices of the materials and instructions for their use. If you glued paper on the back in the way you suggest, expect it would cause cockling of the background; in that case the remedy would be worse than the disease. We suggest that you lay the background, face downward, on the floor, and then go over the back of it with a wet sponge, making it evenly all over, and allow it to dry. This may, possibly, get rid of the creases. But if they are very pronounced it is doubtful if they can be successfully eradicated.

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## SUMMARY.

The first annual exhibition of the Society of Colour Photographers opens on September 30. (P. xviii.)

The Lumière Brothers receive a medal in the technical section the R.P.S. Exhibition for their invention of the "Autochrome" plates. (P. 705.)

"Autochrome" plates at the standard prices can now be obtained from Messrs. Adams and Co. (P. 711.)

A photo-micrograph, by Mr. J. H. Pledge, F.R.M.S., showing the black crosses "marking in the starch grain of the Lumière "Autochrome" plate, is reproduced on p. 721.

The frilling of "Autochrome" plates may be prevented by a procedure described by Mr. Welborne Piper on p. 711.

A recommendation of "The Amateur Photographer" is quoted on 717.

The Warner-Powrie Process.—Following some further notes on its latest development of screen-plate colour photography, Dr. Kenneth Mees points out the facilities of the Warner-Powrie system, the making of colour duplicates and prints on paper from the negative obtained at a single exposure in an ordinary camera.

Mr. E. J. Wall characterises the process as a most important advance. (P. 707.)

The Oil Process.—M. Puyo kindly specifies and illustrates the precise brushes used by him for the pigmenting operation in making prints. (P. 712.)

The R.P.S. Exhibition.—A brief impression of the exhibition as a whole appears on p. 712.

The Photographic Salon.—The first portion of a review of this year's exhibition occupies pp. 713-4.

## EX CATHEDRA.

### Honour for the Lumière Autochrome Plate.

It should be difficult to find a single dissentient from the award made in the technical section of the Royal Photographic Society's Exhibition to the Lumière Brothers for their "Autochrome" plate. If there is one, he cannot have seen the collection of three-colour transparencies on the plates which form a special section of the exhibition and constitute a chorus of encomiums more eloquent than any form of words. The invention has obtained and more than deserved a reception as enthusiastic as that accorded to the process of Daguerre, with which, in fact, it has a number of points in common. Its triumph is bound to fix attention for some time to come on the screen-plate methods of colour photography, more than one of which, if reports are true, are commercially imminent.

\* \* \*

### A Case for Protest.

A disgraceful scene, in which photographers figured, was witnessed on Saturday last on the Brooklands motor track and ended, according to reports, in a free fight. During the racing a car was overturned and two persons seriously injured. On their being removed to the office of the clerk of the course, a number (six or eight) of photographers—presumably Press photographers—endeavoured to push their way into the office with the idea of photographing the bruised and bleeding bodies under the hands of the medical men. This the officials prevented, and, seizing some of the most prominent amongst the photographers, hustled them away from the door, much to the satisfaction of the general body of onlookers. No doubt these men were employed by some of the newspapers which give illustrations of such sensational accidents as the above, and, it is to be hoped, pay well those who do their best to execute their commands. In the above case, had the photographers succeeded in their object, there is no doubt that some of the papers would have had illustrations of the injured and bleeding victims of the accident being treated by the doctors. It is, however, satisfactory to learn that the officials frustrated such an outrage on decency, for which the papers sanctioning such practices are as much to blame as the photographers.

\* \* \*

### Aluminium as a Reducer of Silver Chloride.

M. Emile Vigouroux, in a paper recently before the French Chemical Society, has described the results of some experiments on the use of aluminium as a reducing agent for the silver haloid salts. He has found that metallic aluminium is an active reducer of silver chloride in both acid and alkaline media, but as a practical

process recommends the treatment of the washed silver chloride when moistened with a little hydrochloric acid. Only enough of this latter is used to form a paste of the silver chloride, and the addition of fragments of aluminium then gives rise to a rapid reduction. The metallic silver thus obtained is found to have a high degree of purity, amounting to 99.5 to 99.6 per cent. of silver. The fact of the process requiring no accessories in the way of furnaces, fluxes, etc., specially fits it for the purposes of those desirous of recovering their own residues.

\* \* \*

**Sunday Photography.** Although there have been several convictions of late against photographers for carrying on their businesses on the Sabbath, Sunday photography is as largely carried on as it ever was, and is likely to be so long as the antiquated Act of Charles II. is the only one under which prosecutions can be taken. Last week a tobacconist and news vendor, Jacob Popp, of High Wycombe, answered the 300th summons against him for Sunday trading, in infringement of the Lord's Day Observance Act of Charles II. He was fined 2s. 6d. and costs. The utmost fine that can be inflicted, as we have said before, is 5s., and few photographers who carry on what is often a lucrative business on Sundays are likely to be deterred by such a penalty. It is noteworthy that it is only in country districts that this old Act is sometimes put into force, rarely in large towns. In some of them, such as manufacturing districts, a good amount of business is done, as many who want their portraits taken cannot afford the time to don their "Sunday best" on weekdays. To such, Sunday photography is certainly a great convenience, as without it their friends would be unable to possess their portraits. Still, the law does not look upon the taking of portraits, even in these circumstances, as a work of necessity such as to claim exemption under this ancient Act.

\* \* \*

#### **Cleaning Negatives.**

A correspondent last week asked for a method of cleaning a negative upon which sulphur had been deposited as the result of following a hypo bath with one of acid. The cause of the trouble was the attempt to remove pyro stain with nitric acid. The acid decomposed the hypo contained in the film, and thus the one trouble was supplemented by another. As a matter of fact, a simple acid bath is of little use as a remedy for pyro stain. This stain is not readily removed by any means, and if it is not wanted it should be avoided at the start by using a non-staining

formula. When it exists it can be reduced most effectively and safely by bleaching the negative in a solution of potassium bichromate and hydrochloric acid and redeveloping it with a non-staining developer. If sufficient acid is used there will only be very slight intensification and it will be found that the printing time of the negative is very much shortened. Good proportions are 10 grains bichromate and 20 minims hydrochloric acid in one ounce, while amidol is perhaps the best redeveloper. This process will also remove sulphur freshly deposited in the film from decomposed hypo, for the bleaching solution dissolves freshly precipitated sulphur somewhat readily. It may not do so if the sulphur has been in the film for some time, as in our correspondent's case, while this point is doubtful, the remedy is worth trying. The process is very safe and certain, and it seldom fails to materially improve a negative, though, of course, so stains are proof against it.

\* \* \*

#### **Copyright Pictures in National Collections.**

A case of some interest to photographers who copy pictures in public galleries came before the Vacation Court one week last week. From the report, it seems that the defendants in the case, Messrs. Clarke and Davis, being desirous of copying the picture of "Harmony," by F. Dicksee, R.A. (now on exhibition at the Tate Gallery) and of issuing the reproductions as postcards, obtained the permission of the Trustees of the Gallery to do so and proceeded with the work. Thereupon Messrs. Agnew and Sons applied for an interim injunction to restrain the defendants from infringing the copyright they held in the picture. When the case came on last week, the defendants said they were willing to submit to a perpetual injunction and the learned judge made an order to that effect. From this it will be seen that, although the Trustees of the Gallery had given permission for the picture to be copied, the reproducers were still liable to action for infringement of the copyright which existed in it. Several of the pictures in the Tate Gallery are still copyright, although the Trustees may give permission for them to be copied, that does not exempt the reproducer from proceedings under the Copyright Act if there be an existing copyright in them. That is a matter that the would-be reproducer should ascertain for himself before applying for the consent of the Trustees, or he may find himself landed in legal proceedings. Artists sometimes sell the copyright in their works and the pictures separately, in which case the owner of a picture has not the right to reproduce it.

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

SCREEN-PLATE THREE-COLOUR PROCESSES and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1908 will be

modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1908 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.



## TITLES FOR PHOTOGRAPHS.\*

year or two ago the "Studio" office published a book purporting to be for artists and photographers. It is a collection of poetical titles intended for pictures. Our contemporaries took it upon itself to empty its scorn upon painters for the mere idea of it, presumably for the sin of their having had for them a thing which they did not want, had asked for, and would never use. We wonder if that paper will change its point of view in its work, or whether it will, in consistency, ban photographers for humbugging cheats because this is prepared for them.

Without a doubt such a book embodies a ridiculous or it is manifestly one thing to be reminded of a line of poetry by some scene or its presentment, its another to look up a book of verses and couplets would a directory or a time-table. Suppose, for example, Harry gets a nice view of bathers on Ramsgate will he improve matters by looking out a title which thinks worthy of it, such, for instance, as:—

"The moving waters at their priest-like task,  
Of pure ablution round earth's human shores"  
"High-falutin' titles pall. Fancy the catalogue of a whose library owned a well-thumbed copy of this book! What an anthology of snips and snails it is! Nine times out of ten a plain prose descriptive cannot be beaten. Tags of poetry are a nuisance as is usually the case, they but put bald statements of fact into jingle or inversion. Where a poetic of service is in the case of an idea in a picture not be described in matter-of-fact prose, but which line of poetry will delicately direct and attune the . The sort of thing we are given a choice of here sunset on a summer's day," "The evening shades " "The evening twilight fades away," "The sun the fields." If the not extraordinary effects these jewels of poetic diction are not sufficiently in the pictures without them, the photographer is in a lous state, and it will take more than a title book to help him.

of the specimens are far-fetched enough. What

"Titles for Photographs." London: Office of "Focus," 6d.

business has this under "Architecture": "In gloomy cells and shades profound, the monk abjured a world he ne'er could view." The precise compliment implied in the following is a little elusive: "No spring, no summer's beauty hath such grace as I have seen in one autumnal face." And this is not much better: "Her hair is like the summer tresses of the trees," which seems to us to say little for either the hair or the trees. "A man he seems of cheerful yesterdays" might apply to one at present down on his luck. "The fresh spring's gaudy hue" may probably be useful when colour work has become more general, but what could be distinctly identified pictorially by "The gentle air of spring"? If anything could be made of it, we should suggest the title "There's air!" as even more free from ambiguity. A similarly elusive effect to photograph would be that which would picture "May glides onward into June," and he would be a close observer of Nature who could focus on the business as it progressed.

Many of these titles torn from their context convey only flippant ideas, which is a gross unfairness to the poet. "The daisies kiss our feet" induces the question, Whose feet? and our answering imagination includes those of tramps and gypsies, or of heavily shod cow-shed boys, and we do not envy the daisies. In the same way, "Up the sunny banks The trees retire in scattered ranks" makes us think of the advent of the camera fiend and its effect upon horror-stricken nature. "Yon cottage seems a bower of bliss" should surely have been classified amongst figure subjects, and so might "Dusky-sandalled Eve," whilst "The swell of summer's ocean" might fit a portrait of our friend Mr. Mortimer. The following, if shorn of its first two words, would also come in for figure work: "Autumn, like a faint old man, sits down."

We might go on for pages, pointing out the absurdities of lines wrenched from their context, of misquotation and mauled quotation, the latter quite painful in some cases. But we hope we have shown enough of the kind of thing by our few examples. At the end there are a quantity of real brand-new phrases never seen upon a picture yet, such as "Homeward bound," "Maiden meditation," "Toilers of the sea," "The bookworm," and many other "new and favourites." The best thing in the whole book is a list of synonyms, which appears to be well done, and is likely to be useful.

## SCREEN-PLATE PHOTOGRAPHY BY THE WARNER-POWRIE PROCESS.

last week the account of the Warner-Powrie screen-plate process, there were several matters which we were compelled to mention briefly as possible in order to avoid over-burdening the reader with technical details. The interest, however, in the process is sufficient inducement to add certain other matters to those already given. As regards the results, our readers are afraid, must possess their souls in patience until the opening of the Exhibition of the Society of Colour Photographers on September 30. The collection of examples of colour processes to be there brought together is likely to be of sufficient interest alone, yet the great and unique permitted by the Warner-Powrie process give good results, or supposing that the show will be visited by many people, this account.

### Process of Manufacture of Warner-Powrie Screen-Plates.

of general interest to give a more detailed description of the way in which the screen-plates are produced in the Warner-Powrie process. The surface of a plate of ordinary glass

is thoroughly cleaned and coated with a weak solution of gelatine, albumen, a mixture of the two, or of any suitable colloid body containing a proportion of alkaline bichromate. The mixture is very similar to the bichromatised fish-glue employed by photo-engravers. This coating having dried, the plate is exposed under a screen ruled with opaque lines which are double the width of the transparent spaces between them. The spaces correspond, as we shall see, to the exact width of the green and red bands in the manufactured screen. Those portions of the sensitised coating which are protected by the lines of the screen are not affected by the exposure to light, but the portions underneath the spaces in the screen are rendered insoluble on exposure. "Development" takes place in warm water, the mixture of glue and albumen dissolves in the unaffected parts, and there remains on the plate an enormous number of transparent lines in relief separated by depressions which are bare glass. The plates are then immersed in a solution of a green dye which penetrates the colloid bands, and forms a screen of microscopic green lines. The plate is then placed in a bath of alum or tannic acid,

which fixes the colour and enables the bands to attain sufficient intensity. Emerging from this bath, the plate is washed and recoated with a sensitive mixture and again exposed under the same screen, but with an adjustment of the carrier in which it rests to such an extent that the green lines just produced are protected by the double width lines of the negative. Between the portion of each band left uncovered and those stained green there is thus formed a narrow region which is equally protected by the opaque bands of the negative. On exposure being completed the plate is passed as before into warm water to develop the image, and it is then seen that a screen has been formed with a series of green lines and of transparent lines in relief separated by intervals narrower than the lines in relief. The plate is then plunged into a red dye bath and fixed and mordanted as before. Examined by transmitted light, the screen then presents a yellow colour, due to the mixture of the red and green rays of the two lines which are printed at this stage. It has now to receive a third impression of bichromated mixture, and is then exposed through the back without the interposition of any negative. The light thus reaches the sensitive film through all portions of the screen not occupied by green and red lines. As soon as exposure is completed it is again developed in warm water and transferred to a blue dye bath, which stains only those portions other than the red and green, and forms with them a continuous series of colours over the whole of the screen. As a result, the screen examined under a microscope shows a series of fine red and green lines separated by narrower blue lines, and to the naked eye examining it by transmitted light appears grey, due to the mixture of red, green, and blue.

From a practical point of view, this method, which consists essentially in leaving between the red and green lines a space which can be filled up with the blue, offers several advantages:—

1. It removes the difficulty of registration after the exposure of the screen.
2. It avoids all possibility of white interspaces and of overlapping of two bands of different colours; and
3. As blue is the colour which appears most intense in the screen, it is an advantage that the blue lines should be slightly narrower, and thus less visible.

The screen is coated with a suitable varnish, and is then ready to receive the panchromatic emulsion.

All the operations are conducted by a machine which brings the sensitive plate in contact with the screen-negative, and automatically adjusts exposure to variations in the temperature

and humidity of the air. Although the method is used by originators of the Warner-Powrie process for securing plates in lines, yet it is equally applicable to the making of screen-plate of any form whatever, and whether of regular metrical pattern or of irregular grain. The advantages, however, which are possessed only by a plate of linear ruling, already been pointed out in the previous article on the subject, yet as it is conceivable that for certain purposes of the process worker a screen of other pattern might be a desideratum, it is therefore of importance to recognise that the method of producing the screen-plates allows of any such variation being made.

### The Simplicity of Printing Warner-Powrie Colour Transparencies.

The danger of writing of the Warner-Powrie process in any description makes it appear complicated. Although the actual manipulations are necessary for the printing of a colour transparency, the actual manipulation is precisely the same as the making of a lantern-slide with the exposure broken up into three regions. There is no register needed between the screen-plate negative and the sensitive positive-plate, save that one set of lines be at right angles to that of the other, and printing is done by ordinary artificial light. Such, indeed, is the simplicity of the process that when the directions for the use of the colour plates come to be written they will read something like this:

"Lay the colour-negative film upwards in the printing-frame and lay upon it a piece of thin glass. Lay the positive-plate film down and expose with the printing-frame square to the light. At the end of ten or fifteen seconds, and without covering the printing-frame, shift the frame to a small distance to the rays of light, and continue exposure for a further time. At the expiration of this time again shift to another angle—the opposite direction—and again expose for the same time. The plate is then removed and developed in the developer at a fixed time."

Some other aspects of the Warner-Powrie process must be mentioned for future issues, but in the meantime we must ask for careful reading of the following articles by Dr. C. E. K. Mees and Mr. E. J. Wall. Dr. Mees, it will be seen, shows that the Warner-Powrie method is free from the disabilities of irreproductiveness which characterise an irregular grain process. The diagrams and text explaining the difference between the two require a close study in order that this new and very important side of screen-plate colour processes may be understood.

## PREPARING COLOUR-DUPPLICATES BY THE WARNER-POWRIE PROCESS.

In the history of all technical processes there are two distinct stages—the first, the period during which ideas occur to inventors, and patents are taken out. In every process these ideas and patents follow one another in rapid succession from many different sources. There follows a period of experiment and research on the part of the inventors which frequently eliminates a large number of the more impracticable of the processes. And then comes the second period, when the fittest, which have survived, become workable and practicable, and eventually make their way on to the market. It is this second stage which appears to be now commencing in the history of screen-plate colour photography, and it is because screen-plate colour photography has at last developed from the experimental stage into the region of practical manipulation that it has aroused so much interest and thought.

At first sight the advantages offered by a process in which only one plate was used, in which an ordinary camera was used, and in which only one exposure was required, appeared overwhelming, but it is clear that these advantages will be to some extent counterbalanced by corresponding disadvantages. In the case of mosaic plates the most serious disadvantage lies in the impossibility of reducing those plates; and one can make one,

and only one, positive; and second positives, and more especially prints on paper, are out of the question.

### Wanted, Prints on Paper.

It is generally felt that in any process of colour photography which is to be really successful it is necessary that prints on paper should be obtained, and those who have watched the development of colour photography will probably agree with me when I suggest that the great increase of interest in the subject during the last few years has been due not so much to improvements in methods of negative making as to the development of processes which render the production of prints on paper, if not at least practicable, so that the impossibility of printing of prints on plates is an exceedingly serious handicap.

### The Drawback of Reversal Processes

Another great difficulty of the process is the reversal which is necessary to transform the negative into the positive. This does not merely introduce a number of complicated chemical actions, but has a far more serious corollary. In order to obtain a satisfactory reversal by means of solution of the silver by an agent, such as persulphate of permanganate, it is essential that the plates should be thinly coated. If a thickly coated



containing a good deal of silver be taken, it is not possible to develop that silver through to the back in the highest exposures, and any undeveloped silver bromide left in the high-lights causes in the secondary development a veil of fog to spread over the entire plate, which degrades all the colours, even if it be very slight indeed. Consequently, it is necessary that the emulsion used for a plate intended for reversal shall be thinly coated, and shall contain very little silver. This produces at once the unfortunate result that such an emulsion can have but little latitude, and for this reason the range of contrast which a mosaic plate intended for reversal can render is very small indeed, it being, for instance, almost impossible to render the colour of a heavy foreground and also a blue sky above; and, moreover, it is necessary that exposures should be judged with considerable accuracy.

**The Warner-Powrie Screen-Plate Process.**

The new method of printing discovered by Mr. Powrie, and described in last week's BRITISH JOURNAL OF PHOTOGRAPHY, constitutes a step of the greatest importance in the production of four photographs. It enables us to make, not a positive but complementary negative, in which not only is black rendered as clear glass, and white as a dense deposit, but greens are represented as magenta-reds, blues as yellows, scarlets as blue-greens, and so on; and from this complementary negative we prepare any number of positives giving the correct colour rendering. It gives us, moreover, two separate and distinct methods of printing on paper.

Either we can prepare from the negative a set of non-linear transparencies which can then be printed by any method, such, for instance, as the convenient pinatype process, or it enables us from the colour positive to print on "Uto" paper, a process which, with the improvements which are sure to come in bleaching paper, will probably be of the greatest importance. It may be of interest first to consider the effect of the printing the positives from the negatives in the Warner-Powrie method with the aid of diagrams, which were originally published in the BRITISH JOURNAL OF PHOTOGRAPHY of July 5:—

Consider a colour negative having lines (horizontal in the original) of red, green, and blue, and imagine this to have been exposed to green light and developed so that the green stripe is black, the clear red and blue lines giving the plate a bright magenta colour. Now superpose this on a second line-screen placed at right angles over it.

Then Fig. 1 shows the appearance of the two plates, the squares which are crossed out being black and the clear squares (1 and 9) transparent and coloured. Squares 2, 3, 7, and 8 are black (or very dark), because two different lines are overlapping, while squares 4, 5, and 6 are black because of the deposit on the

	Red	Green	Blue
Red	1	2	3
Green	4	5	6
Blue	7	8	9

Fig. 1.

	Red	Green	Blue
Red	1	2	3
Green	4	5	6
Blue	7	8	9

Fig. 2.

green stripe. If a positive plate be exposed behind this we shall see the appearance shown in Fig. 2, where squares 1 and 9 are black and the other seven squares clear. Now let us consider the effect of printing these two plates in the method shown on page 689 of the "B.J." for September 13. Fig. 3 shows the appearance of the negative and positive plates superposed, giving

one line above and below the nine squares which we are considering.

If, then, we print as is shown in Fig. 1 of page 689, we shall get the positive shown in Fig. 2.

Now, if we print as shown in Fig. 2 of page 689, we shall superpose line 1 of the negative where 2 was, line 2 where 3 was, and so on. This will give us the positive shown in Fig. 4,

	Red	Green	Blue
Blue			
Red			
Green			
Blue			
Red			

Fig. 3.

which, superposed on the previous exposure shown in Fig. 2, will give Fig. 5 as the positive,

	Red	Green	Blue
Blue	1	2	3
Red	4	5	6
Green	7	8	9

Fig. 4.

	Red	Green	Blue
Blue	1	2	3
Red	4	5	6
Green	7	8	9

Fig. 5.

squares 1 and 9 being black from the first exposure, and 3 and 4 from the second.

Tilting the other way, as shown in Fig. 3 of page 689, we shall get Fig. 6 as the positive:—

	Red	Green	Blue
Green	1	2	3
Blue	4	5	6
Red	7	8	9

Fig. 6.

	Red	Green	Blue
Green	1	2	3
Blue	4	5	6
Red	7	8	9

Fig. 7.

which, superposed on the other two exposures shown in Fig. 5, will give Fig. 7 as the final positive.

In this way we have transformed the original negative in which the green line 4, 5, 6, was black, into a positive in which the only green line 2, 5, 8, is clear.

With the aid of Mr. J. H. Pledge I hope in a future article to confirm these figures with actual photomicrographs of the crossing line-screens.

It will be seen from this theoretical proof that the claim of Mr. Powrie that he has discovered a practical method of printing screen-negatives can be justified by the application of the same reasoning as was originally employed to show that mosaic

screens were not printable by direct superposition. A disadvantage which attaches to the method is that a point image is represented in the positive by three points, one from each exposure—that is, that an image which is the width of one line will be blurred to the width of three lines. Fortunately, owing to the great fineness of the lines, which are about 630 to the inch, this represents a point as an oval of only 1-200th of an inch in its greatest length, a blurring which for practical purposes may be considered as negligible.

#### Emulsion Grain and Screen-Plates.

The method employed by Mr. Powrie for preparing the screen-plates enables lines to be made of almost any fineness whatever. It may be taken that the Lumière autochrome plates are equivalent to a line positive where the lines are about 2,000 to the inch, but owing to the advantage which even distribution of lines gives in avoidance of juxtaposition of identical colours it is possible to use coarser line-screens than could be used in the case of irregularly distributed mosaics without a greater reduction being caused by the screen elements. It is sometimes forgotten that there is a distinct limit to the fineness of a line or mosaic filter, a limit imposed by the diameter of the granular agglomerates of the plate. For the purposes of development, the unit of a plate is the particle, a thing of considerably greater size than the plate grain, and consisting of an agglomeration of grains. If any portion of a particle be exposed, the whole particle becomes developable, and if the screen elements are of the same order and magnitude as the particles, it may happen that a particle is partly under a green element and partly under a red element. If green light be falling on that portion of the plate it will pass through the green element and affect the particle, but the whole particle will develop, and will obstruct not only the green element but also the red element, giving that particular green ray the effect of a yellow ray.

It may consequently be taken that the limit of convenient diminution of the screen elements has been reached whenever the lines are so fine that they are invisible under ordinary examination. From this point of view the Warner-Powrie screens leave little to be desired. With regard to colour-rendering, there are two decisive elements which will settle this. The first is the colour of the screens—that is, their absorption cuts—and the second is the sensitising of the plates. Complicating the question of colour-rendering must necessarily affect the question of the sensitiveness of the plate, which, owing to the fact that in any case the exposures must be considerable, should be enhanced as much as possible.

With regard first to the colour of the screens, there are two conditions here which must be fulfilled. The colour of the plate, when viewed as a whole, must be approximately neutral—that is to say, the plate must appear grey, as otherwise no pure whites

or greys can be obtained. In the case of the Warner-Powrie screens the plate is scarcely a neutral grey, being slightly violet in shade; this is a difficulty which improved screen dyes will doubtless remedy.

A second condition is that if bright colours are to be obtained the spectrum cuts of the filters must be abrupt, and have a little overlap. In the case of the autochrome plates this condition has been realised with great success by Messrs. Lumière the filters giving practically no overlap whatever. The Warner-Powrie plates, as at present made, give somewhat great overlap with scarcely sufficiently abrupt absorptions. It must be remembered that if narrow-banded filters are used speed will be sacrificed, as naturally narrow-banded filters pass less light than wide-banded.

In order to obtain correct rendering, the sensitising of the emulsion must be adapted to the filters. It is necessary that with the compensating filter used, equal density should be obtained beneath the red, green, and blue filters upon exposure to white light. In actual practice it is not convenient to make a compensating filter which affects the relative intensity under the green and red filters, and consequently in the sensitising of the plates the aim of the maker should be to equalise exposure under the red and green filters for the light which is to be used in the case of the negative plate daylight, and in the case of the positive plate any convenient artificial source, and then, if necessary, cut down the blue with a yellow filter of the required depth.

In the case of several commercial filters I have found practicable to obtain equality to daylight by the use of a yellow filter, which only increased the exposure from one and a half to two times, the red and green being already adjusted to equality. If the plates be coated with a gelatino-bromide emulsion as bathed it should be possible to make the plate apart from screen of a speed of about 250 Watkins. The mosaic screen will about a x20 screen, and with the compensator, say, at x40, giving a working speed of about 6 Watkins, a speed sufficient to make instantaneous exposures in bright sunlight and with a wide aperture lens practicable.

Should the manufacturing details be successfully solved the Warner-Powrie plates would seem likely to form an extremely simple method of colour photography; the exposures would have as great a latitude as is obtained with any plate at present and the scale of gradation would be as good. The exposure would not be unduly prolonged, and the manipulation would be as simple as the handling of an ordinary panchromatic plate, while the tilting necessary for the preparation of the positive could be made automatic by the introduction of a simple printing board fitted with the necessary stops to give the correct angle.

C. E. KENNETH MEES.

#### SOME NOTABLE FEATURES OF THE WARNER-POWRIE PROCESS.

THE article in last week's issue of the "B.J." will, I think, be marked out as the first announcement of a really practical process of colour photography, applicable to all subjects by the man in the street, the hand-camera worker, and the professional photographer. It is as great an advance on the starch-grain or other irregular grain process as these were over the ordinary three-negative processes, because one can obviously print on any surface. It promises one practically a matrix from which reproductions can be made, and, if the plates are but put on the market at anything like a reasonable price, it is the process of the future.

The points which particularly strike me are, first, the extremely ingenious method of making the filter-plate. Why some one should never have hit on the idea of using a ruled grating for the matrix and staining its image seems now incomprehensible. Both Professor R. W. Wood and Mr. Thorp had utilised diffraction gratings with different spacings for obtain-

ing colour photographs, and yet neither had thought of staining up the impressed image of the grating, relying solely upon diffraction for the results. It is obvious that, given a method of registering the lines, there is theoretically no limit to the fineness of the manufactured linear screen-plate. Practically, of course, there must be a limit.

The second and the most important point about this new process is the extremely ingenious idea of printing. Again, it is so perfectly obvious. The principle involved has been recognised unconsciously for years in connection with the Joly and McDonough results, and, curiously enough, has always been looked upon as an actual defect of the process. One has only to turn back to the photographic journals of 1900 to find that at the R.P.S. Exhibition some results were then shown and comments made upon the change of colour by direct or oblique examination. It is also a lecture experiment, which I have shown repeatedly, and I have yet a special slide with micrometer screw



shift the lines of the screen and cause a change of colour. was so obvious that by altering the direction of view or of light, one saw the correct colour exactly underlying its position, or one saw through the colour-screen element lying the right or left, yet no one had thought of utilising this for printing.

A careful search through most colour literature and the patents relating to colour photography shows that in the Brasseur-Sampolo patent, No. 8,390, 1896, the idea of using linear plates for printing is utilised, and may be briefly summarised as follows:—A linear-taking screen is used for making the matrix negative exactly as in the Joly and McDonough processes. To obtain each separate colour record from this matrix negative a black and white ruled screen, with the opaque lines the width of the transparent, is placed in contact with the near negative, and an exposure on a plate made. The black and white screen is then shifted so as to cover the portion of the linear negative already recorded in the second plate or transparency, and so as to uncover a new line. Again an exposure is made, and the process repeated for the third colour. In the same patent one finds the idea of using what one may call monochromatic filter with the complete colour record, which filter shall stop out two of the colours and only allow the third to act, and in this way three separate colour-sensation records may be obtained. This could obviously be used for obtaining three negatives from an "autochrome," for one has merely to use a deep-red filter that will completely stop out the green and violet to obtain a negative of only the red starch-

grain image, and the same applies with a green and violet monochromatic filter.

McDonough, in his patent No. 12,645, 1896, claims the method of a registering printing frame with micrometer screws for obtaining exact superposition of the linear negative with a paper or transparency plate also bearing the screen elements, and provided with particular figures, such as diamonds, half circles, or white lines for the purpose of registration.

The only other patent which at all bears on the subject is one by Brasseur, 28,798, 1903, but this applies solely to stereo work, the idea being to break up the stringy appearance by using one positive with the lines vertical and the other with the lines horizontal, but this obviously has but little to do with the duplication of results.

The fact that the Warner-Powrie process will enable us to utilise the bleach-out printing process will possibly give a fillip to the production of this paper in improved form—and there is room for improvement.

The one point on which at present we have no information is the emulsion, for upon this and the correct adjustment of the filters depends the faithfulness of the colour-rendering. This is an important matter if this or any other process is to be used for scientific work. As long as one confines one's attention to picture-making want of red sensitiveness or minima in the sensitiveness in any other region of the spectrum is not of much moment, but for the registration of pure colour it may be fatal.

E. J. WALL, F.R.P.S.

## THE FRILLING OF AUTOCHROME PLATES.

Many complaints have been made of the facility with which autochrome plates frill, so a remedy that is perfectly successful with itself may be of some service. It is not all original, as several of the details were suggested to me by others. I did not, however, find any of the suggestions to be effective alone, though a combination of them has proved serviceable.

Considering that alcohol is prejudicial to the plate, it seems rather curious that so much should be used in the first developer. Frilling nearly always seems to commence in this developer, and it occurs between the glass and the under-film, which strongly suggests a solvent action of the alcohol on the varnish at its under surface. I understand it is used in the lower film. Acting on this idea I reduced the quantity of alcohol in solution A from 100 cc. to 50 cc., and made up the difference with water. Then, again, it seemed evident that frilling should be less likely to occur in the first development if the plate was surrounded by a wide margin of unexposed emulsion upon which the developer would have no reducing action, therefore I used carriers with a wide white rebate. I took these precautions from the start, but they were not entirely successful. Frilling to a very small amount appeared in the rebates during the first development, and spread rapidly in the second development. It was checked slightly by strengthening the redeveloper, which is rather weak and slow in action. A double strength solution gives full density in less than two minutes, and so there is less time for the frilling to spread. The intensifier, however, settled matters by raising the film indiscriminately everywhere, so these precautions alone were unsuccessful. Finally, I have adopted the following complete method, and now do not get even a sign of frilling.

Solutions A and D are both modified, as described above, and the wide rebate is retained. When the plate is taken out

of the dark-slide a piece of softened red modelling wax is rubbed three or four times along each edge. This gives a slightly greasy coating, though no wax is deposited. The plate is then developed, washed, reversed, and washed again. After the second washing it is dried on a whirler, and is then bound all round with half-inch adhesive rubber surgical strapping. After this it is redeveloped and put through all the final processes.

The use of the tape was suggested by Mr. Sinclair, but it is a very troublesome matter to bind the undeveloped plate in the dark, though very easy to do it in daylight when the plate has been developed, reversed, and dried. The wide rebate, the reduced alcohol, and the wax perfectly protect the plate up to this stage. The wax might protect it longer, but it is safer to bind, as the next operation affects the extreme margins of the plate.

Mr. McIntosh, in his demonstration at the R.P.S., suggested the use of a whirler, and it has proved to be a most valuable accessory. My first plates were saved from complete ruin only by its use, for whirling is about the only thing that will stop frilling when it has once started.

The drying and binding of the plate adds only about five minutes to the time required for producing an autochrome, and it is better to spend it in these effectual precautions rather than in attempts to stop or remedy frilling that has already begun.

During my experiments I have noticed that solution C, the reversing solution, generally leaves a certain amount of scum on the film. This is removed by a piece of cotton wool while washing, as the water alone does not move it. This has nothing to do with frilling, but as I have seen no reference to it in previous articles it may be worth mentioning.

C. WELBORNE PIPER.

**AUTOCHROME PLATES.**—Messrs. Adams and Co. still have a good supply of these, together with screens, developer, etc., and are advancing prices on account of the difficulty in obtaining materials; the cost being for 9 cm. by 12 cm., 5s. a box of four,

and for 13 cm. by 18 cm., 10s. a box of four. Messrs. Adams also have ready a special "whirler" for use with the "Autochrome" plates, such a contrivance having proved necessary to prevent frilling, as mentioned in Mr. Piper's article in this issue.

## BRUSHES FOR THE OIL PROCESS AS WORKED BY M. PUYO.

IN response to our request for a reference to the precise description of brush used by him in the Rawlins oil process, M. Puyo has kindly furnished us with the following particulars and drawings, which are the only additional details necessary to supplement the very complete instructions for the oil process which, with M. Puyo's permission, appeared in our issue of August 30. M. Puyo writes:—"The brush, which I call 'pied de biche,' is so named from the hairs being those of

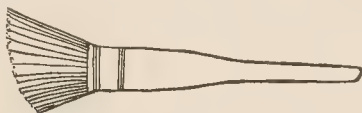


Fig. 1.

the 'putois' (polecat, or fitchet), and because the ends of the hairs form a surface inclined at an angle to the handle of the brush. Fitch hairs are, in my experience, much the best, as they are both supple and strong. The particular form ('pied de biche') of the brush, which has the hairs cut obliquely, is much more suitable for working on a surface inclined as in Fig. 2, for the reason that the hairs are then all perpendicular to the surface of the inked plate. The hand can then take up

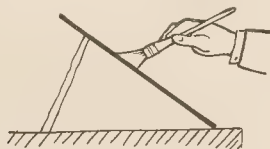


Fig. 2.

a very natural position. Also, inking takes place more quickly owing to the position taken by the brush when pressure is applied to it, viz., a slight slipping movement towards the heel of the 'pied de biche.' M. Puyo buys his brushes from M. Bullier, 5, Rue Charlot, Paris, who manufactures twenty-four sizes of them, numbered 1 to 24, at prices from 80 centimes to 17 francs. The sizes which M. Puyo finds most useful are

No. 15, costing 5.80 francs, and No. 4, costing 1.20 franc. straight fitch brushes of the same maker are purchasable in fourteen sizes at prices from 75 centimes to 4.75 francs. The very small fitch brushes of the standing or straight pattern, mounted in a quill, are obtainable at prices which average from 50 centimes. They are very suitable for local working on the prints. As a guide to those of his colleagues of the P. Club who have taken up the oil process, M. Puyo has advised the following selection of brushes:—

	Fr.	C.
1 Fitch "pied de biche," oblique, No. 14, 15, or 16	5	
1 Fitch "pied de biche," oblique, No. 3, 4, or 5	1	
1 Fitch, straight, No. 7, 8, or 9	2	
1 Fitch, straight, No. 3, 4, or 5	1	
1 Fitch, in quill, No. 3	0	
1 Fitch, No. 7	0	

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M. Puyo adds that the list of brushes issued by M. Bullier will be found to describe fully the varieties above referred to.

The pattern of the fitch brush cut obliquely, and described in our previous article by the literal translation of "hich foot," is indispensable, in M. Puyo's judgment, to the practice of the oil process. Without it M. Puyo would not think of attempting the process, but with it he regards himself as enabled to work more rapidly than is possible for any one armed only with straight brushes. The oblique brush, M. Puyo concludes, proves its merit when used by him in giving demonstrations of the oil process, since with it he can finish a 10 by 8 portrait in twenty minutes.

To this valuable addition to the notes which have already appeared, we would also supplement a word as to the "huilé minérale," used by M. Puyo in preparing an ink of softer consistency. We were in doubt as to its precise character, but are glad to learn from M. Puyo that our premise was correct. It is a light petroleum oil, as used for motor-cars. Petroleum ether, which is a slightly lighter spirit, may be used, but light petrol such as now obtainable in every town and in every village, may be taken as identical with M. Puyo's "essence minérale" and the "petroleum ether" occurring in our translation of August 30.

## THE EXHIBITION OF THE ROYAL PHOTOGRAPHIC SOCIETY.

THE Exhibition of the Royal Photographic Society is at a glance pretty much like its forerunners. One looks around for new ideas and new sensations, and, in the pictorial section at any rate, one does not find them—no large romantic, German landscapes, for example, such as previous shows have displayed. But when the visitor looks attentively through the prints there is no denying that he finds evidences of cleverer, more observant, and more truly pictorial work than ever. For this reason the present exhibition will by no means rank as a dull affair. There may not perhaps be a very large proportion of oil prints, that latest development of the amateur; but there are a great variety of new ideas in the method of attack in pictorial photography. If this show could be compared side by side with one only two or three years ago the aspect would be striking. The fact is, that any grounds for the complaint of behindhandedness of the Royal Photographic Society are now entirely wanting. As

opposed to the Salon Exhibition, it is in reality much more "up to date," for the latter is but a throw-back to the days when the American had not yet arrived as a temporary backstop.

All who are interested in the question of colour photography will be able to make the acquaintance of the much-talked-of Lumière process in a darkened portion of the gallery, where the autochrome transparencies are on view. These, we think, will prove a great attraction to visitors in search of the wonderful. They will be dealt with fully in our next number, but in the meantime we may say that, as a promise of what is possible, nay, on the eve of accomplishment, colour photography, they are interesting and pleasing in the highest degree.

We should like to allude to a few of the leading prints in the pictorial, or "West," room. The president shows what, we think, will rank as one of his very finest productions,



ter Landscape." T. Steidel's "Marino," G. Bowley's "Spring Day"; "Sur la Porte" and "En Passant," by L. Bonne; "The Captain's Horse," by James Shaw; A. Elliott's "The Wilderness"; A. Gottheil's "Morgensonne"; J. Wynn's "Studying the Nude"; Dührkoop's "Portrait of an Lady"; "Beaching a Coble," by C. E. Wanless; "Kloster Chow," by Lette-Verein; "Nuit d'Été," by F. de Thierry; "Arienspiele," a splendid interior with figures, by O. Scharf; "Hüner-Hof," by Dr. Quedenfeldt; these make a list of

things which strike us in a first visit as being good and above the average. The Germanic element is strong in them, it will be seen, and we congratulate the Royal Photographic Society upon the co-operation of these talented Continental workers, to whom they have extended such wise and open hospitality.

The medals in the technical section are awarded to the Lumière Autochrome plate, irrespective of any particular result shown in connection with it, and to Professors Lowell and Lampland for photographs of Mars taken at the Lowell Observatory.

## THE PHOTOGRAPHIC SALON.

or three hours' study of the works at this exhibition confirms our opinion that it is a very good middling show—very good indeed. We do not wish our praise to be so faint as to be damnable, but no critic, we believe, will rate this year's play as a surpassingly fine one. The day is past, it seems, those one or two superlative pictures which put to shade the rest of an exhibition; photographers are levelling up so rapidly, the great ones are being very well imitated by the lesser, who then close, and occasionally those to whom we have looked for first-class things seem to fall off, as the phrase goes. Mr. Arbuthnot is one of these, and Mr. A. Marshall another, in this year's work. Of others, like Mr. Evans, and Mr. Craig Annan, whose reputations are well established, it would seem unreasonable to expect better and better things as the years go by, so that our work causes no surprise, because its high level of merit is expected of them. Such considerations lead one to admit that a good show may be also rather a dull one.

There is nothing in the way of a sensation it is the number of works—seventeen, in fact—accepted from Mr. Malcolm Arbuthnot. Certainly, most of these are to be warmly welcomed, and the exhibition, as a whole, is indebted to them for something of its attractiveness; but it does not appear why the whole seventeen have been hung in an exhibition of 183 pictures and sixty-seven senders. Half a dozen would have been more than twice the due average of Mr. Arbuthnot, and would have sufficiently furthered his reputation. We like his "Donkeyman" best of all for its action and the strength of the man's head. No other picture by the same hand has so fine a quality. "Shearing Sheep" is an unpleasant subject, and so is his "River," in which a great, dark, wormy-looking tree-trunk gnaws hard and ugly against a distance. In "Sheep and Adversaries," however, he has succeeded well in catching a sunny effect. "To Leeward" is a good example of a different class of subject, and shows the deck of a yacht heeling over, whilst the crew bestir themselves to the duties of their sport. Mr. Arbuthnot attempts all kinds of work, and with equal facility so far as "Decorative Study" is a view of water-fowl taken from a rather overhead point of view. It is neither very fine nor very good, unless its pronounced granulation place it in the last category. Photographers have a curious habit of submitting items as a view shorn of their setting and environment as specifically decorative pieces. Why this should be so we have never discovered, except when the results are applied as decoration to fire-places and such like, and then they are but banal echoes of a Japanese idea without a spark of anything really Japanese. "Evening Silhouette" is good in its design, which is made up of the figure of a man and the stern of a vessel over which he is stooping. Mr. Arbuthnot has repeated the idea in other works, and it is to be expected that he will continue to repeat it and have his due following of sycophantic repeaters also in future years. He himself seems to have borrowed not a little from Mr. Coburn in the matter. "A Vessel of the Olden Time" seems to want a touch of crispness somewhere. It is a very pleasing subject, well treated but for its monotonous

textures. The clock tower of "Westminster" is in ugly perspective, which causes it to topple over as by earthquake. In Mr. Arbuthnot's portraits we can make no preference. That which depicts Mr. Coburn with a most deplorably hopeless and lugubrious expression is more or less in the Coburn manner. How easily these manners and styles can be simulated!

Rudolf Dührkoop is represented by a dozen works. Many will prefer the fine and animated "Conversation" to all the rest. The sitters, if not actors, appear to be eminently fitted for a stage career. Their poses are clever, natural, and spontaneous, yet withal one feels that they are poses. It is in the lighting, the textures, the quality, and the rich, true tones that this work excels. "Portrait of a Lady" is a particularly strong study of a face full of character. A very different subject is afforded by "The Poetess," where the lineaments of Gabriele Reuter display a temperament highly sensitive and gentle. "Georgina" is a charming little plump-faced girl. More taking still, perhaps, is another of that motherhood series in which Herr Dührkoop excels. It is called "Mother and Child," and the action of the mother is quite delightful. The last work of this talented worker which we particularly admire is "Study of a Head," at once so delicate and strong in its admirable modelling.

Another prolific exhibitor is J. Craig Annan. He usually manages to achieve something smacking of novelty, and this year he shows a book-plate, too large by far except for use in portly folios; but it is to be presumed that he intends its reproductions to be much reduced. In a small version it would, we think, gain immensely. The design is that of a sort of Doctor of Laws—a lady, apparently. The face has a disingenuous expression, a little marring the general pleasantness of an undoubtedly clever photograph. Upon the lines of his highly successful "Stirling Castle," Mr. Craig Annan sends now "Stonyhurst College." The same crisp strength appears, with a mass of detail admirably broad in its management. But the sky is perhaps overdone. We admit that old copper engravings, of which this is so highly suggestive, were frequently topped by lowering clouds to support the depth of tone in the other parts; but we submit that a sky so strong in contrasts as this goes beyond the occasion. "A Botticelli," by Mr. Annan, does not represent "Sandro" himself, as the unrevised catalogue suggests, but a young lady whose face evidently bore for Mr. Craig Annan some resemblance to that of the type of Botticelli's Madonnas. He, therefore, has dressed her, posed her, and placed her in such a way before a print of one of the well-known votive pieces that her head comes before, and all but obliterates, the original Madonna, and she therefore appears surrounded by ministering angels in the approved fashion. Was the trick worth while? Does it not smack of a boy's prank, or, at least, of levity? And does this mixing up of real and ideal, of flat and round, of the pictured and the corporeal, add anything to our joy in either the altar-piece or the lady who stands in the way of it? Mr. Craig Annan's portraits, as we have already suggested, are no better and no less good than he has shown us before, and they

therefore do not call for any special remark in a short and selective review.

A. Horsley Hinton sends some extremely nice subjects, which are in some cases a little hurt by his evident over-anxiety to improve them. In the case of "The Creek," a sky of powerful contrasts robs a pleasing picture of verisimilitude with Nature—a pitfall which Mr. Horsley Hinton, as a leader of men, should have kept clear of. He has done so in "The Crag," which consequently is a better picture, though in other respects no better than the first. We are disposed to think "The Steam Saw" one of the best things he has ever done. It is modern in spirit, and therefore in accordance with the spirit of photographic work. It is truthful in its message, and although full of bustle and turmoil and commonplace material, does not lack poetry. Its chief merit is the feature made of the tones of smoke and steam respectively seen against the sky. Quite as true in effect is his "Windsor Castle," which gives convincingly the feeling of sunshine flooding across broad meadows. Sunshine, however, is quite absent from the "White Mill," a work of which the *modus operandi* has already received printed publicity. We confess to disappointment, and it is only fair to state that the author shares our feelings. The fact is that the over-accentuation of contrasted tones has "knocked the wind out of the sails" of the mill, which should have boasted of more sparkle, lit as it is, than the other parts could show.

F. J. Mortimer, of whom the world expects great things in the marine line, is represented by but one example, and that by no means as good as his past work. No one would presume to claim more observation of sea effects than Mr. Mortimer practises, but it is just a question whether he is not too ready to lose truth of effect in his enlargements. "A Gale in March" strikes us as flatter and more monotonous in effect than it has need of being, and it has a very strong family likeness to his other sea pieces by reason of the never-varying methods in enlarging that Mr. Mortimer employs. Its subject, and the forms of the waves, are as admirable and as fascinating as ever.

The work of Mr. Frederick H. Evans is likewise always the same in its methods, but as he does not enlarge, and thereby loses untold strength and charm for the sake of increased scale, we do not lament his constancy to a method that serves him well. "In the Courtyard, Pierrefonds," is a highly pictorial selection made in a building of great beauty, and teeming with romantic associations. It is, as a picture, a delightful bringing together of dark and light tones into a pleasing pattern. These tones never lose their character of richness and clearness, and though divided by positive edges, such as are inevitable in sunny stone-work, they are never hard. One can see from his work the processes of admiration and enthusiasm in Mr. Evans's mind as he views and selects his subject. This is the art with the capital A, and his perfect technique and execution—mechanics *in excelsis*—manifests every jot and tittle of it. At the foot of one of the outside staircases in the reconstructed mediæval castle, the *major opus* of Viollet le Duc, stands an equestrian statue of a warrior in armour. Can it be of the great Porthos himself? The placing of this statue and its perfect harmoniousness with the line of the architecture it adorns speak no less of the unerring taste of the photographer than of the genius of the architect. We must not dwell upon Mr. Evans's other works, "The Stairway, Palace of the Popes, Avignon," and "An Ancient Baptismal Font," except to say that the reliefs upon the latter are a study of great beauty in direct lighting, shadows, and reflected lights.

Charles Job is another worker who has done good service to the Salon in years past, and who now shows but one example, "On the Banks of the Arun." It represents sheep under trees upon a hillside, the sun flooding the valley beyond. In these pictures of sunshine it is not the mere forms of light and shade patches that make them lovely; it is something else, for which

a name is wanting. Feeling is a term that best expresses it, and this Mr. Job has secured, with the result that his pictures call up the precise sensations one feels in viewing a scene such as this, where the atmosphere is permeated with light as it flows through and beneath a canopy of trees. The composition is very happy.

F. H. Cliffe's two architectural works echo many qualities of Mr. Evans, of whom he would seem to be a disciple.

We feel that Mr. Benington is not going ahead so quickly as he might, for his record is not yet so long as to excuse a lack of further developments. "The House of Lords" is nice in its way, but we should have preferred it without the bridge which disports itself before Barry's masterpiece. Photographers are becoming obsessed by iron structures that are allowed to cut across the views which they obstruct and mar. The fashion will pass, we hope, as all fashions do. Mr. Benington, in his "Snowdon," has achieved a fine spaciousness of atmosphere without any unwelcome structure in the foreground, thus proving that such an adventitious aid is not needed to the effect. Two other landscapes by him are likewise good, but his work, as a whole, has not advanced.

Mr. Ward Muir takes the photographic long foreground and manages to produce a charming thing showing water lilies in plan, as it were, whilst the bank at the top of the picture gives some dark notes and objects "in elevation." He has other views of more traditional arrangement which should attract many admirers, though they call for no special remark.

Of the four works by Alexander Keighley "The Wood" pleases us best. It has a dignity and repose about it that makes an appeal; but, on the whole, we think that Mr. Keighley has not fulfilled his promise of other works. "The Melon Stall" is a little in the manner of Mr. Lewis, but it is too nebulous and wanting in strength of pictorial treatment to advance his reputation, or even to sustain it.

The father of modern oil-printing exhibits two examples of the process. They are both substantial evidences of the usefulness of this amenable method, and Mr. Rawlins has helped the movement by demonstrating that an oil print can take its place quietly among prints by other methods without advertising itself as anything out of the way or of unusual appearance. The snow piece entitled "And More to Come" displays no oily characteristics whatever. The surface and texture of the snow is extremely well given, and the dark sky of support is satisfactory but for a slight excess of granularity such as we have become inured to in "gum" prints. In any case we cannot quite see the logic of making a sky more granular than snow; but, apart from that, the little picture is full of charm. We prefer it to the more ambitious "Edinburgh," in which, as we like that.

"The Gondola Pool," by A. H. Blake, is a work of more freshness of idea in its selection. It shows a corner of Venice taken from a low point of view, such as one would have if seen from in a boat, and includes the landing-steps of a building in the middle distance, but not much above that level. Its gleam of sunlight gives it great pictorial value. "The Horse Guards" has also a deal of truth in its effect; but Mr. Blake's picture, "Cannon Street Station," is much less agreeable in its subject.

John H. Anderson likewise shows us a view of "The Horse Guards," not so taking as the other. We much prefer his "The Bridge," though we wish it were not so brown. It boasts a very pleasant effect. "Dordrecht" is similarly a most tasteful view.

If "Away to the West," by W. J. Clutterbuck, is an oil print, it is an example that should be studied by all tyros in the process, not for what to do so much as for what to avoid. He has shown the sun half-way below the horizon, but he se



to forget that the sky at such a time could not possibly graduate to an inky blackness at the south-west. He has also outlined the little black figure in the boat with a white line to represent an edge of sunshine upon it; but he has committed more than one solecism in performing this trick. It is all very well to get an effect, and one that is overdone is no doubt better than none at all, but it should not be attained at the cost of such glaringly obvious falsity to natural possibilities. We are glad to be able to turn to the same photographer's "In a Ligurian Valley," where the effect of sunlight behind figures is truthfully and beautifully rendered, to the great enhancement of the charms of a good picture.

A misty valley where evening shadows lurk is the subject of E. Ward-Thompson's excellent work, "Corrie na Creiche." We much admire the true relation and harmony of the sky and the vapour-veiled hills in this impressive work.

Two delicate and winsome studies of children, such as we have seen here from Mr. Will Cadby for years past, are infinitely to be preferred to his ridiculous "Snow Shadows," wherein the water-mark on the mount is more in evidence than anything else, save one small spot in this farce of a picture.

Though Mr. Mummery's "Farm Road" is a beautifully composed little evening piece, we think the more open and fuller "Fen Drove" his better work. It speaks so eloquently of the dull, drizzly weather that seems to belong by nature to the Fen country.

The clean-cut little gems of C. H. L. Emanuel are as exquisite as ever. It is difficult to make a choice between "The Sea Front" and "The Fishmonger's Shop."

(To be continued.)

## Exhibitions.

### KODAK REFLEX PHOTOGRAPHS.

As announced last week, there was opened on Thursday, the 12th inst., at the exhibition gallery of the Kodak Company, at 115, Oxford Street, W., a collection of enlargements from negatives made with the "Graflex" camera, an instrument which, as is well known, has attained very great vogue in the United States for all the purposes of Press photography, and the production of negatives of objects in the most rapid motion. The photographs to be seen at Oxford Street fully sustain this reputation of the "Graflex." A number of them were shown by the Kodak Co. at the recent exhibition of reflex cameras at "The British Journal of Photography," but one or two of especially interesting, not to say sensational, character are deserving of mention. One represents a horse turning a somersault in mid-air, which, while it is no doubt of special interest to horse trainers, is nevertheless a feat of instantaneous photography, and one for the obtaining of which a camera of the reflex type offers special facilities. Another example in which two horses in a steeplechase are seen surmounting the same hurdle simultaneously is remarkable for the positions of the animals' legs, and while such a coincidence can hardly be the result of the unusual skill in the use of a camera, yet the appropriate placing of this and the other subjects upon the plate exemplify the virtues of the "Graflex" camera as an instrument for practical work. The photographs should be seen by anyone interested in the serious production of photographs of sport.

There are also exhibited in the same gallery a number of articles of domestic utility with photographic enlargements. Often as such combination has been recommended to the amateur photographer we cannot recollect ever having seen a series of articles in which the idea has been so successfully carried out, but we must defer a notice of this departure on the part of the Kodak Company until we can suitably illustrate it.

At CAMBORNE last week an explosion of gas in a burnishing lamp used by Mr. J. Lukey, photographer, Trelowarren Street, caused a fire in his studio. Mr. Lukey had difficulty in reaching the door, and was rather severely burnt about the face and right hand. The stock of photographs, frames, curtains, scenery, etc., was damaged by fire and water.

### FORTHCOMING EXHIBITIONS.

- September 13 to October 26.—Photographic Salon. Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.
- September 19 to October 26.—Royal Photographic Society. Sec., J. McIntosh, New Gallery, 121, Regent Street, London, W.
- September 30 to October 25.—Society of Colour Photographers. Sec., Henry J. Comley, Surrey House, Stroud, Glos.
- October 5 to 12.—Bristol Photographic Club. Entries close September 23. Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.
- October 10 to 12.—Dumfries and Maxwelltown Photographic Association. Sec., T. Armstrong, 41, Moffat Road, Dumfries, N.B.
- October 16 to 19.—Rotherham Photographic Society. Entries close October 7. Sec., H. C. Hemingway, Tooker Road, Rotherham.
- October 17 to 26.—Edinburgh and Midlothian Industrial Exhibition (Photographic Section). Sec., A. T. Hutchinson, 15, Leith Street, Edinburgh.
- October 30 and 31.—Watford Camera Club. Sec., W. R. Gunton, 139, High Street, Watford, Herts.
- November 5 to 27.—West of England Industrial Exhibition (Photographic Section). Entries close October 5. Sec., A. D. Breeze, Great Western Chambers, 41, Union Street, Plymouth.
- November 6 to 8.—Bedford Camera Club. Entries close October 31. Sec., P. C. Penny, 64, Harpur Street, Bedford.
- November 6 to 9.—Hackney Photographic Society. Sec., Walter Selfe, 70, Paragon Road, Hackney, London, N.E.
- November 12 to 16.—Rugby Photographic Society. Entries close October 29. Sec., R. H. Myers, 13, Bridget Street, Rugby.
- November 19 to 23.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- November 25 to 28.—Lancaster Photographic Society. Entries close November 16. Sec., Walter Gunson, Manesty, Scotforth Road, Lancaster.
- Southsea Photographic Society. Sec., Gilbert Wood, 10, Pelham Road, Southsea.
- December 11 to 14.—Hove Camera Club. Sec., Stanley Read, 12, Old Steine, Brighton.
- November 28 to December 4.—Southsea Photographic Society. Sec., Gilbert Wood, 10, Pelham Road, Southsea.
- December 5 to 7.—St. George Co-operative Society Camera Club. Entries close November 25. Sec., George Anderson, 77, Braeside Street, Glasgow.
- December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1908.

- February 20 to 22.—South Manchester Photographic Society. Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between September 2 and 7:—

- CINEMATOGRAPHS.—No. 19,714. Checking apparatus for synchronously running cinematographs and talking machines. Jules Greenbaum, Thanet House, Temple Bar, London.
- DARK SLIDES.—No. 19,730. Improvements in dark slides for photographic purposes. William Watson, 803, Lea Bridge Road, Walthamstow.
- CINEMATOGRAPHS.—No. 19,758. Improvement in cinematograph films. Barrington Hooper, West View, Belvedere Road, Bexley Heath, Kent.
- CAMERA.—No. 19,779. Panoramic camera. William Arthur Case, 18, Southampton Buildings, London.
- CARRIER.—No. 19,853. Universal adjustment carrier for enlarging lanterns, for holding negatives, plates, films, and the like, for projection enlarging. Henry Ernest Bellamy, Stanley Mill, Factory Lane, Harpurhey, Manchester.
- FILMS.—No. 19,864. Improvements in packages for holding photographic films. Magnus Niell, 65, Chancery Lane, London.

CINEMATOGRAPHS.—No. 19,892. Improvements in and relating to cinematographs and like instruments. Reginald William James, 1, Queen Victoria Street, London.

PREVENTING DOUBLE EXPOSURES.—No. 19,902. Plate-saver and double exposure preventer. Samuel Lowe, 26, Market Square, Shirebrook, Derbyshire.

DEVELOPERS.—No. 20,050. Manufacture of new para-aminophenols especially suitable for use in photographic developers. August Zimmermann, 24, Southampton Buildings, London (for Chemische Fabrik auf Actien vorm. E. Schering, Germany).

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

PREVENTING HALATION.—No. 28,376, 1906. The invention consists of an adhesive packing fabric of dark colour. The surface of a sheet of black waxed fabric is rendered adhesive by means of the application of a liquid capable of dissolving the wax, for example, French turpentine. The fabric is then put or pressed on the back of the plate to which it adheres, and is brought into optical contact with the same. The light impervious fabric prevents, when so affixed to the plate, any passage of light through the plate and consequently prevents refraction, so that not only is the halation avoided, but also a much sharper picture is obtained, as the light-rays, not being diverted, act on the sensitised coating of the plate with their full power. The fabric has the advantage that the plates are protected against breaking, and that the sensitized layer is more easily distinguishable when putting the plate in a dark slide. The fabric is removed before developing. Johann Hartelt, Grabschenerstrasse, 26, Breslau, Germany.

PRINTING FRAMES.—No. 19,943, 1906. The invention consists of a photographic printing frame having a sliding clamping strip, extending entirely across one end of printing frame, for the purpose of gripping a negative in an endwise manner, and at the same time

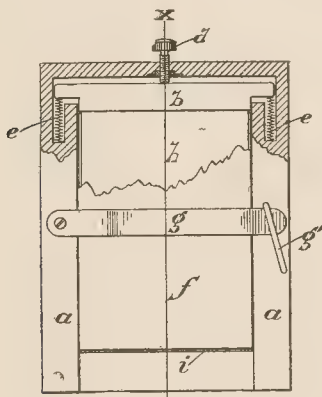


Fig. 1.

securing the sensitive paper between the edge of the negative and the clamping strip. To a rectangular rebated frame *a* is fitted a clamping strip *b* which is made to slide towards or from the negative *c* by means of a milled head screw *d*. Springs *e e* are sometimes fitted, as shown in fig. 1, to prevent looseness. The back *f* is held down by the bowed spring *g*, which engages under the staple *g¹* in the usual manner. In using the improved printing frame the back *f* is removed after turning off the spring *g*. The negative *c* is laid in the rebates of the frame, and the sensitive paper *h* is placed between the lower edge of the said negative and the clamping strip, as clearly shown in fig. 2. The clamping strip is now screwed up towards the negative, which is thus forced against the abutment *i*, and in doing so the paper as well as the negative is firmly held in the manner shown in

fig. 3. All that remains to be done is to turn the paper down on to the negative, replace the back, and proceed with the printing in the ordinary way. As will be seen, by reference to fig.

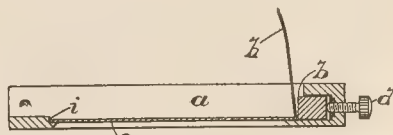


Fig. 2.

the entire subject is shown when the print is examined, and the paper hinging at *h¹* returns to perfect register. In printing from flexible films the negative *c* would be substituted by a plain glass plate, and the film as well as the sensitive paper

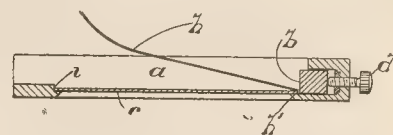


Fig. 3.

would be gripped at *h¹*. Thomas Richard Proctor, 13, Groombridge Road, South Hackney, London, and Houghtons, Ltd. 88 and 89, High Holborn, London, W.C.

ROLLER-BLIND SHUTTERS.—No. 6,785, 1907. The invention relates to certain improvements in the roller-blind shutter of Patent No. 20,800, 1905, and consists essentially in applying to the ratchet wheel or to the winding spindle a brake or friction device which will retard the recoil of the actuating spring when released. The shutter *A* is of the usual construction of the roller-blind type with a spring-actuated roller *B*, spring-actuated roller *C*, a winding spindle *D*, a ratchet wheel *d*, and a retaining pawl *E*. The retaining pawl *E* may be moved out of contact with ratchet wheel *d* to release the winding spindle *D* by the lever *A¹* as

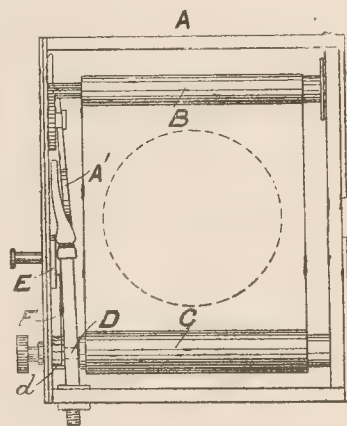


Fig. 1.

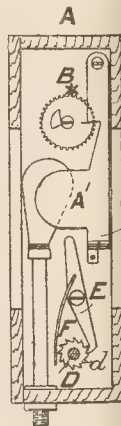


Fig. 2.

scribed in the Specification of Patent No. 20,800 of 1905, or may be as more ordinarily constructed independent of such lever. To the ratchet wheel *d* we apply a brake *F* which is pressed against it to retard the recoil movement of the spring and winding spindle *D*. The brake *F* may be in the form of a spring affixed to the pawl *E*, which bears continuously upon the ratchet wheel *d*, and serves the double purpose of a spring to hold the pawl in contact with the wheel, and as a brake when the pawl is withdrawn as in Fig. 2. The spring brake acting thus is pressed more tightly against the ratchet wheel when the pawl is moved away from the wheel. The Thornton-Pickard Manufacturing Co., Ltd., of Altrincham, and George Arthur Pickard.



**MERCURY VAPOUR PRINTING APPARATUS.**—No. 8,075, 1907. The claim is for printing apparatus in which both the lamps and printing cylinder are stationary. The invention further relates to a suitable arrangement of the stretching-cloth or apron which holds the materials (tracing, sensitised paper, or the like) up against the fixed horizontally placed printing cylinder, as well as to an arrangement for protecting the printing material against the light while it is being placed in position, in such a manner that this work may be done conveniently without necessitating the lamps being extinguished meanwhile. Thomas Thomassen Gabroe, 12, Colbjørnsens Gate, Copenhagen.

**CYLINDER PRINTING APPARATUS.**—No. 8,817, 1907. An addition to Patent No. 16,390, 1906, in which a revolving glass roller 1 is mounted in suitable bearings in standards 3, a series of wooden or like rollers 7, 8, 9 with an apron or band 10 passing round same being also provided, such glass roller 1, and one or more of the wooden rollers 7, 8, 9, being geared together by toothed wheels 17 and 18 so that the surface of the former and the cloth

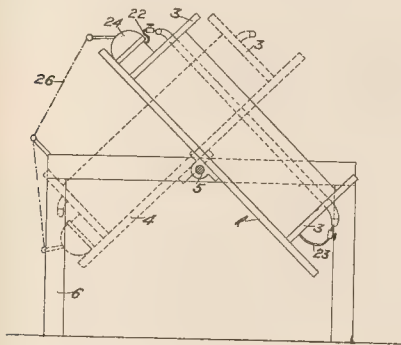


Fig. 1.

10 carried by the latter will (on the operation of the machine by hand or power) be caused to move at exactly the same surface speed.

The standards 3 carrying the glass roller 1 and the wooden rollers 7, 8, 9 are firmly secured to a base plate 4, which for the purpose hereinafter described is pivoted at 5 to the stand 6 on which the whole of the apparatus is supported.

In the interior of the glass roller 1 a suitable number of electric mercury vapour tubes 21 or high power electric vacuum lights

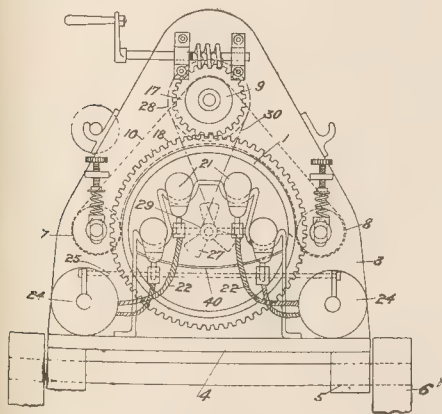


Fig. 2.

are mounted, and a reflector 40 is preferably arranged beneath such tubes to reflect back light that would otherwise be partly or completely lost.

Such mercury tubes or the like are supported in any suitable manner, and the electrical connections 22, 23 are preferably

arranged as shown when four of such tubes are employed, so that the two on each side are in series with each other, and each pair is governed by a switch 24 or the like, which switches may be coupled together by a rod 25 (see fig. 1).

When mercury tubes are employed it is necessary to cause the mercury to traverse such tubes from end to end, and for this purpose the entire apparatus is mounted on the transverse points 5 so that it can be tipped to bring either end of such tubes uppermost. It is also important that the mercury should be at the positive pole when the current is turned on, and to ensure this the automatic arrangement shown in fig. 2 is employed, consisting in a flexible connection between the lever of the switch and a fixed point of the stand 6, and which connection is of such length as to actuate such lever to switch off the current when one end of the apparatus is lowered, and switch it on when such end is raised.

If the tubes 21 become overheated their operation is interfered with, and a fan 27 adjacent to one end of the glass roller 1 is arranged, and driven by means of pulleys 28 and 29 and a belt 30 from the shaft of the roller 9, or in any other suitable manner, so as to create a current of air through roller 1, and thus keep the tubes 21 cool. James Warry Vickers, Finsbury Square Buildings, London, E.C.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Cleaning Films off Old Negatives.

THERE is a right and a wrong way of doing this (says Mr. E. J. Wall in "The Photographic News.") The right way is to soak the films overnight, or longer, in a basin of fairly strong soda and water, and when ready, transfer them to very hot water. This will bring off the most obstinate films. They will be found to vary in their behaviour according to the brand of plate and the developer. Pyro seems to toughen the film more than hydroquinone and metol; anyhow, some films do not dissolve but peel off, and these are the easiest to deal with, and will often strip easily after the soaking in cold water solution without the hot water. I find that if a plate is seen to be fogged, or otherwise spoilt on development, and is put to dry without fixing, the film always peels off easily. Some films of softer gelatine do not peel off, but dissolve bodily when transferred to the hot water, and the glass only needs a rub with a piece of rag to clear it. The most difficult cases are those where the film is not soft enough to dissolve, but too tender to peel off; but if the bulk of the gelatine be scraped off with the edge of another plate, and the rest rubbed rather hard with the rag, these also can be got clean. The plates can be put into another bowl of cold water as they are cleaned, to wash off any soda or floating bits of gelatine before they are dried. A pile of negatives put to soak in a basin will be found to stick together like limpets as the gelatine gets wet, unless means are taken to prevent it. This is easily done by winding a length of string in and out of the plates, so that each is slightly separated from the next, and the end of the string also gives a useful handle by which the plates can be lifted one by one out of the hot water, which should be nearly boiling.

### Edging Autochrome Plates with Rubber.

We have found the following method satisfactory (says a writer in "The Amateur Photographer"). Mix the usual rubber solution, as sold for repairing cycle tyres, with twice its usual volume of benzole, and spread a patch of this to a depth of about one-sixteenth of an inch in the middle of a rather large glass plate. The plate bearing the rubber solution being taken into the dark-room, the edges of the Lumière autochrome plate are successively worked in the solution, the plate being held in a nearly vertical position. Each edge must be blotted on a sheet of blotting paper when the plate is removed from the patch of solution, and in turning the plate round to rubber the edges in succession, care must be taken to hold the plate by the edges, and not to touch face or back. All four edges having been rubbered the plate is leaned against the inside of a box that can be covered. In ten minutes or less the rubber solution will be dry.

## New Materials.

Fancy Border Positive Films. Made by Marion and Co., Ltd., 22 and 23, Soho Square, London, W.

A series of borders, reserved, almost severe, in their design, and therefore all the more suitable for the majority of occasions on which they should be used, has been placed on the market by Messrs. Marion for use with or without the "Gardiner's" vignetter, reviewed in these pages not long ago. The novelty of the introduction lies in the fact that the border is secured upon the negative in the first instance. A mask provided with the border films is fitted into the camera back so as to appear centrally upon the focussing screen, and the sitter being placed before a dark background is focussed with the mask in position. As a result, only this portion of the plate receives an impression, and on removing the dark slide from the camera the plate can be transferred in the dark room to a printing frame, and being exposed behind the border positive receives a negative impression of the design, which can be made bolder or fainter according to the discretion of the operator and the effect required. The negative is then developed, and any number of prints are then available without the labour incidental to double printing. The positive border films are supplied in half-plate and whole-plate sizes, the former at 12s. per set of four and the latter at 16s. The printing frame necessary for the latter part of the process is supplied at 2s. 6d. half-plate and 3s. 6d. whole-plate.

"Multisecto" Mounts. Sold by Jonathan Fallowfield, 146, Charing Cross Road, London, W.

For use with the "Multisecto" repeating back, to which we were able to accord a favourable review some weeks ago, the firm of Fallowfield has now introduced a special line of cheap slip-in mounts for the suitable presentation of the "Multisecto" photographs. The ingenious way in which a number of as many of twelve different positions of a sitter may be obtained upon a quarter-plate must be known to those who have read our notice of the apparatus, but to others the circular issued by Messrs. Fallowfield may be recommended. Not only for such small sub-divisions as we hereby illustrate may the "Multisecto" be used, it equally provides for panel pictures on a quarter- or half-plate, or for other convenient divisions



A specimen of twelve positions obtained on a single quarter-plate with the "Multisecto" back.

of these two popular sizes. Under these circumstances it cannot be wondered that a series of mounts specially fitted for carrying the small photographs should be placed upon the market. In doing so Messrs. Fallowfield have wisely chosen a series of neutral tints of paper containing the minimum style of decoration for an effective mount. The tints are dark brown, dark green, slate grey, and

blue grey, many of which are supplied either with a stiff back, whilst all are obtainable with a thin gummed back, the print being simply laid in position over the cut-out aperture and fixed by moistening and pressing down the backing slip. The prices of the mounts run from 11s. per thousand (1s. 3d. per hundred) to 2s. per thousand, and sets of samples may be obtained for 6d. per set free by any photographer, or will be sent free to anyone at present using the "Multisecto" back. It may be of interest to state that a half-plate size of the "Multisecto" is in preparation for use with the popular 70s. sets.

### CATALOGUES AND TRADE NOTICES.

Mr. Andrew H. Baird, of 33-39, Lothian Street, and 2 Brighton Street, Edinburgh, sends us his latest price list of chemicals, minerals, and bacteriological stains. The contents are necessarily too numerous to mention here, but the list should certainly be in the hands of chemists and laboratory workers, and may be obtained on application to Mr. Baird as above. Particulars are also given of the "Junior" sets of apparatus for chemical experiments which are one of Mr. Baird's specialties, and are put up in two sizes, 10s. 6d. and 21s., the sets of chemicals for use with the same being 7s. 6d. and 18s. respectively.

THE "TIMES" ON COLOUR PROCESSES.—Passing from the pictorial section to the technical and scientific one encounters an abundance of results on the Lumière autochrome plates, and one may assume that these examples, about 100 in number, represent the process at its best. A walk round the gallery in which the examples are arranged brings us face to face with some of the best work by Mr. Comley, Mr. Klein, and Mr. Gill, all of whom employ the older three-plate method, and, after looking at these exhibits with their clean and unclouded brilliancy, the observer may well return to the autochrome department and ask himself whether the latest advance is an advance in reality or only an easy way of obtaining a second-rate or third-rate result. It may, of course, be urged that the three-plate heliochromes at the end of the gallery are all still-life subjects, whereas the Lumière exhibit includes landscapes and portraiture. Let us then descend to the court below and see what Mr. Sanger Shepherd has to show. Two as delightful studio portraits as one could wish may there be inspected; the flesh tints, which are the weak point of the Lumière pictures, are almost identical, one being taken with a total exposure of twenty-five seconds and the other with an exposure of fifteen seconds, these times include the time involved in shifting the camera back. Further, Messrs. Sanger Shepherd show brilliant lantern slides by the three-colour process, slides which only require an ordinary lantern and ordinary light.

CHARGE AGAINST A CANVASSING PHOTOGRAPHER.—At the Shrewsbury Police Court last week, George Boffin, Helsby, Cheshire, photographer, was charged with obtaining 2s. by false pretences from Sarah Ann Chetwood, Loppington. Prosecutor stated that prisoner came to her house shortly before February 8 last, and asked her if she would have the children photographed. Witness agreed, and prisoner took the photograph. On February 8 he called with one photograph and asked her if she wanted any more. She said she would have two more. Prisoner then said he must have the money for them then, or he could not possibly bring them. She paid him 2s. for them on his promising to send them to her by post on following Wednesday. Prisoner gave her a receipt which was undated and unsigned. She had never received the photographs. Bennett Mayo, travelling photographer, stated prisoner was in employment for about twelve months up to July this year. In February he was working for him on commission. His duty was to get orders and bring them in, and he would receive back photographs when done and deliver them. Cross-examined prisoner, witness admitted he could not say whether he had the money or not for the photograph produced. P. C. Fryer said he received the prisoner in custody from the Frodsham police. In regard to the warrant prisoner said he had paid the money to Mayo. Bench retired, and on returning the Chairman said they must satisfy the prisoner the benefit of the doubt, and he would be discharged.



# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

### SATURDAY, SEPTEMBER 21.

London Photographic Club. "Outing to Sea Mills and Coombe Dingle."  
London and District Photographic Society. "Outing to Wanstead Park."  
London Amateur Camera Club. "Outing to Rothessay."  
London Photographic Society. "Outing to Keston."  
London and District Photographic Society. "Outing to Wimbledon Common."  
London Suburban Photographic Society. "Outing to St. Paul's Cray."  
London Polytechnic Photographic Society. "Outing to Loughton."

### MONDAY, SEPTEMBER 23.

London Camera Club. "Pinatype Process of Colour Photography." Demonstrated. Fuers! Brothers.

### TUESDAY, SEPTEMBER 24.

London Photographic Society. "Outing to Wandover and the Chilterns."  
London Photographic Club. "Business Meeting."  
London Camera Club. "British Trees." J. A. Lash.

### WEDNESDAY, SEPTEMBER 25.

London Middlesex Photographic Society. "Retouching." G. F. Barwell.  
London Camera Club. "Lectures by Messrs. Crick, Spink and Wilkinson."  
London Camera Club. "Half-Day to Hoylake."  
London and District Photographic Society. "Home-Made Platinum Papers." Mr. Biss. Competition, August 24 Prints.

### THURSDAY, SEPTEMBER 26.

London Photographic Society. "The Carbon Process." Messrs. Conolly and Ashford.  
London and Provincial Photographic Association. "Open Night."  
London and District Photographic Society. "Making Toned Lantern Slides." E. G. Collins.

## THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, 13th inst. Present: Messrs. F. A. Bridge, Alfred Ellis, S. H. Fry, A. Mackie, Scamell, Lang Sims, H. C. Spink, C. H. Skilman, and R. Fellows. Mr. H. C. Spink, president, in the chair.

The names were read of new members who had joined the Association since the last committee meeting in June, numbering twenty.

The Hon. Secretary said that naturally he had had a good deal of correspondence with members in reference to the new Workmen's Compensation Act, and probably all the more far-seeing of their members had realised their responsibility and had provided to that effect by insuring through the Association or otherwise, but he was sure that many failed to recognise the position the Act created and had not protected themselves.

Mr. S. H. Fry pointed out that as poisoning by chemicals was included in the Act as the equivalent of accident, and as it was obvious that some individuals were particularly subject to it, it would be necessary, in filling in the proposal form for insurance, to specify any employee who had this predisposition, and, moreover, it would be necessary to state this fact in the references, and also to ask whether this predisposition existed in any form for reference.

The Hon. Secretary said he had been endeavouring to make arrangements with Mr. H. J. Comley to give them a talk on colour photography from the professional's point of view, illustrated by samples, etc., at one of their members' meetings, and the fixed had been made for the members' meeting on Jan 10 next.

The Hon. Secretary reported that two conferences had been held by representatives of the Artistic Copyright Society, but unfortunately so far they had not been able to find any solution of the "marking" difficulty satisfactory to both sides. The matter was under consideration.

A report was read from Mr. H. J. Comley, who had been authorised to take proceedings at the cost of the Association against a number of free portrait dodgers working in his neighbourhood. It was noted that the guarded manner of proceeding left no opening for a criminal prosecution, but certain cases were chosen, and, through a solicitor, summonses were issued in the County Court against the Fine Art Co., Manchester, through their local manager at Leeds, for the return of certain photographs obtained under conditions of misrepresentation. In a few days a representative of the company called upon the solicitor with the photographs and paid the cost of the summonses and nominal damages of 1s. in each case.

Mr. Ellis said those present would regret to learn that Mr. Martin Jaolette had undergone a somewhat severe operation, but happily he was on the way to recovery. It was unanimously decided to wish to Mr. Jaolette a speedy return to health.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the meeting on the 12th, Mr. Herbert C. Rapson in the chair, Mr. W. T. Wilkinson spoke upon "Ortho Plates for Landscape Work." It had been stated, he said, that photographers were using the wrong end of the spectrum, utilising only the blue rays, and not the yellow and green, but ortho plates had altered this, and we were now enabled to use all the rays. A couple of prints of a football team in jerseys of yellow with gold stripes were here shown, one on an ordinary non-colour plate, and the other upon an ortho plate used without screen, the difference in the rendering of the jerseys being very marked. Red and yellow, said Mr. Wilkinson, could be fairly well rendered upon an ordinary plate, whilst if blue were present an ortho plate would have to be used to obtain anything near a correct rendering. Further, the light-filter, or screen, would have to be adjusted to the plate in use, some plates needing a far deeper screen than others to obtain a proper rendering. Results were shown upon plates with and without the filter. The lecturer generally used K1 and K2 screens of Wratten and Wainwright for his work, and found that these gave all that was required except for copying paintings, when the K3 screen was useful. Mr. Stretton asked if Mr. Wilkinson would use the same developer and method of development when using an ortho and non-ortho plate upon a given subject? Mr. Teape thought that the ordinary photographer did not study, and did not understand development to the extent he should, but took what the plate-maker gave him in the way of plates and screens, and was satisfied with the results. The exposure should be of such a nature as to leave a reserve power in his hands if needed.

## Commercial & Legal Intelligence.

A WEST-END BANKRUPTCY.—Statutory meetings of creditors and shareholders of the firm of Turler and Co., Ltd., photographic dealers and jewellers, of 4, Great Russell Street, W.C., were held at the offices of the Board of Trade, 33, Carey Street, W.C., on September 13. The creditors appointed Mr. E. H. Hawkins, accountant, of 3, Barbican, E.C., as liquidator, but the shareholders' meeting, in the absence of a quorum, was adjourned for a week.

A COPYRIGHT CASE.—In the Chancery Division of the High Court of Justice last week there was an application by Agnew and Sons to restrain Clarke and Davies from infringing the copyright of "Harmony," the well-known picture by Mr. Dicksee, R.A., which is in the Tate Gallery.

Mr. Craies, who appeared for the plaintiffs, stated that the defendants had photographed the picture with a view to making it the subject of a picture postcard.

Mr. Frank Dodd, on behalf of the defendants, said that he was instructed to submit to a perpetual injunction. He would also have to pay damages. He desired to add, however, in some mitigation of his clients' conduct in taking the photograph, that copyright pictures were usually marked with an asterisk in the Tate Gallery catalogue. There was no asterisk attached to "Harmony," and the authorities at the gallery had gone so far as to remove the glass from the picture in order that it might be photographed.

Mr. Justice Parker granted the injunction, and, the plaintiffs not agreeing to accept £5, ordered an inquiry as to damages. He also made an order for delivery up of photographs.

THE RETURN OF A PHOTOGRAPH.—A young woman asked Mr. Fordham at North London Police-court to assist her in getting back a photograph. She had given it to a photographer to copy. She had received the copy, but not the original, though the photographer kept promising.

Mr. Fordham: What value do you put upon the photograph?

The Applicant: Oh, I don't know. But I valued it very much.

Mr. Fordham: How much do you think it would realise in the open market? Probably not more than a penny. And all the order

I could make in such a case would be, "Return the photograph, or pay its value, one penny." You might go to the County-court; but I will see if I cannot get it back for you in another way. The inspector on duty will make inquiries, and, unless it is spoilt or lost, I dare say he will get it.

## News and Notes.

THE BRISTOL Photographic Club's Exhibition next month will be arranged and hung by Mr. Alvin Langdon Coburn. It will be remembered that Mr. Coburn hung the London Salon last year.

THE ANNUAL EXHIBITION of the St. George Co-operative Society Camera Club will take place on December 5, 6, and 7, the closing date for entries being November 25. Further particulars and entry forms may be obtained from the exhibition secretary, Mr. George Anderson, 77, Braeside Street, Glasgow.

MR. JOHN OWEN, a well-known photographer of Newtown, where he had carried on business since 1865, died on the 7th inst.

THE VICTOR SPECIALTIES, circle and oval trimmers and mount cutters, are in future obtainable from the Victor Co., 99, Highgate Road, London, N.W. Telephone, No. 941 North.

HERR PAUL HANNEKE.—In reference to our recent review of the volume of formulae, by Herr Paul Hanneke, we must correct the statement that Herr Hanneke is a member of the scientific staff of the Actien-Gesellschaft für Anilin-Fabrikation.

MESSRS. JOHN WRENCH AND SON announce that they will be pleased to send a copy of their new art catalogue of lanterns and accessories and cinematographs, gratis and post free, to any interested in optical matters. Application should be made to the above firm at 50, Gray's Inn Road, London, W.C.

A VERY enjoyable amalgamated outing of the Hove, Worthing, and Southsea Camera Clubs was carried out on Saturday last, 14th inst. Quint old Rosham having been selected, the three clubs met there. During the afternoon many exposures were made, the lighting over the creek being particularly fine. The ancient church also received its share of attention.

ON SATURDAY, 14th inst., Miss Isabel Traill Taylor, daughter of Mr. and Mrs. J. Hay Taylor, of Bleak House, Wightman Road, Hornsey, and granddaughter of the late Mr. J. Traill Taylor, was married to Mr. Edgar V. Reading, son of the late Mr. Edmund Binfield Reading, of Bournemouth, at St. Peter's Church, Hornsey. After the wedding about forty guests attended the reception at Bleak House. The honeymoon is being spent at Bournemouth.

"PICTORIAL GUIDE TO UPPER CLYDESDALE" is an interesting booklet, which, as its title indicates, is specially devoted to that portion of Scottish scenery found in the upper valleys of the Clyde, a district which, though one of the most beautiful in Scotland, was until quite recent years comparatively little known. To meet the requirements of present-day visitors, Mr. Norman Hunter, of The Studio, Port Glasgow, has published the above guide book, which gives a brief description of the most important places of interest in the neighbourhood, the literary part being written by Mr. George Haddow and the pictorial portion supplied by Mr. Hunter from photographs specially taken by him for the purpose. Both illustrations and letterpress are well printed on good paper, and we heartily congratulate Mr. Hunter on the excellent character of his work. The price of the book is 1s. 6d., and it may be obtained from Mr. Hunter at the above address.

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.—It is no easy matter to compile a syllabus which shall meet the tastes and approval of all members of a photographic society, but anyone must indeed be hard to please who is not satisfied with the fare provided for him by that most indefatigable of secretaries, Mr. Charles F. Inston, as indicated in the winter syllabus of the above association just to hand. Among the demonstrations we note the latest developments in ozobrome and oil printing, whilst the lantern lectures should prove of special interest to tourist photographers, as they deal with all kinds of scenery both at home and abroad. Provision has also been made for the requirements of those specialising in various branches of photography, such as natural history, portrai-

ture, etc., and the lecture entitled "The Wonders of Light," which the session will open on September 26, should draw a crowd of house. Photographers living in the vicinity of Liverpool who are not yet attached to any photographic society cannot do better than communicate with Mr. F. C. Inston, Percy Buildings, 9, Ebbw Street, with a view to throwing in their lot with the "Liverpool Amateurs."

MR. E. MERCK, of London and Darmstadt, sends us a copy of his annual report, which, though in no way connected with photography, but dealing with recent advancements in pharmaceutical chemistry and therapeutics, and intended only for chemists and the medical profession, is of value as illustrating the thoroughness with which everything connected with the house of Merck is carried out, a quality which naturally extends to the photographic chemicals manufactured by the same firm, well known to our readers.

R.P.S. LECTURES.—The following lectures will be delivered at the New Gallery:—Saturday, September 21, "Eight Hundred Miles up the Nile," by R. Falconer Jameson; Monday, September 24, "South Africa in 1906" (the views are illustrative of Cape Colony, Natal, Orange River Colony, The Transvaal, Basutoland, Native Gold and Diamond Mining, Travelling, Thunderstorms, School Agriculture, Ostrich Farming, Veldt, Forest and Mountain Scenery, etc.), by Harold A. Atkinson, M.A.; Thursday, September 27, "In the Land of the Vendetta," by Rev. T. T. Norgate, F.R.G.S.

CANVASSEER'S METHOD.—The "Yorkshire Post" publishes a further contribution to the letter which we reprinted last week describing the method of the so-called "free-portrait" canvassers. The writer says:—Some time ago a member of this "persuasive society" was successful in obtaining at my house two photographs under the promise of supplying "free of charge" an enlargement of each having conferred on me the honour of being the party selected from the neighbourhood in which I then resided to be presented with "free copies" of same, "just as an advertisement." On hearing of the matter, I refused to have anything to do with it, but the "genius" was so anxious that I should benefit by the offer that he deposited the enlargements inside the door and rode away on his bicycle. About a fortnight later I was the recipient of an invoice for one guinea, which they expected me to pay for the "free copies." I took no notice of this, with the result that they then commenced their "bullying tactics" by sending me a letter threatening legal proceedings. To this I replied, saying I was quite prepared to meet such proceedings, which would no doubt give the public an opportunity of reviewing their business principles. I hardly need say that their threats were not carried out. They incurred more than two years ago. Their "fine art specimens" were still in my curio chamber."

TO MEN OF RESOURCE.—The following extract from the "Globe" will show what is expected from the Press photographer in carrying out editorial commands for "red-hot news in photographs":—"A somewhat discreditable incident occurred during a wedding at St. Trinity Church, Sloane Street, last week. While the bride, Lady Edith King-Tenison, was being led to the altar, a photographer stealthily made his way to the pulpit steps. All eyes were upon the bridal procession, and the man with his camera succeeded in reaching his goal unobserved. The ceremony had scarcely begun when he ascended the steps, and in another minute had his knee in position on the altar ledge and focussed on the bridal group. The tell-tale click of the apparatus, however, attracted the attention of the verger to the intruder, and, hastening to the pulpit, the official ordered the man to retire. The movement of the verger diverted the attention of the congregation for the next few moments. Finally the intruder was ejected, but he had secured a picture of the wedding party at the moment that the marriage vows were being taken. It seems that the photographer had been refused by the vicar permission to take a photograph from the gallery. Then, instead of leaving the church as was believed, he mixed with the congregation, and gradually made his way to the pulpit."

SCHOOL OF PHOTO-ENGRAVING AND LITHOGRAPHY.—The forthcoming session of the London County Council School of Photo-Engraving and Lithography, 6, Bolt Court, Fleet Street, E.C., opens on September 24, and the prospectus can now be obtained by interested students. The school, which is under the direction of Mr. A. Newton, is open only to those who are genuinely engaged in business.



ness in any branch of the photo-mechanical, photographic, designing, illustrative, lithographic, engraving, and printing crafts, no provision whatever being made for amateurs. Of the various classes held, some are concerned with the more artistic side of the work, others with the technical and scientific; there is, however, no real line of demarcation between the two, either in intention or practice, and the division is made solely for convenience of teaching.

The Art section of the School should be of especial service to those artists engaged upon work for reproduction, as students in these classes will have the privilege of having selected work reproduced, and every opportunity will be afforded them to obtain a knowledge of the various processes and their limitations. The practical instruction given is not intended to replace workshop training or merely to increase manipulative dexterity, but is preparatory or supplementary to it, and has also for its object the giving to those engaged in one particular department of a craft a knowledge of the principles of their own and allied branches which, in the ordinary course of trade, they may not obtain. The lecture courses are for the purpose of explaining more fully the scientific principles and technical details of the various processes than is convenient during the conduct of the practical classes. Attention is drawn to the courses of lectures on special subjects by various experts, especially those on "Optics as Applied to Photo-Engraving," "Duplicate Plate Making," "Papers for Printing," and "The Chemistry and Physics of Colloids," by Dr. S. E. Sheppard.

The School is well equipped with the necessary appliances for study and practical work. It contains a photographic studio with four cameras and powerful electric light installation of modern pattern, including a large electric searchlight, dark-rooms, sensitising room, glass cleaning and intensifying rooms, tri-colour dark rooms, extensive etching and printing rooms—complete with electric light and modern appliances—a machine room containing the latest power machinery for mounting, router, beveller, saw, etc., block proving room with electric motor driven platen machine, collotype preparation and printing rooms with two presses and necessary equipment, a photogravure room, a reading room, and museum of specimens and examples. There are also two large rooms for lithographic drawing and a press room, as well as separate studios for design, antique, and life and costume drawing. The School thus provides every advantage and facility for those who wish to improve a knowledge of their business and their dexterity as workmen. In deciding upon a course of study, it should be remembered by a learner that, while it is very important for him to have a good general knowledge of the different branches of his business, it is of still greater importance that he should be able in actual every-day work to do one thing really well rather than a number of things only fairly well, and, this being so, students are required to concentrate their energies as much as possible, and not to attempt too much.

The Council may award certificates to those students who have attended approved courses of study and comply with certain conditions.

The School session is divided into three terms, the first extending from September 24 to December 20; the second from January 6 to April 15; and the third from April 27 to June 27.

Both day and evening classes are provided at the Bolt Court School, in each case only to those who can prove to the satisfaction of the Principal that they are connected with the trade. Among the various courses of lecture demonstrations and practical workmanship instruction mention should be made of those in the making of line and continuous-tone negatives, in three-colour block making, in the various printing processes for half-tone and zinc work by the enamel and albumen processes. Various other special processes of half-tone production, such as fine etching, mounting, proofing, and engraving are also in the hands of special instructors. In the lithographic and collotype departments all stages of the work and its commercial applications are taught by those commercially engaged in it. Photogravure and mezzotint engraving also come within the curriculum of the Bolt Court School, the staff of which within the last few years have every reason to be satisfied upon the large accessions of students and the success which the latter have obtained on their emerging from the school into the commercial use of the instruction they have there received in the reproductive crafts.

WATFORD CAMERA CLUB.—The annual exhibition will be held on October 30 and 31. There will be eight open classes, including a champion class and one for novices—that is, those who have not previously obtained an award in any exhibition. Mr. A. Horsley Hinton will judge the exhibits, and silver and bronze medals, together with a silver plaque for award in the champion class, will be placed at his disposal. Entries close October 24, and entry forms and full prospectus will be ready about the middle of October, when they may be obtained from the Hon. Sec., Mr. W. R. Gunton, 139, High Street, Watford.

## Correspondence.

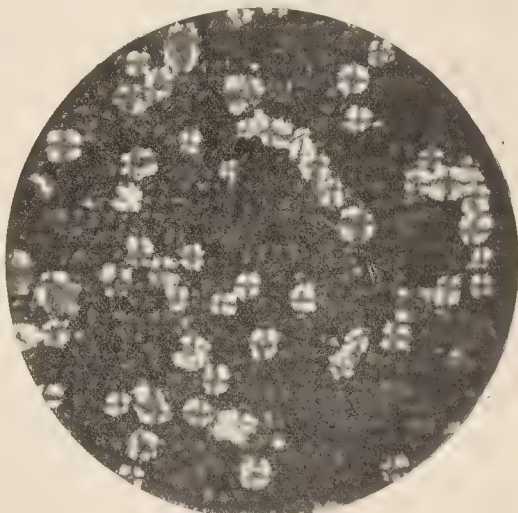
\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### PHOTO-MICROGRAPHS OF STARCH GRAINS IN THE LUMIERE "AUTOCHROME" PLATES

To the Editors.

Gentlemen,—With reference to the note by Mr. Martin Duncan in your issue of 6th inst., Colour Supplement, pp. 68—69, on the "Microscopic Appearance of the Lumière Autochrome Plate." It is stated in the last paragraph that when observing with crossed nicols the characteristic cross marking of starch grains was not found. I send herewith a copy of a recent photo-micrograph of a portion of an Autochrome plate X500, taken with crossed nicols, which I think



shows the "black crosses" very well. The photograph was obtained with a dry  $\frac{1}{8}$  and No. 1 e.p.: plate Wratten Panchromatic. The brightest grains in the photograph are the red ones. I may add that I have not failed to notice the black cross in any of the plates of various batches of Autochrome I have examined up to the present.—Yours faithfully,

J. H. PLEDGE, F.R.M.S.

Research Laboratory, Wratten and Wainwright, Ltd, Croydon.

### SKIN AFFECTION AND THE TONING BATH.

To the Editors.

Gentlemen,—In reply to "Oak Side," I may say that I am suffering in just the same way with my hands, and no amount of ointment, etc., seems to do them any good. I have now taken to using boric lint, which appears to be efficacious. The lint should be damped and then wrapped round the fingers, and covered with oil-skin to keep them wet.

Fresh lint should be used each night and morning, until the

fingers seem to be thoroughly well blistered and new skin grows, and then I believe it is advisable to use some emollient to strengthen the skin. It is a somewhat tedious cure, but it is the only one in my case which appears to do any good, and I hope it may be of some service to others suffering in the same way.—Yours faithfully,  
6, Ribblesdale Road, Hornsey, N. M. DARTON.

#### DEVELOPER SKIN AFFECTIONS.

To the Editors.

Gentlemen,—As there has been so much correspondence *re* amidol poisoning and operators' fingers, I beg to place my experiences before the readers of the JOURNAL. I have experienced great inconvenience in the past with cracked and burst fingers. This I have attributed to amidol, which I use daily. I am, however, convinced that the trouble is caused by hypo in conjunction with different town waters. In 1904-5 I was a martyr to a great extent, my fingers being like raw meat. I tried all sorts of remedies with very little relief. My business then took me away from Leicester, when in time the sores healed up. I have now returned to the old town, and the trouble has returned. The reason that I feel so convinced that hypo is the cause of the itching blisters and bursting of my fingers is that I have been most careful to use one hand only for developing and the other for fixing, with the above result that the hand used exclusively for the fixing bath is at times so raw that it is agony to work. I have failed to see how one can successfully turn a large batch of prints, say a gross at a time, without getting the fingers wet up to the second joint, as previously mentioned in the JOURNAL; it is only necessary to use the finger tips for the purpose, but how about the prints at the bottom of the dish? I find that to rub wool fat well into the skin helps a great deal to turn out the hypo, and then afterwards to wash the hands well in hot water and bathe with rectified spirit. This stops the itching, but makes the hands very painful for a few minutes. Hoping this will open further discussion from more able pens than mine, I am, Gentlemen, yours truly,  
P. H. ADAMS.

45, Meynell Road, Hummerstone Road, Leicester.

#### BLISTERS IN BROMIDES.

To the Editors.

Gentlemen,—Your article and notes on blistering remind me of the old albumen days, when blisters were at times troublesome. An invariable cure was, after the batch of prints were fixed, to allow the water to flow into the dish and gradually diffuse the hypo until it was replaced by water only, and then continue the washing. This treatment was suggested to practical workers because hypo, being always very cold when freshly mixed, it was noted that the sudden change to comparatively warmer tap water caused blisters when the prints were lifted from the hypo and suddenly plunged into a dish of water of another temperature and density.

I certainly think that differences in temperature and density will account for the trouble in bromide paper, and I would recommend that every reasonable precaution be taken in this respect so as to get as near as possible equable temperature in all solutions.

Some workers use an acid fixing-bath day after day without change. In this case it would at certain seasons or under certain conditions become warmer than the tap-water. This might cause blisters. Other workers mix their hypo just as required by "shoving" a handful of hypo into a dish and turning on the tap by rule of thumb.

The best plan is to mix up hypo in large quantities of saturated strength, so that it has time to adapt itself to the normal temperature. Then when it is diluted to proper fixing strength it will be of the same degree as the tap water. But whenever possible, adopt the diluting system mentioned above.—Yours faithfully,

R. E. W.

THE LETO OUTING.—The employees of the Leto Works, Edgware, held their first annual outing on Saturday, 14th inst. The staff and their friends met at the works at midday, and proceeded in brakes to Essendon, where a most enjoyable day was spent. The weather being favourable, the various races and other outdoor amusements were greatly appreciated, the day's programme proving a great success in every way.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

#### PHOTOGRAPHS REGISTERED:—

- J. Busby, 31A, Market Place, Preston, Lancashire. *Flashlight Photograph of Archbishop Bourne and Bishops at Catholic Truth Conference.*
- J. W. Tattersall, 64, Blackburn Road, Accrington. *Photograph of Alderman J. Kenyon.*
- D. Ryan, 1, Ardilaun Villas, Dollymount, Dublin. *Photograph of Decorations and Tomb Interior of Daniel O'Connell, Glasnevin Cemetery, Dublin.*
- W. R. N. Gard, 57, St. Kilda Road, West Ealing. *Photograph entitled, "A Bit for Dogie."*
- A. Russell, 6, Wilde Street, Liverpool. *Photograph entitled, "Bound for the Rio."*

R.P.S. STUDENTS' FELLOWSHIP.—In your issue of the "B.J." for March 22 of this year, I see in the "Answers to Correspondents" a paragraph headed, "Examination." In this paragraph you mention "Students' fellowship application arrangements of the R.P.S." Can you give me any further information of these arrangements, as, although I have mixed with members and fellows of the R.P.S., I have never heard mention of this before.—STUDENT.

They have been drawn up by the Royal Photographic Society, from whom a printed copy is, we believe, obtainable. We advise you to write the Secretary, 66, Russell Square, W.C.

ROLL FILMS.—I have lately bought a Kodak No. 2 Brownie. I developed two films, and found it was all right; but unfortunately I have spoilt three films this week. I cannot make out what is wrong. I think it must have gone wrong in the developing tank. After it had been in it twenty minutes I took it out, and found most of the film was dry. I enclose the incomplete film with this letter. Can you advise me in the matter?—F. KING.

We cannot from your information. You had better take it to the depot of the Kodak Co. nearest to you, viz., 115, Oxford Street, W., where your difficulty can be certainly explained.

POSTCARDS.—Could you tell me where I could buy postcards that have a slip in the corner that you can put the stamp photographs in? I saw some on sale, but do not know where to get them. I should be obliged if you could tell me.—J. W.

We have not seen them. Better write to Messrs. Fallowfield, 146, Charing Cross Road, W., or Messrs. Butcher, Camera House, St. Bride Street, E.C., both of whom make a special line of postage-stamp materials.

BITTEN.—As you have taken criminal proceedings against the man, and he was punished for the offence on which he was charged, we do not see what else you can do, particularly as you do not know where to find him. You might have charged him with embezzlement at the time you prosecuted him for the theft, had you chosen to do so.

JACKSON (Southsea).—If you are, as you say, an operator, you should be able to answer your six queries much better than we possibly can, as we have no idea of the capital you can command, the style of business you propose to start, the kind of work you are capable of producing, or your tact in business matters. You will be able to get, approximately, the population in different towns from the "A.B.C. Railway Guide." We can also refer you to the article on the purchase of a photographic business ("B.J.," May 24, 1907, p. 382), which deals with the general matter of your inquiries.

STUDIO QUERY.—I am thinking of building a studio on the roof of a back addition of the house, but I can only get a length of 15 ft. and a width of about 12 ft. Do you think this would



long enough for ordinary professional work? I may mention that by enlarging the opening to it from the room, I could have the camera in it, and in this way get a length of 10 ft. more. Do you think this worth while, as it would entail no extra expense? Your opinion will greatly oblige.—C. H. G. It would certainly well repay for the additional cost. With studio only 15 ft. long very short-focus lenses only could be used, and with them the perspective in the pictures is lent, and the pictures, as a rule, by no means satisfactory. So short a studio there is always a difficulty with groups of full-length figures; but with the additional length mentioned these difficulties will be avoided.

**HORSE AND TRAP.**—Will you please tell me if I am liable to have to pay a tax on a light trap I have? My business is largely in taking photographs away from home, sometimes long distances, and I find it necessary to have a horse and trap to carry the apparatus, often 15 by 12. The Income-tax people say I must pay duty upon it, as it is used for pleasure, which it is not, except that now and then I may take my daily for a drive on Sundays. The collector says I can avoid it like, but he does not think I shall do any good by so doing.

**BUSINESS.**—If the vehicle is used solely for business purposes it is exempt from duty, but if you use it also for pleasure, as you apparently are doing, you will have to pay the tax, we expect. You might appeal against it; it would do no harm, though we doubt if you will be successful.

**IMAGE.**—I enclose herewith prints from two negatives I recently took of the interior of a church. You will notice that each of them there is a faint image of a window. The negatives were taken the one immediately after the other, the camera not having been moved at all, and they are both alike. The curious part of the matter is that this window is quite the side, and cannot be seen on the focussing screen, as I have been with the camera again on purpose to see if it could, but I did not take another negative then, as the light is very bad. Have you ever seen such a thing before?—ANDRAY.

**YES.** We have seen several such samples. The ghostly image due to a minute hole in the camera, which has acted as a bell-hole camera with the prolonged exposure that the plate made. From the position of the secondary image, we surmise the hole is in the bellows. Take the camera, with the bellows fully extended, out in the sunlight, remove the focussing-screen, the lens, and examine the bellows from the inside, keeping the head covered with the focussing-cloth. By turning the camera about in the sunlight you will be able to see where the hole is. The remedy is obvious.

**FOCUSSED LIGHT.**—Last year I took the above premises on a ten years' lease, renewable at my option for fourteen years. The shopkeeper next door is now enlarging his premises by building out at the back. This new building, when finished, will stop off nearly all my side light from the north. I am told that, as my studio has been built over ten years—twelve, in fact—I can stop him from obstructing my light, unless he pays substantial compensation. I shall esteem it a great favour if you will be good enough to say how I stand in the matter. I. Cox.

**NO.** We are afraid—indeed, sure—you can do nothing in the matter but grin and bear it. Had the studio been built twenty years you could claim "ancient lights." Then you could have stopped the building if it did not leave you sufficient light to carry on your business. Nothing less than twenty years' obstructed light confers the claim of ancient lights.

**ON CARBON PRINT.**—I am sending you a carbon print which will see has a yellow stain in the middle, which seems to have come out after it was dry. It seems to be like a P.O.P. print that has begun to fade. I have never heard of carbon prints going like this before. Can you suggest the cause, as I have never heard of carbon prints fading in this way? The print, as you see, is on thick rough drawing-paper, and by single transfer process.—W. A. BENDER.

The cause of the yellowness is not far to seek. The bichromate was not washed out of the paper before the print was

dried. The stain was there, but probably you did not notice it while it was wet. It might easily be overlooked if the work was completed by artificial light. You must keep in mind that prints on thick paper require a long immersion in the alum solution to soak out the unaltered bichromate, particularly if they are left mounted upon it for a long time before they are developed, as then the bichromate penetrates deeply into the paper.

**G. P. A. (Bristol).**—"A Treatise on Photogravure." By Herbert Dennison. 4s. 6d.

**CARBON PRINTING, ETC.**—Should esteem it a favour if you will give me a formula for a spirit-sensitising bath for carbon tissue—preferably with pot. bichrom.—also stating time of immersion. Also will you kindly give address of the makers of a series of supplementary lenses used in conjunction with an ordinary lens (i.) to increase focal length, (ii.) to reduce focal length (for wide-angle work), (iii.) for portraiture, (iv.) for copying; priced, I believe, at 20s. set?—ARCHIE T. HANDFORD.

1. Spirit sensitiser is applied to carbon tissue by brushing it on, and not by immersion. With a solution of bichromate of potash less spirit can be used than with one of the bichromate of ammonia. The following answers well:—Bichromate of potash 6 parts, water 100 parts. When dissolved, add liquor ammonia till the solution looks quite pale. Then add methylated spirit 100 parts. This gives practically a 3 per cent. solution. The methylated spirit must be free from the mineral spirit. In place of the spirit, acetone may be used, if the ammoniacous salt be employed, then the ammonia can be omitted. The Autotype Company supply a spirit sensitiser which we believe is a secret preparation. It is cheap, and with it is supplied a suitable brush for its application. Its price is but 1s. a bottle, including the brush. We should think you could not do better than purchase that and save yourself the trouble of compounding it. You will find the tissue to dry much more quickly than with the home-made preparation. 2. Messrs. John J. Griffin and Sons, Kingsway, London.

**ENLARGEMENT BUSINESS.**—My friend and I are about to start a photographic enlargement business (not photography), but we have not decided as to whether to open a shop, or some premises in London and work for the trade. Should you, however, advise us to open a shop, could you give us an idea as to the best locality? Also what would be necessary to lay out for same? Your expert advice will greatly oblige.—ANXIOUS.

We cannot see that you will command any business by merely opening a shop. You must decide for yourselves whether you make your business for the trade and profession or for the amateur. If we may judge of your inexperience from your letter, we advise you to take some business of which you have greater knowledge.

**APPRENTICESHIP.**—Will you be good enough to tell me if an apprentice, after he has served his term, can legally set up in business for himself, or enter into partnership with another, close to his late master's premises, or in the same town, which is quite a small one?—MASTER.

Yes, he can, unless there was a stipulation in the indenture that he should not do so.

**AIR-BRUSH.**—Do you think if I purchased an air-brush I could teach myself to produce good work with it? I have a second-hand one offered me cheap, and I want to improve my position.—KATE

All will depend upon your artistic abilities. We would, however, say that you would save yourself much time by taking a few lessons from someone proficient in its use. We would also advise you to get someone who is familiar with the apparatus to see for you that it is in good working order, as second-hand ones are not invariably in a working condition.

**A COUNTRY ARTIST.**—If the finished enlargement, returned by your customer, shows discoloured marking within three months, you should certainly demand from the firm that supplied it that it should be replaced free of charge, or the money paid for it returned. We do not think you would be very successful in an action for damages for injury to your reputation; though one can well understand that, in a country place, it would suffer injury from supplying a picture for which a good price was

charged, and which had deteriorated in so short a time. We do not see that you can refuse to return the money to your customer, seeing that he has been supplied with a picture which is evidently in the early stages of fading. Possibly he will be satisfied by its replacement by another, with an assurance of greater permanence.

**J. H. WILCOX.**—Any of the manufacturers of carbon tissue will supply you with one of a very similar tint to the print you enclosed. We cannot say which of the firms supplied that with which it was actually made. Better write to the different makers and ask for their samples of tissues. From one or other of them you will be able to select the tint you require.

**STUDIO QUERY.**—I have a room 12 ft. long, 5 ft. wide. Do you consider this large enough to take full-length cabinets and C.D.V. photographs by electric light? If so, what focal length lens would you recommend; also what make electric lamp, what power, and where would you fix lamp or lamps so as to give the best result? If room is not large enough, what size room would you recommend? **ELECTRIC.**

The room is much too small to take full-length cabinet or C.D.V. portraits in either by electric or day light. There is no lens that will enable you to take full-length portraits cabinet size in so short a space. If you refer to the issue August 23 last, p. 635, you will find an article in which the best dimensions for a studio are given.

**BACKGROUND MAKERS.**—Will you kindly answer this in your columns:—1. Address of Rough and Caldwell, background makers. 2. Any other high-class background painters' addresses, not cheap quality ones.—**S. DRUNJEEBOY, Trimulgherry.**

1. Rough and Caldwell, 155, West 29th Street, New York, U.S.A. 2. Perberton and Co., Rishton, Blackburn; Turner and Co., Exchange Street, Blackburn; also others whose addresses appear in "B.J. Almanac."

**BROMIDE.**—Apply to the Rotary Photographic Company, Ltd., 12, New Union Street, Moorfields, London, E.C.

**ARTIFICIAL LIGHT.**—Will you be kind enough to let me know the cheapest way I can take photographs at night, either full length or vignette, in a studio? I am not very well off, and should be greatly obliged if you will do so. I certainly cannot afford electric light, and I see in this week's "B.J." an article by Franz Novak. Also will you kindly say how to get the thorium nitrate, and how to arrange to burn it?—**GERTIE WATSON.**

The Tress Company supply a quite inexpensive arrangement for taking portraits by artificial light. Better apply to them at 42, Oxford Street, W.C., for a prospectus. Thorium nitrate may be had at most large chemists, but we should advise you to have nothing to do with the compounding of flashlight powder, as you probably know little of chemistry and the dangers incurred in making them.

**ENLARGEMENTS.**—1. Will you kindly inform me if I could obtain good results by exposing for enlarging purposes home-made bromide paper, wet (as soon as sensitised) with the surplus silver salts unwashed? 2. If so, will you kindly send me a formula for sensitising it? 3. I enlarge by artificial light, and use a weak illuminant. 4. A minimum of gelatine would be necessary (if any), as I want the image to remain sunk into the paper, and not "floating" on it as is the case with the commercial papers.—**A. G. C.**

1. We are sure that you would not find it practicable to prepare your own bromide paper, even by the modified process which you suggest. 2. A better plan would be to use what is known as the "Solar" process, formulae for which have already been given in our columns, and appear also in the current "Almanac," pp. 816 and 821. 3. For working by the "Solar" process you would want a powerful arc light for the enlarging lantern. 4. Any bromide emulsion paper must of necessity contain more than sufficient gelatine to keep the image from the paper. What you suggest is not practicable, for a bromide emulsion, but may be done with any floating or sensitising method such as that we have suggested.

**COPYRIGHT.**—I enclose a print of my copyright photograph of the Carisbrooke Well-House. I also enclose a postcard in colours. This latter is said to be a copy of an original oil painting in the possession of the publishers. A comparison of number of

links in chain, position of glasses, the wheel in relation window behind, also the position of the donkey, show the picture and this coloured card are identical. I should be of your opinion as to this, and if you agree with me, would fact (if it is a fact) that the coloured card is a copy of original painting (the original painting being a copy of photograph) preclude me from taking successful action to restrain the sale and for damages.—**F. N. B.**

It makes no difference as regards infringement whether coloured copies be actually made from a print of yours or an infringing oil painting. If it is a "colourable imitation" it is still an infringement.

**COLOUR FILTERS, ETC.**—1. What preservatives and the amount same may I add to the gelatine in preparing colour filters something that will not injure nor change the absorption dyes? 2. How to make flexible colour filters. Gelatine (Nelson's No. 1 Photographic) is too hard and brittle. 3. Using Dr. Miethe's formula for "blue" printing as a base theory governs the proportions given?

1. Water dist. ....	150 c.c.s.
Potass. ferricyanide .....	4.5 gms.
2. Water dist. ....	150 c.c.s.
Ferric and am. cit. (green scales) .....	12.5 gms.

4. What effect would any change in these proportions have? **W. H. THOMPSON.**

1. A small proportion of pure carbolic acid may be used if the filters are coated with fresh-dyed gelatine solution at once cemented no preservative is necessary. 2. If a glycerine be added, brittleness in the gelatine will be avoided. A very small quantity will suffice with this gelatine. 3. Small variations in the proportions of the ferricyanide citrate will make practically no difference in the results. The formula is that most commonly used for a good blue print.

**WORKING-UP.**—Could you oblige me by stating the best instruction obtainable in working-up black and white, colour same, and also miniatures?—**H. WHITWELL.**

"Retouching Negatives and Working-up and Colour Photographs." By Robert Johnson (Marion and Co.) 2s.

**Q. S.**—*n* signifies molecule grammes weights; *n* signifies normal, as it is usually written in books of analytical chemistry. The meaning of / and // is "positive" and "negative" respectively. As to the books, those in Sir Wm. Ramsay's series are the Messrs. Longmans, the publishers, will send you a circular.

THE LATE MR. CHAPMAN, of Manchester, left estate valued at £31,850.

**THE AFFILIATION OF PHOTOGRAPHIC SOCIETIES.**—The annual meeting of members of the affiliated societies will be held at the New Regent Street (by courtesy of the Royal Photographic Society) on Friday evening, September 27, at seven o'clock, when the Executive Committee hope to have the pleasure of seeing a large number of members present. The exhibition of the Royal Photographic Society will be open to members. The 1907 prize lantern slide will be shown. Dr. Evershed, the Chairman of the Executive, will give a short address on the work of the affiliation. Admission will be on presentation of the red book, and the tickets contained therein will be available for the friends of members. Visitors will be able to obtain refreshments at the Gallery.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

Exhibition of the Society of Colour Photographers opens at 8 of the "B.J." on Monday next, September 30.

Lumière Co. announce that they have "Autochrome" plates list sizes. (P. 741.)

Another patent in screen-plate colour photography has been d. The drying of plates and films, backgrounds in nega- dographic surveying are among other patents of the P. 737.)

Lumière "Autochrome" plates will probably lead to a d of the foreground shutter. (P. 726.)

Warner-Powrie Process.—Mr. A. J. Newton looks forward to d uses of the linear colour-screen plate in photo-engraving.

Remarkable telephoto work at forty magnifications has been Captain Owen Wheeler with a new high-power attachment d only a 16-in. extension of camera. (P. 728.)

Protest against the methods of the press photographer d in a northern newspaper. (P. 742.)

Draw attention to the tendency of decrease in weight of d and of increase in lenses. (P. 725.)

Further experience in the treatment of the evil effects of d on the hands figures in our correspondence columns.

New Patents Act, which comes into force in January next, is d on its highly protective character, to affect foreign manu- d of every kind. (P. 727.)

First portion of a review of the R.P.S. Exhibition commences d. 733.

Inclusion of our notice of the Photographic Salon appears d. 731.

## EX CATHEDRA.

### The Christmas Booklet.

Our receipt from a firm of printers, with special qualifications for looking after photographers' stationery, of a booklet intended to draw Christmas trade to the studio, is one of the reminders that but a few weeks separate the height of the winter season from the present warmth of September sunshine. Our brief review of the booklet in question will show how we regard it as a means of attracting the public towards the photographer when Christmas gifts are in process of selection, but it must also be remembered that such a reminder must reach the public at the right time, and must have been preceded by arrangements for carrying out its offers well and quickly. Otherwise the photographer cannot expect to benefit much from it. Among high and low the personal note which a photograph strikes among Christmas gifts is more in favour year by year, and it rests with the photographer to take judicious measures to profit by it.

\* \* \*

### The Society of Colour Photographers.

A first look round at the collection of colour prints and transparencies which will be opened to the public on Monday next at our offices under the auspices of the Society of Colour Photographers, is enough to show the great value of an exhibition in which examples of the current processes may be compared side by side. While the Society introduces to the actual inspection of the public the first examples of the new Warner-Powrie process to be shown in this country, it should experience an equal satisfaction in demonstrating the progress which its own members have made in the more difficult colour-processes on paper, as evidenced in the work of its honorary secretary, Mr. Henry J. Comley, and of Mr. William Gill, of Colchester. Moreover, as a considerable proportion of the 200 exhibits are by the new Lumière Autochrome process, it may be said on the whole, for the Society, that its maiden appearance before the public as a body of workers engaged and interested in the progress of colour photography is one which does it credit. The exhibition, to which admission is free on signing a visitors' book, should certainly provide a fair idea of the present status of colour photography.

\* \* \*

### Cameras and Lenses.

There has lately been an unfortunate tendency for manufacturers of cameras and manufacturers of lenses to progress in opposite directions. While high-class lenses have been increasing in aperture, and consequently in bulk and weight, cameras have tended to become lighter and more fragile, and less suited to carry heavy lenses. There are many half-plate lenses now on the market that cannot be used with any

advantage in the average half-plate camera, hence the purchaser of one of these generally expensive and always useful instruments finds himself let in for the cost of a new camera in addition to that of the lens. Some cameras represent the last word in fragility, and when used at their full extension it is difficult to find any long-focus lens that is sufficiently light to be serviceable. On the other hand, some modern lenses of quite moderate focal length that have passed through our hands have been so bulky and heavy that they could only be used on cameras of exceptionally rigid construction. Purchasers of new lenses will do well to consider these matters before buying, and we think, also, that camera makers would be well advised if they introduced some cheap, rigid cameras suited to heavy lenses. It so happens that, while most of the light and fragile cameras are extraordinarily cheap, those of a more rigid and more substantial make are usually rather expensive, though their construction is, if anything, more simple. Therefore, the economical photographer has some difficulty in securing that very desirable combination of a high-class lens with a strong, serviceable, cheap camera.

### Foreground Shutters.

Every now and again we have to hark back in the photographic world to things that we thought had become obsolete. The introduction of the Autochrome plate has taken us back to the old days of long exposures with the stand camera, and the fact that over-exposure of the sky gives us a sky of an impossible colour impels us to look around for foreground shutters, which articles are rarely seen nowadays. Of late the foreground shutter seems to have been entirely neglected. Possibly we have become accustomed to over-exposed skies, and our taste has become vitiated, so that we do not recognise the falsity of the tone-value; but we can very quickly see the falsity of the autochrome pink sky, so it is evident that "steps will have to be taken." The generality of so-called foreground shutters only give the required effect when used for brief exposures of less than one second, therefore they are not suited to our purpose. The blind shutter fitted to the front of the lens can be used as a slow foreground shutter if we slowly open it by pulling the cord and then let it slowly run back again. Our blind shutters are, however, now usually fitted behind the lens, and this very simple dodge is not available. It is true that one can manipulate the behind-lens blind shutter so as to give more exposure to the foreground than to the sky, but it is difficult to do it without shaking the camera, because one has to pull against the spring when it is nearly fully wound. Another old-fashioned method is to expose with the lens cap,

manipulating it so as to partly shield the sky, but requires skill and practice. Probably the shutter suited to our purpose is the old flap shutter, that is slowly or rapidly according to the pressure put on a pneumatic ball, and is closed by relaxing the ball. Shutters are seldom seen now, but they were a very variety, and, in view of our present necessity, they are worth reviving. Their construction is very simple, they are cheap; and they also have the advantage of acting as sky-shades as well as foreground shutters.

### Lens Mounts.

There is a matter in connection with lens mounts that manufacturers well give consideration to. Many modern lenses mounted that a filter screen cannot very conveniently be placed at the back of the lens. The flange is often the centre of the mount, and the result is that the lens projects so far into the camera as to be a hindrance to the way of the screen. Of course, a middle position for the flange is advantageous for very heavy lenses, or for those that are used in folding cameras, but the average lens of less than 8 in. focal length is both small and light, and, excepting for folding pocket cameras, a flange at the back of the mount is as convenient as one in the middle. We were much struck with the inconvenience of the flange only a few days ago. Having mounted a lens in a behind-lens roller blind shutter—which is an ideal screen mount, as the screen is well protected on both sides—we discovered that not a single lens could be brought into use without packing out the shutter to a very considerable extent. Previously to this we often noted the inconvenience of internally projecting lenses in the case of lens panels that slide into place. The panel cannot be drawn out for the purpose of changing to a different lens without first unscrewing the panel. Instead of being able to shift lens and panel together, we have to replace them by another lens attached to its panel, and then to deal with lenses and panels separately, and a very change is impossible. In the cases of lenses of popular types, we do not see why purchasers should not be given a little choice in the matter, or, if various types of mounts are objected to for commercial reasons, it would be easy to supply either a special flange or an adaptor which would convert the central flange into a rear one.

### Blisters on Bromides.

A letter from a correspondent writes that 703 attributes the blame for the appearance of blisters to the use of soft water. His supply being changed from hard to soft, numerous blisters appeared. On changing back again to the hard water, the blisters disappeared.

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

### SCREEN-PLATE THREE-COLOUR PROCESSES

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1908 will be

modified to make it more than ever the book of photographic reference.

The ALMANAC for 1908 will appeal to photographers all over the world as a daily reference guide in practice. The standard matter and formulæ will be revised and added to where necessary, and, wherever practical features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the edition of the ALMANAC (25,000 copies) will again be in the hands of dealers and the trade on December 1, as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end is earnestly esteemed by the publishers.



blisters ceased to appear. This is exactly what might be expected according to the theory we suggested in a recent paper. The purer the water used for washing the greater the chance of blisters if precautions are not taken. The sudden change from a strong hypo bath to pure water will be nearly certain to produce blisters in a paper liable to form them, hence the efficacy of dilute hypo or salt baths between the strong fixing bath and the water. All the same, there seem to be bromide papers on the market that do not blister even when treated in the most carelessly rough fashion. It is a difficult matter to produce a blister experimentally on some of them, hence we are forced to consider that the paper is at fault when blisters do appear suddenly. A change of paper is therefore the wisest course to adopt when blisters are a serious source of trouble.

### THE NEW PATENTS AND DESIGNS ACT.\*

DURING the last few days of the past Parliamentary session the Royal Assent was given to two new Acts with regard to patents—the one the Patents and Designs (Amendment) Act, 1907 (7 Edw. VII., c. 28), and the other the Patent and Designs Act, 1907 (7 Edw. VII., c. 29). These Acts, both of which have just been published on the same day, annul each other to a remarkable extent. The whole of the first-named Act is repealed by the other. It is a cause for surprise why the former, which contains some two-and-twenty pages, was issued at all, seeing that was repealed before it could have come into force.

There are, however, some points in the new Act, which becomes law on January 1 next year, that may be of interest to photographic inventors, not the least of which are the increased fees that will have to be paid by patentees. By the Act of 1883, the total fees payable for the full term of fourteen years was £154. In the Patents Rules, 1892, they were reduced to something under £100. According to the new Act they will amount, for the full term of fourteen years, to £155, or one pound more than under the 1883 Act. This, we imagine, will be no serious matter to photographic patentees, as very few photographic patents are kept alive for the full term. But when the patent is maintained for only six or seven years will make a considerable difference. By the 1892 Rules, after the fourth year the renewal fee for the next year was £5, for the next year £6, and the next £7. Now the renewal fees, after the fourth year, when they are paid annually, are the same as under the 1883 Act, namely, for the next five years £10 a year, the following five years £15 a year, and the remaining four years £20 a year. So it will be seen that under the 1892 rules a patent could be maintained for eight years for £30, whereas now it will cost £45.

In the former Acts the fee when applying for Provisional Protection was £1, and on lodging the complete specification £3. Thus for these payments a full patent was obtained for four years. It is the same now, except that on the sealing of the patent a further fee of £1 has to be paid. This is charged in respect of investigations leading to anticipations. If on investigation it is found that the invention has been wholly or in part anticipated, the Comptroller may refuse to grant the patent, or may order the applicant to make a reference to the complete specification as he thinks fit.

It must not be assumed that because a fee is charged for the investigation as to whether an invention has been anticipated that the sealing of the patent for it guarantees its validity, as it does not. Sub-section (6) of section (7) reads thus: "The investigations and reports required by

this section shall not be held in any way to guarantee the validity of any patent, and no liability shall be incurred by the Board of Trade or any officer thereof, by reason of, or in connection with, any such investigation or report, or any proceeding consequent thereon." The investigations made by the Patent Office, it may be mentioned, only apply to patents that have been already granted in the United Kingdom during the past fifty years. Thus, while it may happen that an invention for which a patent is applied may have been in use years ago but not patented, such anticipation would, of course, invalidate the patent. Or the invention may have been published prior to the patent, and that equally would render it invalid. Hence it will be seen that would-be photographic patentees should make investigations for themselves as to what has been done before, and not rely implicitly on the work of the Patent Office, which is merely a search as to what has been actually patented. Many inventions in photography have been published in the different journals, and patents subsequently obtained for substantially the same things. These, as a matter of course, would prove invalid if tested in a court of law. Under the original Act the time allowed for the lodging of the complete specification, after the provisional application had been made, was nine months; now it is but six months.

One of the most notable features in the new Act is that relating to the revocation of patents worked out of the United Kingdom. Hitherto it has been a practice with many foreign inventors to patent their inventions in this country, but with no intention of working them here. They manufacture abroad, and then send their products here for sale. By this means an undue monopoly has long existed. This has been notably the case with chemical preparations, such as the coal-tar colours, which were actually a British invention. The case of photographic chemicals may also be mentioned. The majority of the new developers, most of which are foreign inventions, are patented here; but they are manufactured in Germany and cannot be made in this country. In most foreign countries a patented invention must be worked in the country in which it is patented, and unless it is the patent lapses and is lost.

The new Act remedies this state of affairs, as seen by section 27 (sub-section 1), which is as follows:—"At any time not less than four years after the date of a patent and not less than one year after the passing of this Act, any person may apply to the Comptroller for the revocation of the patent on the ground that the patented article or process is manufactured or carried on exclusively or mainly outside the United Kingdom." One important clause in the Act is that exempting innocent infringers of a patent from liability for damages. A patentee shall not be entitled to recover any damages in respect of any infringement of a patent after the commencement of the Act from any defendant who proves that at the date of the infringement he was not aware, nor had reasonable means of making himself aware, of the existence of the patent, and the marking of an article with the word "Patent" or "Patented," or any word or words expressing or implying that a patent has been obtained for the article, stamped, engraved, impressed on, or otherwise applied to the article, shall not be deemed to constitute notice of the existence of the patent, unless the word or words are accompanied by the year and number of the patent. No one is allowed to use the term patent to any article or product which is not really patented, as by so doing he renders himself liable, as he did under the old Act, to a fine not exceeding £20.

It is noteworthy in connection with the Act, relating to designs, that anyone applying the term "registered"

\* The Patents and Designs Act, 1907. London: Wyman and Sons and Eyre and Spottiswoode. 5jd. The Act comes into force January 1, 1908.

to any design after the copyright in it has expired renders himself liable to a fine not exceeding £5. No mention is made in the Act with regard to the use of the word "patent" after the patent has expired. We all know that the term is used on many photographic articles the patents for which have long since expired—some lenses, to wit. It would seem, according to the Act, that this is not illegal, though in the case of designs the copyright in which has expired, it is illegal.

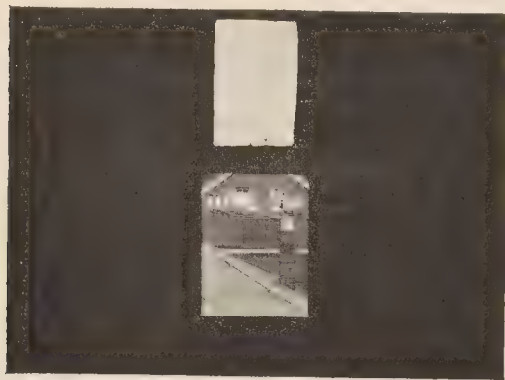
The grant of a patent under this Act does not authorise the patentee to use the Royal Arms, or to place them on

a patented article. The use of the Royal Arms for any purpose whatever without the King's authority renders the user liable to a penalty not exceeding £20. This is as it was under the old Act, and we allude to it specially because we know that some photographers are under the impression, if they have at some time or other supplied photographs to members of the Royal Family, or may have executed orders for them, that they are entitled to use the Royal Arms on their price lists, letter headings etc. Such is not the case; those who offend render themselves liable to the penalty.

## A NEW TELEPHOTO LENS.

For some time past I have been devoting close attention to telephotography, primarily with a view to rendering it of practical value for service purposes. In the spring of the present year I endeavoured to popularise the use of the extended hood

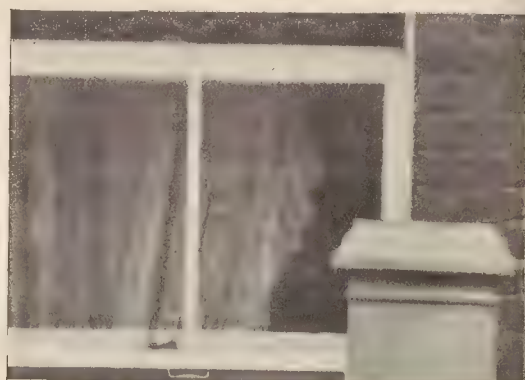
In common with all advanced workers in telephotography, I have found the long camera extension, formerly supposed to be necessary for high-power work, a great nuisance. It is true that very high magnifications are not commonly required. Still, and



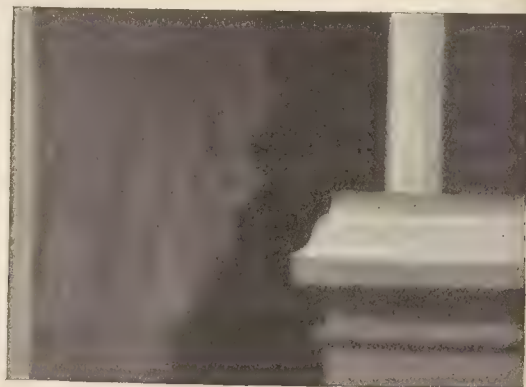
A.1. Taken with 7-inch positive only. Note.—This and the telephotograph of the same subject are taken with the camera well within the room, to escape observation.



A.2. Telephotograph at about 8 magnifications. Taken (September 21) with a single lens of the negative combination.



A.3. Telephotograph at about 20 magnifications. Taken (September 21) with a double negative combination.



A.4. Telephotograph at about 40 magnifications. Taken (September 21) with a triple negative combination.

in connection with telephoto lenses, and on May 10 the "B.J." was good enough to reproduce some telephotographs obtained by me with the help of this appliance. The facility of working afforded by the long hood led to various experiments, one result of which is, I venture to think, of sufficient interest to justify my writing a few words on the subject.

enlargement of, say, 25 diameters may sometimes be useful, and in military work, at any rate, nothing much under 20 is of serious account. Even 20 magnifications with an ordinary "high-power" tele-negative needs an extension which, unless the camera be very solidly built, and a cumbersome tripod used, makes it extremely difficult to secure steadiness in the slightest breath of wind. Accordingly, it seemed desirable to me to con-



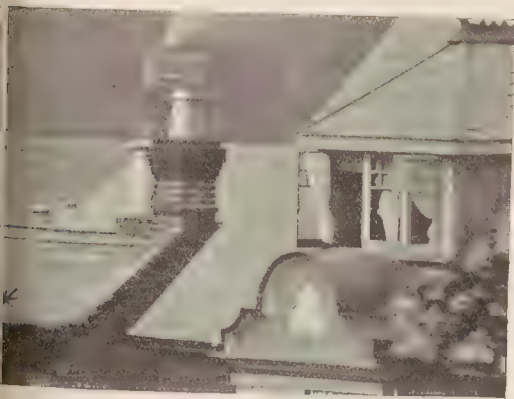
concentrate attention upon reducing the camera extension necessary to produce great enlargement, and when I mention that I have succeeded in obtaining nearly 60 magnifications with an ordinary square-form half-plate camera, having a total extension of about 16½ inches, I hope I may claim to have made a step in this direction.

The method I have adopted has the merit of extreme simplicity. I have been accustomed to use the highest power tele-negatives



B.1. Taken (September 21) with positive only.

could procure, as I found that, properly handled, these produced quite as good results as were obtainable with low-power lenses necessitating a longer camera extension. But the highest power tele-negatives on the market have a focus of over an inch, and these, with my half-plate camera, allowing for the inside projection of the tele-mount, gave at most only about 14 magnifications. Having a variety of tele-negatives, it occurred to me



B.2. Telephotograph at about 13 magnifications. Taken (September 21) with a single lens of the negative combination.

one day to use some of them in combination with a view to obtaining a still shorter focus. The result was so satisfactory that I went further and further, gradually selecting, eliminating, and correcting, until I eventually produced a practicable combination with a focus of only about a quarter of an inch, which I think must be regarded as the limit. Indeed, for all optical purposes, a much lower focus is sufficient. With a half-inch effective camera extension a half-inch tele-negative will give 29 magnifications, and this should satisfy any but the craziest after freakish results.

Having placed the matter commercially in the hands of Messrs. E. Staley and Co., of 19, Thavies Inn, I have latterly had the

benefit of their co-operation, and between us we have devised, and shall shortly have ready, a complete telephoto objective, the positive element of which will be the Euryplan, while the negative will be a convertible combination. Any of the lenses of the latter may be used singly, and in the standard set any degree of magnification up to about 30 diameters can be obtained with a double extension camera. Assuming the positive lens to have a focus of 7 inches, the foci obtainable by the half-plate worker with this instrument will range from 7 inches to about 18 feet! Naturally, the tele-negatives of this combination will work specially well with the Euryplan, but they will give thoroughly satisfactory results with almost any good lens having an aperture of not less than  $f/8$ .

Of course, the illumination when using a very high-power combination is not large, but that it is sufficient may be gauged from the fact that I have been able to focus sharply with a combination giving nearly 60 magnifications while using an  $f/8$  lens as the positive. Working at only 30 magnifications, with a 5.6 or 4.5 lens, there is plenty of light in all ordinary cases, especially if a few simple precautions, familiar to all telephotographers, are



B.3. Telephotograph at about 32 magnifications. Taken (September 21) with a triple negative combination.

observed, and a little patience exercised. In dealing with difficult subjects in a bad light it is convenient to be able to get the picture square on the plate in the first instance with the lowest-power lens of the combination. I need hardly add that the whole business of focussing at high magnifications is greatly simplified by the shortness of the camera extension, and the costly, though undeniably efficient, "Hook's Arm" is rendered superfluous.

Some will regard it as an advantage to be able to use a convertible combination in a rigid box-form camera. At any one extension an extraordinary range of magnifications can be secured by merely shifting the tele-negatives in a specially devised mount which enables a change to be effected in a few seconds.

Experiments have shown that, in spite of the multiplicity of reflecting surfaces, even a quadruple negative combination can be formed which is free from flare-spot. A tendency to distortion has been abated, and, in its final form, the Staley-Wheeler convertible telephoto lens will not only be an unquestionably convenient instrument, but will enter into friendly competition, as regards quality of results, with any of the excellent telephoto lenses now on the market.

OWEN WHEELER,

Captain, Reserve of Officers.

NOTE.—In every case these telephotographs were taken with an ordinary square-form half-plate camera, the effective extension (i.e., distance between negative lens and plate) being about 14 in. All have been taken (with the exception of A1) since the beginning of September, some in rather unfavourable weather. A 7 in. Euryplan Series III. was used as the positive in each case. The exposure in some cases was very incorrect; but I was frequently testing negative lenses, and combinations of lenses, of unknown foci, and accurate calculation was out of the question. Neither negatives nor prints have been touched.—O.W.

## SCREEN-PLATE COLOUR PHOTOGRAPHY BY THE WARNER-POWRIE PROCESS.

THE views of Dr. C. E. K. Mees and Mr. E. J. Wall on the latest development in colour-photography, known as the Warner-Powrie process, supplementing the descriptions published in the "B.J." of September 13, have continued the interest in the new process first awakened by the announcement of the peculiar facilities permitted by the linear form of screen-plate. The whole subject of screen-plate colour work is so new to the general body of photographers that it is not surprising that some difficulty is experienced in realising the methods involved in the Warner-Powrie system, and the simple form which they take in practice. A careful study of the letterpress and diagrams in our issue of the 13th should, however, supply a clear understanding of the respects in which the Warner-Powrie process is superior to others in which also the colour-screen is sandwiched between the glass plate and the emulsion film. One or two points arising from comments on the process which have already appeared in the newspapers may be mentioned at the risk of repeating what is clear to all but a few. It has been stated that the stages in development are much as in the Lumière, which is true as far as it goes, but overlooks the fact that in the Warner-Powrie system one colour-plate (negative or positive) can be copied from another, and therefore there is no need to adopt the roundabout method of reversal by solution of the negative image first obtained and redevelopment of the positive remainder. Apart from the numerous solutions and operations

required, that process demands a thin emulsion film, and therefore small latitude in exposure, whereas the ability to print from a colour-positive from a colour-negative calls for but the two operations of development and fixation, and confines the manipulation to procedures with which a photographer is well acquainted. The plate is thus able to carry an emulsion of the usual character, and the process thus gains in certainty in proportion to the latitude of the sensitive coating.

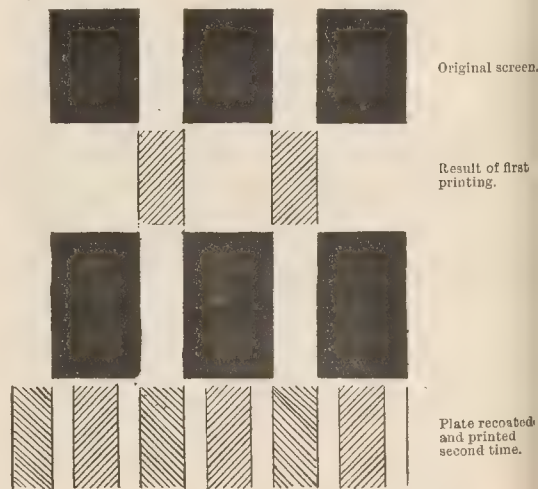
It will thus be understood that it is immaterial whether a negative is printed from a positive or vice-versa. The result of the triplicating process already described is the complementary in colours of one or the other, just as a negative may be printed from a positive transparency or vice-versa. Precisely the same conditions apply in preparing a set of colour-sensation continuous-tone positives or negatives from the single linear colour-negative or colour-positive. Here, again, the process is comparable with the printing from monochrome positives or negatives on glass. We print below some notes by Mr. A. J. Newton, Principal of the London County Council School of Photo-Engraving, Bolt Court, E.C., as to the relation of the Warner-Powrie system to photo-engraving, and shall follow it next week with a further article by one who has personally been in touch in America with Mr. Powrie's process at a stage in its history prior to the recent work which has systematised the manufacture of the screen-plates.

### THE WARNER-POWRIE SCREEN-PLATE FROM THE PHOTO-ENGRAVER'S POINT OF VIEW.

THE most remarkable feature, to my mind, about the Warner-Powrie process is the method of making the screen-plate. As described in the JOURNAL last week, two of the three coloured lines are made by exposing a bichromated colloid under another screen, the opaque lines of which are double the clear spaces, so that a narrow line of colloid is insolubilised, and after the remaining soluble colloid has been washed away by development in water, dyed (say with red), mordanted, and dried. The plate is then recoated, replaced under the screen, and shifted by means of a micrometer screw until the dyed lines are under the opaque lines. It then undergoes the same procedure as before, except that the colour with which the second line is stained will be different (green). The remaining space is now filled with the third colour, and the plate for the last printing does not need any registering under the negative-screen, for after re-coating it is simply exposed through the back, the two lines, red and green, already on the plate, serving as a negative, and preventing the colloid under them from becoming insoluble. After developing and dyeing with blue dye the screen-plate is complete.

The lines being 600 and upwards to the inch, whereas the finest ruled cross-line screens at present marketed are, I believe, 400 lines to the inch, it would at once occur to a photo-engraver to ask how Mr. Powrie obtained his original negative screen-plate of sufficient fineness. The reply is that Mr. Powrie makes black screens exactly like his colour screens, and simply goes on reducing the lines and spaces until he obtains the fineness he wishes. He informs me that he commenced with quite a coarse screen ruled in the usual way, but with great accuracy, and from it he has made with ease screens of a fineness equal to 1,600 lines to the inch of perfect uniformity. The diagram shows quite clearly how this can be done by exposing and developing the plate, blackening these lines by a ferro-tannic pro-

cess, and then recoating and replacing the plate in a different position. The second printing will give a screen of twice the fineness of the original, which is now replaced by the manufactured screen, and this is made to serve as a nega-



tive to obtain another screen in the same way of twice its fineness, and so on. I have handled black-line screens, both fine and coarse, made in this way, that for all practical purposes would serve as well as the ruled cross-line screen does for making



half-tone blocks, and their cost should be enormously cheaper, as, asserted, one man, by means of a suitable printing machine, can make many dozens of them a day. Of course, any angle and any pattern of line can be produced in this way, and any width of ruling, any relationship of white space to black line. If there is any advantage in the use of fine screens it should soon be possible for the photo-engraver to try them, though, precluding the difficulties of paper and printing machinery (which have been overcome in the case of using 200 to 400 line screens) there is no further trouble when using a finer screen, it must still be remembered that the finer the screen the flatter the result—because of the increasing number of black dots in even the whitest spaces—so that, once the obviousness of the dot is avoided, there is no advantage except for special subjects, in which great detail is required, in the use of finer screens. But screens of any ruling ought to be easy to make by this method, and therefore cheap to buy. Thus could be made the coloured cross-line screens suggested by Mr. F. E. Ives in his lectures at Bolt Court School in 1898 (*Technical Education Gazette*, January, 1899) as being a possible means of obtaining better gradation in making half-tone negatives. The manufacture of these screen-plates is essentially the same operation as the printing on to metal of every half-tone negative, and if Mr. Powrie has simplified and perfected it so much that one man can twice print a number of plates in one day, there should at least be something to show photo-engravers in the way of a printing-frame capable of rapid handling, to say nothing of any mechanical improvements in the operations of coating and development of the plates. It is certain that no such speed could possibly be attained if a frame with a multiplicity of screws such as time is wasted over in almost every process establishment to-day had been used.

With respect to the reproduction of colour blocks from these plates, it may at first sight be suggested that three screen-negatives could be made direct by simply focussing sharply the lines and placing red, green, and blue filters consecutively between the original coloured positive and a suitably sensitised plate. In fact, I lately read an article assuming this might

be done in the case of the Lumière Autochrome plates if it were not for the fineness of the coloured screens. But such a suggestion overlooks the fact that a half-tone negative requires dots (or lines) of different size but of the same opacity everywhere, while the silver deposit which gives the colour value to the Autochrome or Warner-Powrie plates is not of the same opacity, but differs all over the plate in exactly the same way as an ordinary continuous-tone negative, which, in fact, it is, except that it is laid upon a coloured screen. Further, in the case of the Powrie plate, too, it would be impossible, from the fact that the lines are parallel and very fine, to print these in exact register. A moiré pattern would be inevitable.

Nevertheless Mr. Powrie has by his ingenious method of printing developed the method so as to be of great value to the photo-engraver. By printing through a colour-filter, and angling the frame as shown in *THE BRITISH JOURNAL OF PHOTOGRAPHY* for September 13, he obtains three transparencies from the same negative, practically free from lines, corresponding to the red, green, and blue records, and from these, of course, the block-maker can proceed to make screen negatives in the usual way, as I have done. It is obvious that this offers great possibilities for certain work that is impossible with three exposures, and, if the plates can be made fast enough, there is no reason why we should not have snap-shots in colour reproduced by three-colour blocks in our magazines, and even in our newspapers! An advantage that the etcher would have in re-etching such coloured blocks is that it would be perfectly simple to supply him with a coloured print from the original negative as a guide almost as trustworthy as the original scene itself. It is not to be supposed that the plates will be used for ordinary copying of flat coloured originals, since the direct process is quicker and cheaper; but it may be pointed out that with good dyes in the lines of the plate, the emulsion properly adjusted for them, or for two of them and a compensatory filter for the blue, the ratio of exposure for the three colours will be automatically right.

A. J. NEWTON.

## THE PHOTOGRAPHIC SALON.

(Concluded from last issue.)

Mr. Reginald Craigie's portrait of "Mrs. Reginald Craigie," in red, and occupying the upper right corner only of the print, the edges of which cut off all the cranium, will remind visitors of the theatrical poster upon the boards of sandwichmen crowding outside the gallery. The face upon this poster is disposed in exactly the same way, and is in the same sanguine hue. It is no less artistic, and perhaps a little more arresting, than Mr. Craigie's photograph. His portrait of "Kenneth Grahame" is a sounder work in every respect. We like it extremely, but take exception to the lights of the face, which appear to us to be hard and white, and not sufficiently differentiated from those of the hat which have the same qualities. Presumably the works of Dr. Evershed are oil prints. "Sunlit Sails," idly hanging on what looks like a Dutch canal, do not seem to be very sunny after all. We should like to know how Dr. Evershed could treat them differently to represent a grey day. There is undoubtedly some sort of quality in this print, but there is little that convinces. "The Signal Box" and "The Dominant Power" please us more. Both these pictures have not only good quality, but a nice appreciation of the artistic aspect of commonplace things.

It is to be regretted that Mr. Arthur Marshall has fallen away from the standard of his fine architectural work last year. The three things he now exhibits are varied in style certainly, but not one of them show the serious effort and exquisite taste

that we had hoped for from him. The best is perhaps "The Pastoral," which can boast of a nice design, but "Under the Chestnuts" has not even so much to recommend it; indeed, we fail to find anything at all under the chestnuts but a clean-swept gravel road. We could forgive so bald and clumsy a selection if there were any attempt at a good effect. If there really be any here its results escape us. As for the hideous "Le Pêcheur," it offends our eye from all parts of the room. This horribly coarse dark face of a repulsive and aged Dutchman ought never to have been hung in the gallery. Its screaming white background only cuts its ugliness out the more distinctly. We had thought that Dutch for the sake of Dutch had sunk below the level of the Salon, having by now percolated through musical comedy and settled at last as a catchpenny upon the vulgar postcard.

We fail to see anything suggestive of "Spring" in S. Carter's archaic-looking arrangement of sparse leafage, which is more suggestive of Oriental embroidery. His "Self-Portrait" is spoiled by over-diffusion.

The colour of Mr. Yarnall Abbott's "Street in Rothenburg" is so abominably unpleasant that further scrutiny than the first glance at it is impossible. As to the "Effect of Sunlight, Nurnberg," we cannot see it, repulsed as we are by the crude and twangy cast of the blue that only make both attempts ghastly. Mr. Abbott prices these precious things at fifteen and ten guineas respectively. Not that it matters, we expect, but the

comparison is a little obvious between these figures and the modest ones, twos, and threes that would purchase many of the best things here.

On the other hand, Mr. Cavendish Morton, a compatriot of the last-named gentleman, wants but two guineas for one of his dashing portraits of ladies. We admit that this particular one, with twelve words to its title, is not the best of the three, and that the others are unpriced, but they are all similar in style and size. "The White Plume" is an extremely captivating work, surpassed perhaps by the very chic "Portrait" which is an essay in contrast. A lady in black with a large hat and a white front stands at the wall of a vestibule which is light in colour and charmingly illuminated. A small antique clock upon a bracket comes in the scheme admirably. The whole thing is both delicate and strong.

A capital portrait of Holman Hunt in the robes of his degree is from Mr. Frank Hollyer, whose two sons also contribute a picture apiece. That of Mr. Frederick T. is entitled "Study," and "November," a print in two colours, is the work of Mr. Arthur. We congratulate the talented triumvirate of Pembroke Square.

"Expectation," "A Find," and "Such a Thirst" are tripartites with a variation, by Mrs. Carine Cadby. That we should be favoured with chicks and an egg is at least a welcome change, but surely one of these pretty things would have been enough in a gallery where space is denied to such quantities of more serious work. Mrs. Cadby's "Sand Grasses," a few black strokes on a white paper, shares the merits of her husband's "Snow Shadows." This happy pair certainly do set their reputations upon easy terms!

It is positively refreshing to turn to so noble a work as Mr. George Davidson's "Harlech," in our opinion one of the finest pictures in the exhibition. Instinct with style and dignity, it must come as a surprise to many who are unacquainted with Mr. Davidson's earlier triumphs, and misjudge his capability by the essays in diffusion which have represented him in the Salon for some years past.

A first-rate study of geese and ganders called "Sunlight" comes from Mr. W. Thomas, who has caught all the beauty that these birds, more than any others, seem to possess when strongly lit by the sun.

"Through the Pines" has a "mood," and shows the feelings that we expect from its author, Mr. J. C. Warburg, whilst a nice romantic feeling imbues Mr. J. M. Whitehead's "Moonrise," although the clouds appear to be tinkered.

A portrait bearing the name of Furley Lewis is, of course, much too artistic to be retouched into flattery, and for this reason we are made to note the flight of time as evinced in the features of "Walter Crane, Esq.," since the days when he was more in the public eye, and would have scorned to be called esquire.

"Sunlight in an Old Oak Doorway" and "In Westminster Abbey" are two excellent technical essays by S. G. Kimber. What and where are the claims to artistic photography in the gloomy "Place St. Remi, Dieppe," by Harold Jacob, puzzles us to see, but we readily grant them in the case of "An Impression of Glendalough," where the mountain towers over the tarn, and where the lighting is so impressive and the whole so dignified.

Herr Ernst Müller's four contributions are all good and interesting, the most romantic being "Das Tote Mar," whatever that may mean. But for a little monotony of tone, David Blount's "Trees in Shadow" are a good try for the picturesque. So also is "The Glowing West," etc., by Edgar Simpson, who has, however, made the water too dark for the sky.

The fullest congratulations are due to Mrs. Barton in having so cleverly posed "The Silken Gown," the light and shade upon the folds of which make an efficient and good subject.

"The Lighthouse," by W. Clark Pettigrew, a new name to us, is very good in many ways, but the sky is a little uncon-

vincing. We shall look forward to more work by this amateur. J. Dudley Johnston's "Sunlit Street in Berne" is a capital thing in most respects, but we cannot see how a tinting of colour only—blue—can be thought to enhance its effect.

### The French Salon—Oil Prints.

We have now dealt as fully as we are able with the British section, and there still remain the prints which are separately hung upon screens. These works, we are informed, were selected in Paris by the French committee. A considerable number of these pictures are by the oil process, and there appear to be few, if any, which do not owe their charm and quality to some method of control in printing.

The colouring is obtrusive in "Etude de Tête," by G. Gimé, but the play of reflected light on the face more than redeems this fault. His "Madame la Pluie" and "Mamzelle la Neige" are capital impressions of street life, though they are lacking in air. The works of P. Dubreuil have pleased us more on former occasions. The best of these here is, we think, "Portrait du Peintre B." This is a fine and vigorous thing. The painter, who is taking up the paint from a palette, is doubt short of sight, and his consequent action lends intensity to the pose. "Temps d'Hiver" strikes us as being too diffuse.

An extraordinarily vigorous and strong print is the "Portrait of Mr. B.," by P. de Singly, whose "L'Entrée du Village" should not be missed.

Of M. Puyo's works we have nothing but praise. His skill and facile manipulation never loses delicacy and refinement, no matter what he has in hand. "Dorine," which we are glad to see here, having already seen its reproduction, is a good example of his touch, and though quite bold and fearless, is the same time precise and well-directed. "Dans le Parc" we have marked as an excellent thing. In "Givre Matinal" we have our doubts as to the true relation in tone of the sky and ground. A lady resting on a sofa, "Après la Pose," is quite charming. In this there is a suggestion of the stippled effect of drawings of a past day. We do not affirm that the print so treated; perhaps the equal and sweetly graduated ink upon slightly grained paper alone suggests the effect.

M. Demachy shows five works in oil all of which are clever. We prefer the "Old House at Ploermel." It is simple and dignified, and full of quality. In his "Portrait of a Young Girl" M. Demachy gives us the impression of having overlaboured his print. We think cleaner spaces of tone would have still further improved this charming study. "Rouen" is full of beauties, and, to our minds, would have been even more interesting if the great distant towers had been less nebulous. "Autumn Mists" and "Le Louvre" are the remaining prints by this enthusiastic worker of the oil process. They call for no critical remark beyond a note of appreciation.

G. Maury shows extremely artistic work. He evidently understands accents and values, as witness his "Retour de Pêche" and his lively "Marché." "Brume et Neige" displays obvious

Mlle. Laguarde has a very captivating touch. It is not much to say that her "Femme aux Estampes" is the most precise and charming thing in the room of its kind. "May," a vignetted head, is not free of the taint of the chocolate box, but we admit its grace. Her print which shows most of the indispensable thing called "quality," is "La Maison de Fume."

The street scenes of A. Hachette are all instinct with truth of effect and pictorial feeling—the sunny and convincing "Soleil Pont Alexandre III," the "Port du Havre," and the "Pont de Honfleur." The latter is particularly broad and of fine design, and its grey quality is very winning. Why does the gentleman soil his prints with an impression from a rubber stamp? If the "Coin d'Annecy," by R. Michau, is an oil, heartily congratulate its author upon his use of the medium.



softness and crispness are delightful; but is not the shadow brown upon the surface of the water from the buildings too distinctly in evidence? Of "Pâturages," so rich and dignified, have become quite enamoured. "Petite Crique," by Ch. Mahéo, looks like a cleverly touched water-colour.

We have by no means dwelt upon all that pleases us in this delightful section of the exhibition. To it the Salon must owe much of the credit that is forthcoming, and we doubt the wisdom of the executive in keeping apart from their own works of such sincere and artistic effort.

## THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

[The formal opening of the Royal Photographic Society's Exhibition on Thursday in last week having now given the public the opportunity of visiting this large and representative collection of photographs, we may review in detail the many exhibits upon the walls, only the briefest survey of which it was possible to make between the press view and the publication of last week's *BRITISH JOURNAL*. The pictorial section of the Royal is this year an advance in the quieter qualities, which show a more careful study on the part of photographers, and tend to the exclusion of work which secures one's first exclamations, but does not improve on acquaintance. The West Gallery certainly contains a greater number of photographs worthy of study than we can now point to, or are likely to be able to do so during the exhibition season, and we must therefore deal at a fitting length with this portion of the exhibition.]

### THE PICTORIAL SECTION.

In our last issue we made allusion to several of the pictures at the new Gallery that might be said to stand out from the rest as particularly good. It must not be thought, however, that all else is markedly inferior. This year, more than usually, the visitor will find it difficult to parcel off the works into good, bad, and indifferent; for the more one looks at them the more they seem to be worthy to take a higher rank than a first glance allots them. We ourselves must read guilty to an oversight in not including in our select list the charming landscape (No. 290) by Mrs. M. E. A. Powles, entitled "Our Lady of Amiens," and the least we can do now is to testify to the first place in this review to its fine qualities. Its silvery tendence of colour eluded our too hurried glance. The cathedral is a misty distance, at its feet nestles the town, a band in stronger tone, full of suggested detail and admirable breadth. In front, on the banks of the river, thin sparse trees rise up as an open screen of scenery before the view, and the whole is reflected in the placid stream that runs across the foreground. The selection shows a fine taste, which is also borne out by the treatment of the print.

A large number of photographers appear to be obsessed with their ideas nowadays. So far as we have discovered yet, the colours limited by one process or another into printing processes—we do not allude to photographed colour—have been nothing short of dominant. In what way can two bald colours be used in a printing process to a true impression of nature, without upsetting the tradition and convention of monochrome to which the world has been accustomed since the invention of any sort of printing? How can a blue sky, or red on a face, or green in a field give, by any manner means, the very merest impression of a colour scheme, to say nothing of literal natural colour? If photographers who blindly rush to this pitfall imagine that they are doing decorative work allied to posters, show-cards, or stencilling, they had better learn as soon as possible the fundamental difference between conventions of that sort and landscape photographs. Sensations of colour in a monochrome are received through the language of tone and effect; to insert a trace of actual colour is to start the thing off upon a different line entirely, and from an artistic standpoint to damn hopelessly the work. Such a grating discord one would think only possible to the minds of infants and savages, with whom artistic logic is a book unopened.

The green and blue in Miss Hildegard Oesterreich's "Am Waldrand" (No. 3) is but barbaric. Without it her scheme of light amongst fir trees and a fence might have been a beautiful thing. Similarly the "Portrait of Dr. Bachmann" (No. 5), by Dr. A. Edenig, of whom we had better hopes, is positively no help. Otherwise the pose of the artist at the easel and the naïve strength of the design would have put this work among the few best. His "Farbenspiel" (No. 14), being nothing but chestnut leaves and what we must accept for a sky, is a little less objectionable for the reason that its *motif* is so bald as to creep in, by backstairs, to the domain of decoration. But, however successful his matching of natural colour may be, it has nothing whatever to do with photography when it is said. The Baron Imre de Vay Féll sends a "Lake" (No. 20) which, in spite of its particularly nice feeling, suggests by its colours a sort of aerograph tinting rather than any impression of nature.

#### The Girls and the Children.

Marg. Schürgast sends a "Jünges Mädchen" (No. 13) of the

sweet and simple type. She is very charming, and we much admire the treatment of her arms and hands, which hold the book so prettily. Her expression is most captivatingly caught. "At the Window" (No. 17), by Arthur Marshall, shows another of the genus, this time Dutch presumably. The pose is quite happily managed. We should have liked the picture even better had its effect of light been rather less hard and "edgy." Mrs. Barton sends "Flora MacLeod" (No. 55), a damsel whom we have met often before in photographic haunts. Her rather thick lips and rounded face give her a very youthful charm. There is nothing to be said against the attractiveness of "The Geisha" (No. 87), whom the Misses W. and G. Parrish have introduced between them; but as to the lantern she holds we can only express surprise that the Hanging Committee should have admitted so obvious a "fake" as the lighted candle presents outside the lantern to all appearance, and throwing not the slightest glow of illumination upon the figure. On the other hand, the truthful aspect of E. G. Boon's two little girls, who, being "First Arrivals" (No. 103), draw back a curtain timorously so as to peep into the drawing-room before entering, makes a capital subject, because it violates nothing of the possibilities of the action it depicts. Mrs. Barton's "Fates" (No. 130) attempts something rather in the manner of a well-known American maker of composite pictures. Her little girls are nicely posed and effectively dressed, though not fittingly in classic garb. In very suppressed tones, the shimmer and folds of the draperies are marked out with too much violence to please us. S. Elwin Neame, who made a good hit with a decoratively posed and draped young lady last year, repeats his success by another print (No. 135) of the same subject from a different point of view. It is rather early in a career to specialise to this extent. We trust he will find a new idea during the next twelvemonth. A demure little maiden "Studying the Nude" (No. 170), as exemplified in a small indiarubber doll, has taken most people by storm, because of the prettiness and easy possibility of the subject. This success is due to John Brown. "Peatella" (No. 193) has been capably posed by E. Ward-Thompson. She sits upon a chair in a sort of crofter's cabin and leans forward over her knees. Good lines result from this action as well as a capital scheme of lighting upon the folds of her dress, which is short enough to display her well-shaped limbs. It had been well if the photographer had given us her feet also. The colour of the print is, as usual with Mr. Ward-Thompson's work, highly pleasing. Still another by Mrs. Barton is a clever and taking subject called "The Lace Maker" (No. 234). A handsome young girl sits at a window making pillow-lace, her head relieved against the diffused light transmitted by the curtain. The style, design and management of this piece is, we think, an advance upon Mrs. Barton's already fine compositions, which hitherto have not seriously embraced effects of lighting. Recalling strongly a picture very popular in our youth, Mr. T. Lee Syms gives us two children in church listening to "The Sermon" (No. 249). The girl is fighting with boredom, whilst her little brother sleeps. It is quite well done in every respect. Another reminiscence is of the old Italian, Francesca, which comes of the beautiful profile sent by Anny Heimann, who calls it "Nähendes Mädchen" (No. 300). The neck of the girl and her general bearing is very sweet. Four little Dutch peasants quaintly sitting upon a sandbank constitute E. T. Holding's "Company of Angels" (No. 299). "Mother's Veil" (No. 266) is a

vignette of a pretty child's head and shoulder. We like it best of all Mr. Holding's works this year. It is fresh and strong and highly artistic in treatment. His more ambitious picture, "The New Piece" (No. 72), two children seated at the piano, which we now begin to think of as an old favourite, is by no means so good as some earlier piano pieces. We are disposed to think the shading down a little too obvious. The music is in a very bad light for practical purposes, and the relief of the heads against the wall is somewhat harshly marked. Apart from this, the work has all the charm of its author's style. Why did he not trim off some of the top margin? Count von Glöden's "Sehnsucht" (No. 48), a pretty tilted profile of a young girl, scarcely represents longing to our mind. Two very pretty heads of children, which Arthur Marshall calls "Sisters" (No. 69) should not escape notice. They are very tastefully mounted in a large grey circular mount.

### The Ladies.

A woman's head, life-size, and of exceptionally fine treatment, is by Dr. C. F. Grindrod, who calls it "Beyond." The abstraction in the expression is perhaps sufficient excuse for the rather elusive meaning of the title. "Lady K." (No. 35) is a pleasing portrait by Lette-Verein, whose works are new to this country. He sends from Berlin. From Hamburg, Rudolf Dührkoop forwards a splendid "Portrait of an Old Lady" (No. 174). The calm air and introspective aspect helps much the dignity of the design. She sits upon a settle against a wall whereon picture frames make good but pronounced decorative spots. Although the pose is a reversal of that of Whistler's "Mother," the idea and treatment readily suggests that masterpiece. In one respect Herr Dührkoop's posing is to be preferred, since he does not violate probability as did Whistler by setting his sitter in a parallel direction with the run of the wall, without any apparent object for such oddity on the part of an old lady. "Le Vase de Cuivre" (No. 178) is the very antithesis of the last, as French so often is of German. This lively and animated print by Pierre Dubreuil is light in tone, with a *motif* and arrangement of strenuous movement. The subject is a young lady issuing from a curtained doorway and holding a copper vase, whilst one arm is stretched up against the wall. We scarcely think her action is explained; but perhaps we are not expected to worry about that. The figure makes fine lines, and the print has fine quality and is decidedly arresting. Another study of action is Anny Heimann's "Tänzerin" (No. 188), which, though evidently the result of a rapid exposure, is so artistically balanced as to appear for the moment like a photograph of statuary. It thus avoids perfectly all the uglinesses of instantaneous work whilst it preserves the poetry of motion. Furley Lewis's "Colleen" (No. 274) is of the true Irish type with all its fascination. As usual, the print shows impeccable taste and skill, and the oval trimming is not unwelcome with such an arrangement of head and neck. Perfect work again is evident in "Im Hause" (No. 233) by Albert Gottheil. Certainly the two quiet housewives sitting so stolidly at needlework look as though they offered unusual facilities in the way of lengthy exposure; but nevertheless the picture is clever in the extreme, and partly so because of the true smack of German domesticity it so exactly conveys. Lastly, Mr. Holding's "Vase of Flowers" (No. 315) strikes a mean between the housewives and the dancers and the ladies perturbed by copper utensils, for his domestic elevates her arms only to place the vase upon a high window sill. A good line runs through the arrangement of the parts, which makes up a very pleasing study in light tones.

### Mere Men.

The male portraits are too numerous for exhaustive mention; but we will call attention to those which we think should be seen particularly, beginning with the very spirited "Portrait of the Etcher, Hermann Gattiker" (No. 39) and the much less satisfactory "Violinist—Arthur Hartmann" (No. 231), which though doubtless a perfect likeness and a wonderful piece of characterisation, is not an attractive subject. These are both by Herr Dührkoop. Lette-Verein's large portrait, called "Mr. E." (No. 49), has strength, certainly, though not so much the strength of conception as of pigment. This is not hard to come by, and we are disposed to think that the mere size and blackness of this work has led to its instalment in one of the places of honour. At the outset, we do not think it admirable to place an upright interest in the middle of an oblong shape just

for the sake of space of empty background telling as strength be it is black. As to the face itself, it seems lacking in the refinement of artistic vision which are obvious in the photographer's other work. An eminently pleasing group is sent by Miss Constance Ellis depicting "J. C. Warburg, Esq., and Son" (No. 60), who are seated before a large terrestrial globe the mysteries of which are being expounded the father to the son. The globe is admirably used both as a mass in the composition. The print is reticent in tone and in colour. "Portrait des Professor M." (No. 61), who is a painter, is an success due to the talented German lady, Mrs. Anny Heimann. head is a splendid piece of virile work. We are likewise pleased with Oscar H. Hardee's "Moses Melchior, Esq." (No. 130). F. T. Hollyer's first-rate "Professor Flinders Petrie" (No. 136) the "Portrait" (No. 142) by George Maus, so full of life character. "Sven Scholander" (No. 159) is one of the triumphs. Furley Lewis representing a Swedish gentleman holding a kite. Near by hangs "F. G. Stephens, P.R.B." (No. 162) by Hollyer. It may interest some to know that the three letters the sitter's name stand for Pre-Raphaelite Brotherhood. Stephens was one of the original seven, so many of whom are dead. This is a remarkably fine portrait of the picturesque artist with flowing hair and beard which, with the spectacles wears, are managed with a most masterly treatment—soft, yet firm. Next we come to another Furley Lewis, a double portrait of "Otto Hoppé and Marion Hoppé" (No. 166), tastefully posed as usual. His "Portrait of J. C. S. Mummery, Esq., F.R.P.S., President" (No. 217) is thought by some to be his highest achievement in this line of work. Without going quite so far we do not hesitate to add our tribute of praise to the peans that have greeted Mr. F. Lewis. Mr. Mummery wears his official air, albeit he smokes a pipe—combination of rare occasions: a cigar would have been to life. However, the likeness is good to "speaking" point in connection with this print we are asked to say that the information as to the price of duplicates, given in the catalogue, has crept in by accident. Naturally enough, no copies of this work are available for purchase. The "Portrait of H. Snowden-Ward, Esq." (No. 245), which E. O. Hoppé has made, is scarcely so spontaneous as could wish: the sitter has a look of posiness. More exciting, if beautiful, is Mr. Hoppé's top-hatted "meanister," whom he calls "An Auld Licht" (No. 175). We admit the cleverness of the photograph, though we must say that we do not hanker after it. Works in this class, good enough no doubt, interest us slightly and must therefore give way before pressure of space.

### Interiors with Figures.

Two unusually good works are sufficiently important to warrant this classification. They are "Morgensonne" (No. 164), by Albert Gottheil, and "Kartenspieler" (No. 267), by Otto Scharf. The first shows us the bedroom of a *mädchen* flooded with the morning sun, the brightness of which has tempted the occupant to pause in her one stocking up, one stocking down, whilst she looks out at the beginning of the morning. Her back is towards us, but the rays strike her form as they enter the casement. All the furniture of the room is clearly, but reticently, made out with the very perfection of values. Subject and execution are alike charming. Herr Scharf's interior is no less distinctly German. It shows a table in a *Bierhaus*, at which four men of various types sit playing cards, drinking, whilst a fifth looks on. Grouping and lighting are as to defy improvement. These merits, together with the charm in the heads, and the positive freedom from self-consciousness of the sitters, make a picture of absorbing interest. The only technical defect is a slight spherical aberration in the near objects. Lose of this and you have a modern Teniers or Ostade without the comicality. Of interiors without figures we have only to refer to E. Clappole's empty chamber called "Sunshine" (No. 23), a reflection of an old success.

### Figures in the Open.

Under this heading we include Leonard Missonne's beautiful "la Porte" (No. 129) and "En Passant" (No. 212), because although they could be fairly claimed by landscape, the figures form the part of their attractions. They are printed in a method and manner which should for ever silence the complaints of those who hold that a photograph should have no appearance but that of a photograph. We grant that in nine out of ten cases this law holds good; but this is the tenth case. The perfect touch of the



exactly resembles that of a clever chalk drawing—not a *bad* one, he it understood. In the face of such pleasure as it gives, rejection, upon principle, would be but hide-bound prejudice. Circumstances alter cases, and these are cases wherein we gladly congratulate the worker. "Sur la Porte" is like a Millet drawing. It is as full of sunshine as it can be, and the women who stand gossiping by the door are veritably in *plein air*. The other picture is of three little children who meet in a sunny road. Here again the truth of light and air go far to make this subject the favourite it is. Count von Gloeden shows a fine gallery of nude Italian youths, but they lack interest because the very qualities possessed by M. Missonne's works are

### THE PRIVATE VIEW AND CONVERSAZIONE.

[A numerous company assembled in the rooms of the New Gallery for conversazione, which is universally regarded as the one evening under the most agreeable social conditions, was just sufficiently well occasioned, and not so crowded as to be uncomfortable. To publish a of the people who are "in photography." Some few noble persons majority, as befitted the occasion, yielded themselves to the renewal of acquaintanceship which in many cases had been made at conversazione has led to us receiving a MS., which we cannot do

That the artistic talent of a photographer should be far-reaching enough to influence his wife's taste in dress, or the feminine circle in which he moves, is a pleasing little fiction one should, of course, boldly uphold, and with this idea firmly embedded in mind I entered the New Gallery for the soirée given by the Royal Photographic Society on Wednesday in last week. Was I to be doomed to disappointment?

A photographer may give his whole and undivided attention to his clients and their dress, in his daily round, and think that he has done his duty in his day and generation, but the refining influence of his profession should, of course, extend from the sacred portals of the studio to the innermost recesses of his wife's boudoir. My conclusion the next morning was that usually it does not; but I was more hopeful when I sallied forth: I had profound faith in the influence of the sterner sex. Why, after all, should it be really necessary to leave the pictures to look at the dresses? Would not the type of the photographer's work be indelibly impressed and reproduced in the personality of his women folk? Would there not be rich standard-brown carbon velvets, with subdued half-tones, and a costume such as the landscapes of Whitehead might inspire, touched with soft and white high-lights of trimming? Could I not see soft light clinging robes of the Romney period, with simple folds, long flowing graceful lines à la Neame, guiltless of trimming, beyond a floating scarf of chiffon, winding in diaphanous folds in graceful negligence round the figure? Would there not be others of the same kin in rich folds à la Liberty, puffed of sleeve, short of waist, and scant of material, yet fulfilling our poor weak notions of the canons of Art?

Yet, alas! woman is born to disappointment as the sparks fly upward! The modern creation of the latest fashion paper is far more in evidence than the individual expression in dress, of an artistic bent. The distinctive touch of a personality under artistic influences seemed sadly lacking, and I can only gather that the kimono bodice bore the seal of the photographer's approval in nine cases out of ten.

One most striking toilette in accordance with the artistic influence for which I searched was worn by a dark-complexioned girl, surely a disciple of Ruskin, gowned in deep cream tussore, with a bodice of modified pinafore type, the edge of the yoke ornamented with a hand-embroidered flowered pattern of violets, transparent elbow sleeves, and yoke of mauve chiffon. A quaint Eastern scarf of oriental colours completed a distinctive ensemble.

A good deal of black struck a slightly sombre note in the brilliantly-lighted reception room, but helped to relieve the lighter colours. I noticed particularly a black ringed and spotted design in white chiffon, trimmed with horizontal bands of black ribbon velvet, hemmed with black Chantilly lace, and a broader band of black velvet. Another dress of the much-worn black and white striped chiffon had a simple cross-over bodice, the fulness of which was gathered into a deep swathed belt of turquoise blue satin; bands and rosettes of the same trimming provided a finish to the elbow sleeves, and a long string of quaint blue beads gave another touch of the same hue.

A lovely powder-blue tissue, made also in kimono fashion, cut cir-

denied to them. The only contribution by Rudolf Eickemeyer, Junr., is a bright open-air scene of a coloured lady and her piccaninny, who asks, "Who's Dat?" (No. 165) at the retreating form of a stranger. It but poorly represents Mr. Eickemeyer's powers. "Taufgang" (No. 297) is a christening procession by Otto Scharf, also possessed of first rate out-door quality; but the chief interest of it lies, we think, in the humorous solemnity of the men and women who troop like sheep, but with bended heads and awful reverence, into the little church. Mrs. Ambrose Ralli sends a well-composed and impressive work of much quality, showing two peasant women seated upon a bank by the sea "Waiting for the Boats" (No. 312).

on the afternoon and evening of Wednesday in last week. The even- in the year when photographers and their friends are able to meet attended to leave not the slightest doubt as to the importance of the list of those present would be merely to enumerate the names of most were seen to be making a conscientious tour of the exhibits, but the opportunities for conversation, usually somewhat technical, and to the previous similar functions. A chance remark made to a lady at the better than give publicity to in this place.]

cular, and trimmed with a gathered band of the same material at the corsage and the hem of skirt, with sleeves of net and lace, was worn by a strikingly fair girl, whose broad deep band of blue ribbon velvet round her throat held together by a quaint gold clasp, gave it the artistic finish it needed. An olive complexioned girl, gowned in a peculiarly effective robe of palest pink chiffon, the bodice piped with velvet of a deeper rose shade, trimmed with filet lace, and hemmed with a deep rose velvet band, was conscientiously doing each room. Near her I noted a pale grey taffeta frock with broad yoke of steel sequins contrasting with the rich chestnut hair of the wearer. A very simple but graceful dress was worn by a dark girl of French blue chiffon de velours with a little pointed vest of écarlate, and a large black hat with long floating scarf of black Chantilly. Near her a crushed strawberry taffeta with numerous horizontal frills adorning both bodice and skirt and embroideries of blue and green ornamenting the corsage, whose owner, of a somewhat Eastern type, and whose hair, plainly parted in the centre and drawn back to a loose knot in the nape of the neck, gave one a vague sense of relief after the elaborate coiffure of the present day.

A tall and finely built lady of the Junoesque type was wearing a pale grey silk, filet net, elaborately trimmed with panels of pale grey silk, richly embroidered with touches of violet, graduated tucks to the skirt and the rich panels outlining the seams, struck a quiet, subdued, and refined note pleasant to dwell upon. With her passed the wearer of a black voile dress, relieved only by a handsome berthe of Maltese lace.

Amongst other black gowns a robe of fine black Chantilly lace over white chiffon, with transparent yoke and narrow belt of black sequins, was worn by a personality of some individuality. A slight fair girl, whose gown bespoke the exquisite finish of a Frenchwoman, was dressed in a semi-empire frock of black and white spotted silk, with narrow pipings of pale blue, yoke of cream filet lace, and cream applications of silk passementerie flecked with black, finished with pale grey tassels and a large black picture hat profusely adorned with white feathers and pale pink roses. With her was her sister, in a rich cream lace robe over taffeta piped with old rose. Near them was a tall distinguished-looking girl of the Gibson type, in a mauve taffeta shot with brown, the excellence of cut and combination proving another example of modern and up-to-date dress, rather than a follower of an artistic cult.

A dress of painted chiffon trimmed with creamy net and lace and a rich deep brown velvet robe, with fichus formed of alternate bands of lace and velvet, would perhaps help to bear out my opening statements, and give support to a rapidly weakening faith in the influence of the stronger sex.

I was disappointed in my hopes, for the few harmonious toilettes I have mentioned were but few among the autochromic clash of colours which attired but did not adorn many a feminine figure. My question as to the art influence of the photographer had been answered in a chilling negative. Assuming the art feeling to be his, it should surely be possible for the photographer to give it domestic expression. "There must be some way of managing 'em," exclaimed a Henry-Arthur-Jones husband. Is the method still as much the ignis-fatuus as colour photography?

## THE GENESIS OF A MODERN LENS.

[The conclusion of a short series of articles expounding, in popular language, the processes of the factory and laboratory by which a modern anastigmat lens reaches its state of perfection, is reached in this present article by Herr L. Bünker, from the "Central Zeitung für Optik." The series, it is hoped, has shown the enormous care and equipment.—Eds. "B.J."]

ASSUMING that all the calculations are satisfactory, the first thing to be done is to make a trial lens. As a rule, a short focus one is chosen. The mathematician gives the exact construction data, that is, the radii and thicknesses of the individual lenses, and the first thing to do is to prepare test glasses for each radius. These play a most important rôle in the practical manufacture of a photographic lens, and cannot be dispensed with, as they give accurate control over the radii. After two brass patterns have been made to the given radii—these are concave and convex segments of circles of required radii, which are used for controlling that of the rough lenses—a pair of test glasses are made out of thick plate-glass for each radius, one concave and the other convex, and are worked to the patterns with various sized emery up to the finest grade. Then the patterns are discarded and a spherometer employed. This instrument is extremely precise, and enables one to control the radii easily to 1-10000 millimetre (= 250000 inch). When the test glasses are satisfactory they are polished, so that the one fits accurately into the other. There are two faults which may occur in making these test glasses. The one is variation from the spherical form, which can be easily controlled by the test glasses themselves through the formation of the so-called Newton's rings. The extremely thin film of air enclosed between two glasses shows by transmitted and reflected light colour phenomena, which appear, according to the degree of accuracy attained, in broad or narrow concentric colour rings, which finally fade into white, when the two surfaces accurately fit. Variations from the spherical form will then show themselves as colour rings. By the other fault is meant a variation from the desired radius, and this is shown by the spherometer. A good pair of test glasses, when placed together, must make coloured rings disappear, and the spherometer must show the exact radii.

The test glasses are only used to control the polishing of each individual lens surface, as, by placing them together, one can at once tell whether the necessary exactness in manufacture is attained, that is, whether the lens has actually the radii calculated by the mathematician. In order to give the lay reader an idea of the precision attainable by this method, it may be mentioned that an error of 1-20000 millimetre (= 1.500000 inch) can be easily determined. That the placing together of the finely polished lens surfaces and the test glasses must be done with the greatest care and only when they are absolutely clean is obvious, for a grain of dust between them may ruin the lens surface. Fraunhofer was the first to use test glasses.

Let us return to our test lens, and as this is of little interest we will assume it finished. It is then submitted to a very vigorous testing. In most lens factories specially constructed apparatus is to be found, which gives absolutely perfect test results. If these are satisfactory the manufacture can be proceeded with.

Naturally there are several preliminary matters to be attended to; thus the radii for lenses of all foci have to be calculated, the brass pattern moulds, the grinding tools, and the test glasses made.

When one pictures the long tedious work of calculation, and, further, how much time and trouble the preliminary work requires before the actual manufacture is begun, it will gradually be borne in upon one that only the most careful manufacture, combined with the most exact calculation, can give the comparatively cheap price of the modern anastigmat.

As a rule, the whole stock of the required kinds of glass are purchased from the melters. This is done to avoid too frequent calculation of the lens. For, although the same ingredients are used for one and the same type of glass, the subsequent meltings have rarely the same optical constants, that is, the same characteristic refraction and dispersion. If this difference was large, which may happen to be the case, a complete recalculation of the whole lens is necessary.

The blocks obtained from the glass works are split up into pieces by diamond saws or wheels into convenient sizes for the single lenses. Then these pieces of glass go to the grinding-room, where, with white

river sand and special machines, they are worked up till they have the shape of the finished lens. After this they are taken in hand by the fine polisher, who works the two surfaces of each lens with emery of ever increasing fineness. The principal points to be observed are that each surface has its proper radius, and that it is free from scratches and holes, and also that the prescribed thickness is retained in the centre.

When this is done the surfaces are further polished, so that the reflected image can be seen in them, and then the lenses go to the center. On a lathe with horizontal spindle this man cements them on an accurately running pike or mandrel, directs the lens towards a contact lever, the point of which lies on the centre of the lens, and then cuts away the edges with a special arrangement till the lens has its destined diameter. The important point in this is that the glasses are running truly central after being cemented, and that after centring the optical axis coincides with the axis of the lens, which with convergent lenses is the thickest part, and with divergent lenses the thinnest.

After this the polisher receives the lenses thus prepared, and cements them to a corresponding dish, and then the polishing discs are moved by special machinery with regular movement. This is continued till the surfaces are absolutely clean and fit the test glasses accurately. If the test is satisfactory the lenses again go to the cementing room. Most lens systems are composed of several lenses cemented together. The cementing is effected with Canada balsam, which is rendered fluid by heat. The lenses, heated to the same temperature, are brought into contact and pressed together, so that an extremely thin film of cement remains between them. On a specially constructed apparatus, which is provided with an ether level, the two cemented lenses are adjusted, that is, shifted one on the other till the axes of the two lenses absolutely coincide. After the lenses have undergone another superficial test—the accurate test is applied to the finished lens—to see whether by accident a wrong glass has been used, they proceed to the mounting-room; the optical part of the work is done.

### Mounting the Lenses.

In the meantime the mounts have been finished in the rough, and the actual lens fittings are turned out of brass or copper on a lathe. The tube is also turned out, provided with a slit, and the iris or other diaphragm inserted. When the screws and flanges are finished it goes to the engraver.

Then the fitter of the lenses begins his work. This very delicate operation must be carried out with the greatest accuracy, as a badly set lens seldom gives good pictures. If the lenses have been previously set by the level by the center the work is comparatively simple, when the fitting has been well turned, and the objective consists of only two lenses. It is much more difficult when there are three lenses to the system. In this case it is the special work of the fitter to arrange the lenses in their cell, as the cementer can only adjust two lenses with his apparatus. There are several methods of fitting lenses, but for precise instruments the method of edging is preferred. On the rotating spindle of the lathe the cell is screwed. It is given a very fine edge, the lenses are placed in it, and the whole heated so as to slightly soften the cement between the lenses. With the straightening board or fork they are now adjusted, till a reflected image in the rotating surfaces is absolutely stationary. In this position the lenses are fastened in by spinning in the edge. When finished the mount is lacquered, and the complete lens goes to the studio for testing. The testing processes differ, but when the lens has passed these it is ready for the market.

This is practically the whole process of the genesis of a modern lens. Only those explanations have been given which will make clear to one and all that our modern anastigmats are instruments of precision and involve an enormous expenditure of care and time, and that they are well worth the price asked for them.

LUDWIG BÜNKER



## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes."*

The following applications for patents were made between September 9 and 14 :—

**CAMERA STANDS.**—No. 20,057. Improvements in photographic camera stands. Thomas Percival Woolfe, 34, Upper Street, Islington, London.

**PRINTING FRAMES.**—No. 20,171. Improvements in or relating to photographic printing frames. John Samuel Irving, 18, Hertford Street, Coventry.

**COLOUR PHOTOGRAPHY.**—No. 20,329. Improvements in colour photography. Thomas Thorp, Knowsley Road, Whitefield, near Manchester.

**MATERIALS.**—No. 20,381. Manufacture of a new product from albumen. Peter Leuthardt-Thornton, 47, Lincoln's Inn Fields, London.

**PAPER.**—No. 20,382. Improvements in the treatment, or manufacture, and production, of paper and other materials for photographic purposes. Peter Leuthardt-Thornton, 47, Lincoln's Inn Fields, London.

**PAPER.**—No. 20,383. Improvements in the treatment, or manufacture, and production, of paper and other materials for photographic purposes. Peter Leuthardt-Thornton, 47, Lincoln's Inn Fields, London.

**COLOUR PHOTOGRAPHY.**—No. 20,384. Improvements in the manufacture of plates or films for colour photography. Edward Sanger-Shepherd, 4, South Street, Finsbury, London.

**PAPER.**—No. 20,472. Adhesive sensitised photographic printing paper. Louis Hyde, 30, Duke Street, Chester.

**CINEMATOGRAPHS.**—No. 20,490. Improved cinematograph pictures. Henry Otto Clausen, 116, High Holborn, London, for Mittet and Co., Norway.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

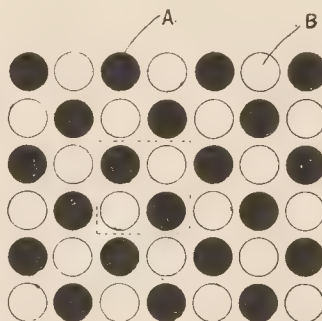
**COLOUR SCREEN PLATES.**—No. 19,652, 1906. The invention consists in a method of making colour screen plates for three-colour photography, etc. It consists in the manufacture of a taking screen, composed of oval or circular patches impressed on a transparent material in regular sequence and order for the first two colours and for the third colour the construction and use of a patch which is never the same shape as either of the other two, being, in fact, the remainder of the area of a surface after the other two are impressed upon it.

The following are two methods of carrying out the invention :—  
(1) A plate is made which by photographic or mechanical means gives a print in regular sequence and order of patches of circular or oval shape. With this plate an impression is made in a selected transparent colour on a transparent material as indicated in the drawing by the part marked A. The plate or material is then moved so that a second impression may be made in another selected colour, adjacent to the first as indicated in the drawing by B, the only necessity being that the patches shall not overlap.

Placing this two-colour screen with clear spaces between the colour patches in contact with a suitably sensitised transparent material on exposure to light, there is obtained a record only of the light that has passed through the clear space as indicated in the drawing by the part marked C. This plate or complement on being immersed in a dye bath of the third selected colour, will absorb the dye and become coloured in those portions which have been acted on by light. It is then cemented or otherwise placed in register with the first-named transparent material.

(2) Stripping or transfer paper is coated with a soft gelatine holding in suspension a silver haloid and when dry is printed on firstly in one of the three selected transparent colours, and after moving the position of the plate or paper as already referred to is printed in another of the three transparent colours. The

gelatine emulsion must be sensitised with a bichromate salt, either before or after coating or after printing the double series of patches. If done before, such printing must be carried out in non-actinic light. Whatever the procedure the sensitive paper bearing the double series of patches is then exposed for a sufficient time to light. The coating is now transferred by suitable



means to its transparent support, such as glass, gelatine, celluloid or the like, and the temporary support removed. The gelatine emulsion which is now uppermost is developed with warm water, and the soluble parts in front of the colour patches washed away, such development being rendered visible by means of the silver haloid, which also prevents too great a swelling of the gelatine. It is then fixed—i.e., the silver haloid removed by means of a bath of thiosulphate of soda in solution. The now clear gelatine between the colour patches is stained with the third selected colour by immersion in a dye bath.

The invention includes the adaptation of such screens to the construction of panchromatic plates, films, or the like, either by placing the screen in contact with the same or by making the screen to form a part of such plate, film, or the like. Clare Livingstone Finlay, 22, Marchmont Street, Russell Square, London, W.C.

**DRYING PLATES AND FILMS.**—No. 25,662, 1906. The invention relates to improvements in drying apparatus for photographic films, prints, etc., of the kind in which a network of wire cotton or other material is used for supporting the films. It consists of a fine meshed net woven from cotton. The net is gassed (that is passed through a flame to singe away the loose fibre and fluff) and stiffened with starch in the usual way and dried. It is cut into the size required, and the edges turned in and sewn, to prevent the edges carrying or breaking away. The net is boiled in many changes of water until all grease and other impurities are removed, and it is then hardened in a formalin bath and again washed in several changes of cold water and stretched upon a wooden frame, of any required size and shape, and held by means of small round-headed nails, which are not driven entirely home, so as to allow of the net being removed or replaced at will. All that is necessary is to take the prints, or films, directly from the water, after their washing is completed, and place them face downwards on the net, which may be suspended in any convenient place until the prints, or negatives, are dry, when they will strip away perfectly flat, and show no marks or stains from contact with net. The latter is always ready for use, but if by continued use or accident it becomes dirty or stained it may be removed from its frame, cleaned, and replaced. Benjamin Henry Williams, 12, Castle Street, Dudley.

**BACKGROUNDS IN NEGATIVES.**—No. 24,065, 1906. The invention relates to improvements in the method of obtaining a composite negative whereby a suitable foreground or background or both can be combined with a central figure or figures, and consists in

photographing the principal object and the chosen background and foreground on separate plates or films and in cutting out or removing portions of each negative film so obtained in order to build up a single composite negative. For this purpose it is necessary to employ plates or supports, the films of which can be readily removed and handled in order to transfer the cut out portions to the final support.

Having taken the two negatives the principal object is cut out from its film, following closely its outlines, and a corresponding part is cut out of the "background" negative, and the former is fitted into the cut out space of the latter, whereupon a compound negative is produced from the figure or principal object of one exposure inserted into a corresponding opening cut out in the negative of a selected background view. Obviously instead of both the foreground and background being taken on one plate or film two different negatives may be taken and the selected parts combined as above stated. The process can be simplified and cheapened by utilising for the background view not a photographic print, but a photo-mechanical print.

Although according to this process a background negative is required for each photograph, it is in practice not only better, but also considerably cheaper, because the comparatively more expensive plate for photographing the principal object can be utilised to the full extent, that is to say, up to the edge, whilst the much larger background is obtained cheaply by copying on a transfer film.

To obtain a composite negative according to the invention, the process is as follows:—

A negative, preferably on a transfer film, is taken of the principal object. A separate negative (or negatives) is taken of a selected background and foreground, also on a transfer film. The principal object is then cut out from the first negative, following more or less closely the outline of the object, and the film so cut out is then placed on or under the background negative and a corresponding part is cut out from the latter. The "object" film is then inserted in the opening thus made and the two part films combined in one support.

The photograph of the object can be taken with a completely black background, and foreground, so that on development all parts of the negative except the object will appear as perfect clear glass or film. It is, however, better to moisten gelatinised paper and to place it on the negative, whereupon it adheres to it. After drying, the film can be easily removed or comes off automatically with the paper without curling. The cutting out of the subject photographed must be effected, except the part surrounding the face, in accordance with its outlines on the plate photographed. The more carefully this be done, the better will be the result, but it is not absolutely necessary to keep to it strictly, more particularly if the tone of the edges of the photograph corresponds fairly well with the tone of the corresponding portions of the background.

The process according to this invention may be simplified in the following manner:—The film obtained by cutting out the object photographed on the transfer negative film, is secured (preferably by means of gelatine) to the corresponding portion of a well cleaned glass (or film) of the size which the finished picture is to have. This is preferably done either by means of previously made marks or over a tracing indicating the said portions and laid under the glass. Or the film from which the object has been cut may be placed under the glass and the object film in place over it on the glass. After drying, the film support is removed. Then, without paying any attention to the object, and without having cut out the corresponding portion from the background film or photo print, the latter is transferred to the glass plate (preferably by means of spirit varnish), so that the background film is simply situated over the object film. After drying, the background film support is softened by moistening and removed, then the glue or paste layer is first washed away by means of a sponge or the like with warm water. Then that part of the background situated only over the subject film, is removed or washed away by means of some substance (for instance turpentine) which dissolves the medium in which the background film is printed, and the negative can then be touched up in any desired manner. In place of photo-prints, other pic-

ture layers, obtained by copying or developing, may be employed in exactly the same manner as above described, if means for solution of the film layer are known; thus, for instance, gelatin layers (or "celloidin" paper) can be easily dissolved by acetate, acetic acid, ether alcohol, etc. Carl Pletzner, Mariahilferstrasse, Vienna.

**CLAMPING MECHANISM.**—No. 9,115, 1907. The invention relates to the design of a clamping tool, suitable for the front of a camera, etc., and permitting of such portion of a camera to be quickly and firmly secured. Louis Gandolfi, 752, Old Road, London, S.E.

**CINEMATOGRAPHS.**—No. 24,953, 1906. The invention consists in the design of a special form of safety shutter for cinematograph. Leo Kamm, 27, Powell Street, Goswell Road, London, E.C.

**PLATE-HOLDER ATTACHMENTS.**—No. 20,782, 1906. The invention relates to improvements in photographic plate-holder attachments of the type wherein continuous motion of one part in one direction brings the plate-holder in position for exposure. On the focus screen being simultaneously displaced, it withdraws the cut slide or shutter and enables the plate to be exposed, the plate holder and its guides being adjustable as a whole relatively to the camera back and so permitting more than one exposure to be made upon a single plate. Kodak Limited, 57-61, Clerkenwell Road, London, E.C.

**PHOTOGRAPHIC SURVEYING.**—No. 16,812, 1906. The first claim of the invention is:—A method for the utilisation of photography taken from balloons, kites, rockets, or similar elevated stations in order to produce correct plans or contour maps by photographic means, according to which differences of scale between the elements of the photograph and the horizontal line of the eye's view, due to the fact that when the photograph was taken the photographic plate was inclined to the horizontal plane, are eliminated by a photographic transformation of the picture to the horizontal plane; and the differences of scale between the elements of the horizontal line of the eye's view and the map to the fact that the bird's eye's view sees the plastic ground at a finite height, whilst the map shows the ground as if it were seen from an infinite height, are eliminated by alteration of the scale of each contour zone of the perspective picture to the scale of the orthographic projection on the basis of an exact top plane of the ground. Theodor Scheimpflug, 39, Sternwartstrasse, Vienna, Austria.

Complete specification open to public inspection before acceptance under the Patents Act, 1901:—

**PLATES.**—No. 19,889. Processes for producing pictures, photographs, printing plates, or the like. Boerner.

#### CATALOGUES AND TRADE NOTICES.

**MESSRS. C. A. STEINHEIL SOHNE**, of Munich, have issued an illustrated price list of their photographic lenses and accessories, a copy of which has been sent us through this firm's London agents, Messrs. A. E. Staley and Co. The list contains the latest particulars regarding the well known Steinheil "Unofocal" and "Orthostich" lenses, and also a description of the "Multo-Nettel" hand-camera, review of which will appear in our pages at an early date. Mr. Staley will be pleased to send a copy of the list to any of our readers on receipt of penny stamp to cover postage.

**"AUTOCHROME" PLATES.**—We learn, at the moment of going to press, that Messrs. Adams and Co., of 24, Charing Cross Road, have obtained a new and very large stock of "Autochrome" plates.

**HACKNEY PHOTOGRAPHIC SOCIETY.**—The annual exhibition was held at the King's Hall, Hackney Baths, from November 6 to 12 inclusive, the judges being Messrs. H. W. Bennett, A. H. Blake, and Furley Lewis. There will be six open classes, and bronze statuettes will be placed at the disposal of the judges for award in each. Silvered statuettes are also offered for the best picture in the open and members' classes respectively, together with bronze plaques for the best trade exhibit and the most useful photographic negatives. Entries close October 19, and entry forms and full particulars may now be obtained from the hon. secretary, Mr. Walter Selby, Paragon Road, Hackney, N.E.



## New Materials.

ox "Vigorous Glossy" Postcards. Sold by John J. Griffin and Sons, Ltd., Kingsway, London. The new brand of the ever-popular "Velox" has just been issued by Griffin in order to provide for the wants of those who want a postcard of glossy surface, possessing also the necessary for in printing. This combination of qualities, so far as our experience of the new brand goes, is most satisfactorily obtained in the "Vigorous Glossy," which, with the normal metol-hydrozone developer, gives prints of great strength and purity. Despite its glossy surface, the new card shows very little tendency to surface-scum, but works in a remarkably clean manner, and calls for the minimum of trouble in the way of securing clean, brilliant prints. The "Vigorous Glossy" Velox postcards are supplied in packets of eighteen with mask, for 1s., or in packets of 144 for 6d.

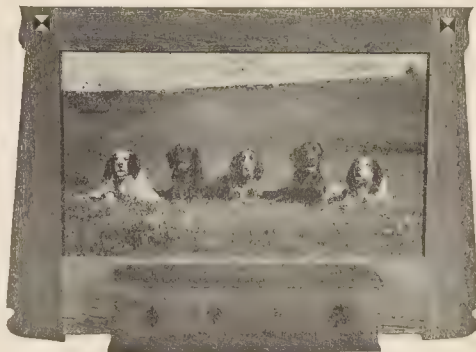
"What Shall I Give?" Issued by Walter Pearce and Co., St. George's Press, Brentford.

Means of drawing business to the studio should surely rank among the most essential "materials" of a photographer, and for that reason we may justify a detailed reference under the above heading to a little booklet prepared by Messrs. Walter Pearce and Co., specially for the use of professional photographers intent on securing the advantage possible from the Christmas season. The booklet, which is entitled "What Shall I Give?" arrests attention as much by its matter—the problem of present-giving—as by its very attractive and dainty get-up. In a few words, it introduces the theme of a photograph as an acceptable Christmas gift, and from its richness of pink and gold impressed on a finely figured paper, conveys an idea of the photographer's taste which it is impossible to obtain in a local printer, however well provided he may be with types and inks. Messrs. Pearce supply the booklet exclusively to one photographer in a town, and we cannot suggest any better or surer means of stimulating Christmas trade than its judicious distribution among a selected number of possible patrons. The booklet course provides for the photographer's own announcements, in addition to which Messrs. Pearce will be glad to be consulted as to who know something of the best form which such announcements should take.

Mounts for Photograph Decoration. Sold by Kodak, Ltd., Clerkenwell Road, London, E.C.

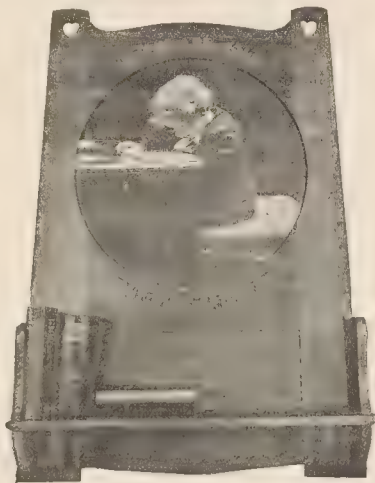
The use of photography in home decoration has been written upon before and over again in the pages of our amateur contemporaries,

of being applied largely in the adornment of articles of furniture is most certainly the case, but we cannot recollect that any pieces of furniture have been manufactured specially for the incorporation with them of a photograph. This gap, however, has been filled by the Kodak Company, who, with great originality and good taste, have designed pretty nearly a dozen articles which are extremely well fitted for the reception of photographs, therewith form a decorative scheme, and are actually of domestic use. These include such things as an overmantel and letter rack, a fire screen, a book-shelf, a newspaper rack, a smoker's cabinet, a pipe-rack, and are well and



strongly made in fumed oak, with space left for the insertion of the purchaser's photograph, which, in the examples shown to us by the company, and to be seen by anyone interested at 115, Oxford Street, W., were in all cases bromide enlargements, either as developed or toned by the convenient hypo-alum or sulphide method. The illustrations which we give will show roughly the design of these articles, though they will unfortunately give no impression of their handsome and substantial appearance. The prices of the pieces of furniture may be obtained on application to the Kodak Co.

CHRISTMAS MOUNTS.—Messrs. Marion and Co., Ltd., of 22 and 23, Soho Square, London, W., are issuing a comprehensive series of mounts suitable for Christmas greetings, souvenirs, etc. They comprise both the paste-on and slip-in varieties, in single and two-fold cards, and range in size from midget to cabinet at prices calculated to meet the needs of all classes of photographers. The colours are



always, so far as we can recollect, with the fatal drawback so as the photographer was concerned that when all was said and done he would find himself converted from a photographer into an amateur carpenter or cabinet maker. That photography is capable

of being applied largely in the adornment of articles of furniture is most certainly the case, but we cannot recollect that any pieces of furniture have been manufactured specially for the incorporation with them of a photograph. This gap, however, has been filled by the Kodak Company, who, with great originality and good taste, have designed pretty nearly a dozen articles which are extremely well fitted for the reception of photographs, therewith form a decorative scheme, and are actually of domestic use. These include such things as an overmantel and letter rack, a fire screen, a book-shelf, a newspaper rack, a smoker's cabinet, a pipe-rack, and are well and

feature of the series, and one which will probably be exceedingly popular. These mounts may be obtained in either large or small quantities, and a pamphlet, giving full particulars as to prices, etc., may be obtained from Messrs. Marion, at the above address.

THE BIRMINGHAM PHOTOGRAPHIC CO., LTD., are issuing a series of postcards with appropriate Christmas designs, and those who prepare their own greeting cards will probably be glad to know that such are now obtainable. The cards are sold in the usual sixpenny and one shilling packets, as well as in bulk, no extra charge being made for the design, and may be obtained from all dealers, or from the above firm at Criterion Works, Stechford, near Birmingham.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, SEPTEMBER 27.

Royal Photographic Society. Meeting of Members of Affiliated Societies at the New Gallery, 121, Regent Street.

SATURDAY, SEPTEMBER 28.

Coventry Photographic Club. Outing to Stoneleigh.  
Worthing Camera Club. Outing to Washington, Wiston Park, and Chanctonbury.

North Middlesex Photographic Society. Outing to Hornchurch. Special Competition: A Portrait of a Member of the Society.  
Hull Photographic Society. Outing to Paull.  
Uddington Amateur Camera Club. Outing to Monkland Glen, Airdrie.

WEDNESDAY, OCTOBER 2.

Everton Camera Club. "Wandering Round Liverpool." R. Eastham.

THURSDAY, OCTOBER 3.

Liverpool Amateur Photographic Association. "Lantern Slide Making." S. L. Coulthurst.

Queen's Park Amateur Photographic Association. "Pictorial Composition." W. C. S. Fergusson.

North London Photographic Society. "Theory and Practice of Time Development." W. S. Slater.

Hull Photographic Society. Annual General Meeting.

**NOTTINGHAM CAMERA CLUB.**—The annual general meeting of the members of Nottingham Camera Club was held on September 17 in Room 75 of the Mechanics' Institution, Mr. Thomas Wright presiding. The annual report showed the present membership to be 125, an advance of nine on the year, while the average attendance at the thirteen meetings which were held was very satisfactory. The four days' exhibition proved to be one of the most successful ever held by the club, and resulted in a balance in hand of £11 8s. 6d. The financial statement was also satisfactory, and both were adopted. The following officers were elected:—President, Mr. Arthur Marshall; vice-presidents, Messrs. A. Black, A. Brown, H. Crewdson, W. Edgar, J. Houston, W. H. Kirkland, G. H. Wallis, and T. Wright; committee, Messrs. J. Anderson, E. V. Brown, W. S. Ellis, A. Hallam, W. H. Kirkland, S. D. Middleton, F. H. Radford, H. Roberts, and T. Wright; honorary treasurer, Mr. A. Black; and honorary secretary, Mr. S. W. B. Vines.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—Meeting held September 19, Mr. W. R. Stretton in the chair. Mr. W. F. Slater lectured upon "The Theory and Practice of Time Development." He said that by time development he meant placing the plate or film in a standard strength developer, at a standard temperature, for a standard time, and he should endeavour to prove that this was the only correct method of conducting development. The average amateur when, in conducting ocular development, he saw the image appear strongly upon the surface of the plate, immediately plunged the same into the hypo and obtained the ghost of an image. Had he carried development further the negative would, in the majority of cases, have been a good one. The chief trouble of all photographers had always been when to stop development. The only control lay in the time the plate was kept in the solution, and a correct exposure should be given to obtain results. At the same time a considerable range existed between correct and uncorrected exposure, the difference in, for instance, Kodak films being as large as from  $\frac{1}{2}$  sec. to 4 sec. Further, the same result as to strength and density could be obtained by any developer if the plate was kept in the solution for a time according to the developer in use. The degree of contrast

was a personal factor. To get a softer result, reduce the factor; to strengthen the contrast, increase the factor. The longer the plate was in the developer the greater the contrast, and there was a controlling method in the result. A temperature of 65 degrees was best, and the lecturer asserted that better negatives could be obtained by the method of time than had ever been made in the dark-room.

Mr. Beckett thought that Mr. Slater had put forward some strange ideas. First he said there was not control in development, and at once explained how to control development.

Mr. Teape said Mr. Slater had stated a case in which he would undertake to obtain a good negative with ocular development—ease.

Mr. Rapson could not agree with the idea that a given time stated by the lecturer, was always the best. He personally developed Kodak films in solution from the same bottle, on which was done in four minutes, whilst the other took ten hours to get a printable result.

Mr. Dawson asked if Mr. Slater would use the same method on plates, and what he would do to reduce the time from twenty minutes to, say, five.

Mr. Slater said: Strengthen the developer five times.

Mr. Stretton asked if this meant that a developer five times normal strength would do the work in one-fifth of the normal time. If so, he queried it. If Mr. Slater's contentions were correct in method of time development then all the old photographers obtained their results by pure accident, as they had worked without any principle. Given, he said, sufficient exposure, the rest could be done afterwards.

Mr. Slater said that the relative values would be altered in a case.

Mr. Teape had given from  $\frac{1}{2}$  sec. to 40 sec. exposure, and ocular development had obtained negatives, all of which gave platinum prints.

Mr. Stretton was opposed to all mechanical development, and contended that if the works of the most successful workers were examined none of the results were obtained by time development, by ocular treatment. Again, before teaching what time development was and laying down laws as to development, it was needed to tell what correct exposure was, and give laws as to how to obtain it, assuming that correct exposure could be obtained, did one want ocular development? He thought not. Each plate wanted special treatment for the result required, the negative being only a means to an end.

## Commercial & Legal Intelligence

**CANVASSING FRAUDS.**—An application was made to the City Magistrate on Tuesday by Wm. Groves, a collier, of 71, Road, Aber. Applicant asked the Bench to do something to restrain a man purporting to be a traveller called upon him and said he was prepared to enlarge a photograph for nothing, simply to advertise their business. They had decided to do that for a few in the street. Groves explained that he duly received the enlargement, was asked to have it framed for 10s. 6d. Now (said Groves) the enlargement was fading, and as he did not receive the original photograph back he wanted to know what he was to do.

Mr. R. Y. Evans (Clerk): You must go to the county-court.

Applicant: Well, I read in the "Evening Express" that Mr. F. Ham had dealt with such a case.

Mr. Thomas (Deputy-clerk): Ah, yes, but London magistrates have more power than we have here.

**PRIESTLEY AND SONS, LTD. (PHOTOGRAPHERS, EGREMONT).**—agreement under seal, dated August 20, 1907, renewing for a period of seven years a debenture, dated February 4, 1903, securing £10,000 charged on the company's undertaking and property, present and future, including uncalled capital, has been registered. Holders: Mrs. C. L. North, Dryclough House, Crosland Moor, Huddersfield.

**CANVASSING AMENITIES.**—The rivalry of two photographic canvassers in Bath Street, Portobello, N.B., had given rise to a complaint amongst the neighbours, and it also led to the appearance of one of the men at the Portobello Police-court, charged with assault. The accused was Mark Chisholm, and he is at present



employed with Mr. Low, photographer. His offence was that on September 9, in Bath Street, and near to the photographic studio occupied by Mr. Wm. Lees, he behaved in a disorderly manner, and assaulted Alex. Milne, canvasser, 65, Cumberland Street, Edinburgh, by striking him with his clenched fist on the right jaw, knocking him to the ground. Chisholm, an elderly man, pleaded not guilty, and was defended by Mr. George Croll, solicitor.

Mrs. Scott, of Falkirk, gave evidence to the effect that she was talking to the canvasser when Chisholm, who was cursing and swearing, came forward and struck Milne. While Milne was on the ground accused was going to strike him again, but she interposed, saying, "Would you dare strike a man on the ground?" Similar evidence was given by Sarah Gallagher, High Street, Edinburgh, and by Agnes Fergusson, Bath Street, who had just got home from school when the offence was committed. Wm. Lees, the photographer, did not see the assault, but had his attention called to it by hearing his man falling. On going to the door and asking if it was wrong, Mrs. Scott told him of the assault.

Mark Chisholm, accused, stated, in giving evidence for himself, Milne had been calling "tin whippers" at him, and that when he went over to him complainer raised his hand to strike him, and gave him a shove. In cross-examination, he admitted having had a glass of beer. Another witness for the defence, who said she saw the fall, rather detracted from the strength of her statement by saying that she saw nobody in the street at the time near to Milne. Superintendent Currie said she must be speaking to an occasion of which he knew nothing. Wm. Muter deposed that the calling of names in the street was a daily occurrence, and when he asked Milne if he did it he replied that it was for the purpose of raising the man's rye.

After the Prosecutor and Mr. Croll had spoken, the Magistrate said he had no difficulty in finding the charge proven. It was unnecessary that the old man had taken a glass of beer, as he had admitted, as he seemed to be excitable. There was no justification, however, for him taking the law into his own hands. Taking nothing into consideration—£1, or fourteen days.

**PHOTOGRAPHER'S SUN BLINDS.**—In the Yarmouth County Court last week, Alfred William Yallop, photographer, Regent Road, sued Bert Feek, wagonette driver, Admiralty Road, to recover £12s. 3d. for a smashed window. Mr. P. Wiltshire was for the plaintiff. Police-constable Turner saw what happened, and he said the canopy irons of the wagonette caught the irons of plaintiff's sun blind, and the window frame was pulled away from the wall, the result that a window 6ft. square was smashed. The sun blind irons were about plumb with the edge of the kerb, and as the wagonette was likely to come in contact with them plaintiff had caused to have them altered. His Honour said plaintiff ought to have nothing projecting over the footway. The constable's report put him out of court. If any mischief was done by these blinds the owner was responsible. Judgment for defendant.

## News and Notes.

**THE LUMIERE N.A. COMPANY** inform us that they have now a supply of "Autochrome" plates in English sizes at the following prices:—4s. 6d., and ½-plate 10s. per box of four.

**NOTICE OF REMOVAL.**—The Warwick Trading Co., Ltd. (4 and 5, Warwick Court, Holborn), announce that owing to increased business they are removing to larger and more commodious premises at 113, and 117, Charing Cross Road, W.C., where all communications should now be addressed.

**P.S.**—The following lectures will be delivered at the New Gallery—Saturday, September 28, "Westminster Abbey," by the Rev. Wm. Perkins, M.A., F.R.Hist.S.; Monday, September 30, "The Celebrated Nesting Haunts of British Sea Birds," by Wm. Perkins; Thursday, October 3, "A Year and a Half among Savages," by H. Dunning, F.R.G.S., F.R.P.S.

**"ELOX" COMPETITION.**—Messrs. J. J. Griffin and Sons, Ltd., announce the following as prize-winners in their last monthly competition:—First prize (£2 2s.), F. Schofield, Motherwell; second (£1 1s.), Hugh W. Wilson, Glasgow; consolation prizes (5s.),

Mrs. A. Bletcher, Manchester; H. H. Tomkins, Leyton; William Frame, Hamilton, N.B.; Charles H. Woodford, Gosport; Alfred Dodgeon, Nelson; Captain H. Hurrick, Richmond, Yorks; H. Faircloth, Harlesden; Mrs. Gertrude Brooks, Port Talbot; Miss L. M. Gibson, Petersfield; D. L. Richards, Troedyrthur; Miss Edith Langsford, S. Norwood; Lionel Room, Highgate. As this competition is strictly for those who have never won a prize before, the above-named are debarred from again competing, and the opportunity for the success of other beginners thereby increased.

**FIRE AT CAMBORNE.**—A fire broke out at Trelowarren Street, Camborne, one day last week, on the premises of Mr. J. Lukey, photographer. Mr. Lukey, who was in his workshop late, was engaged in burnishing some photographs, when the lamp he was using exploded.

**LONGING LOOKS PROVIDED.**—Inserting intelligence in vacuous countenances is surely quite a new profession (writes a daily newspaper). The following is an actual advertisement which has been published by a photographer:—"Marvellous results in photos. Hair put on bald heads; charming dimples inserted in cheeks; teeth removed if necessary; thin people made stout; scowls removed from sombre faces and winning smiles substituted; homeliness banished; intelligence inserted in vacuous countenances; goo-goo eyes, longing looks, and the baby-stare furnished if desired. Classic profiles, Grecian noses, and flashing eyes a speciality."

**THE CINEMATOGRAFF FIRE.**—At the inquest at Newmarket last week the jury returned a verdict that death was due to shock caused by burns, and added a rider that in their opinion sufficient precautions were not taken by the company for the safety of the public, and that the Urban Council, who let the Town Hall, should in future exact the same provisions as the London County Council require in letting their halls for these entertainments.

**NORTHAMPTON (POLYTECHNIC) INSTITUTE.**—The provision last session of increased accommodation in the rooms of the British Horological Institute in Northampton Square has made it possible to introduce further developments in the work of the departments which continue to find their quarters in the original building as well as in that of the department of technical optics. The most noteworthy of these developments is a course on the "Production and Measurement of Light," which is being given to both day and evening students by the Electrical Engineering and Applied Physics Department, and by the Department of Technical Chemistry jointly. The lectures and laboratory work in the Electrical Engineering Department deal with all the various kinds of electric lamps, glow, arc, and luminescent; with the problems of the production of light, and photometry, and general questions of radiation. In the Technical Optics Department four new classes especially suitable for artisan students are being started, and minor changes have been made in the syllabuses. There are also special classes for the instruction of cinematograph operators, which it is hoped will meet a much-felt want and place this kind of work upon a sound scientific basis.

**LEEDS INSTITUTE.**—A photographic class will be held during the coming session in connection with the Chemistry Department of the Leeds Institute Technical School, under the superintendence of Mr. S. E. Bottomley, F.R.P.S. Full particulars may be obtained from the Institute or from the Higher Education Department, Calverley Street, Leeds.

**PHOTOGRAPHIC CLASSES.**—The photographic classes at the Cripplegate Institute, conducted by Mr. John H. Gear, F.R.P.S., will open for the winter session on Wednesday, October 2, the special class meeting at 6.30 and the general class at 8 p.m. The general class will embrace those subjects required for the examinations in photography by the City and Guilds of London Institute and the London Chamber of Commerce, and students desirous of obtaining the technological certificates granted by these examining bodies will be specially coached for that purpose. The scheme of the special class includes bromide enlarging, enlarged negatives, oil printing, the reproduction of negatives, etc. Syllabus and full particulars may be obtained from the Secretary, Cripplegate Institute, Golden Lane, London, E.C. Mr. Gear also conducts a similar class at Thornton Heath Polytechnic on Thursday evenings at 7 o'clock.

**THE LETO PHOTO MATERIALS Co.** have been awarded the highest award in the photographic section of the International Sports Exhibition at the Grand Palais des Champs Elysées, Paris (July to October, 1907), for their exhibits on the various grades of Seltona paper.

MR. BROADHEAD, photographer, of Lynchford Road, Farnborough, has received an invitation from his Grace the Duke of Rutland to attend at Belvoir on the 26th inst., for the purpose of taking photographs.

**PHOTOGRAPHERS AND THE PUBLIC.**—Apropos of the incident at a Sloane Square church, mentioned in our issue of last week, we would commend to photographers the very sensible comments of the "Yorkshire Post" on the growing disposition on the part of the press photographer to consider nothing outside the sphere of his operations:—The snapshotting photographer is going too far. During the wedding of Lady Edith King-Tenison at Holy Trinity Church, Sloane Street, the day before yesterday, a photographer who had been warned off the premises by the vicar is stated to have stealthily climbed the pulpit steps and at the right moment—if the word "right" can be used in such a proceeding—to have snapped the happy pair at the instant the marriage vows were being taken. "Is photography an art?" can only be answered in the affirmative with the reservation that in the hands of some of its practitioners it has become a nuisance, and an abominable nuisance at that. Unfortunately the wrongs committed by the "snap-shot fiends" are usually of the kind for which there is no legal remedy, none having the power to bring the culprit to book. In the case described, as it happens, the probability is that the photographer could be sued for trespass on the "vicar's freehold"; permission having been sought and expressly denied, the case is even stronger than in those instances in which it is not asked at all. But though the gentleman who operated in Holy Trinity Church may not have heard the last of his action, it is not for the persons photographed to take proceedings, since the victims of the "snap-shot" have no copyright in their faces—as they have in some of the States of North America—and can only complain with effect when the photograph is employed to render them ludicrous in the eyes of the public. If, for example, a snapshot of a Lord Mayor in a ridiculous posture—presuming the supposition to be within the bounds of possibility—were circulated as a picture postcard with the intention of holding him up to public ridicule, that would be libellous, and the victim would have his remedy in the law courts. But it would have to be a strong case, and the intention to hold the victim up to ridicule would have to be proved. The ordinary mortal as a rule will have no remedy. The position of affairs is now much worse owing to the growing use and popularity of the telephotographic lens, which will take large and easily recognisable photographs of a man or woman at several hundred yards. The unscrupulous photographer is, therefore, now able to secure snap-shots of bathers, for instance, quite unawares, to the great delight of himself and all his kidney, but to the strong disapproval of right-thinking people. It is curious that the popularity of this type of lens—which has many excellent and perfectly unobjectionable uses—should have been so long in coming, for its power was shown, not for the first time, so long ago as 1887, when a charming portrait of Queen Victoria smiling was taken by its means. In photographing the great, however, the wisdom of the "snap-shottist" usually keeps him within reasonable bounds; and the great are not likely to make any vain attempt to prohibit the telephotographer from supplying what is, after all, a creditable demand on the part of the public, and by a means which from the distance at which the pictures are taken, cannot cause them personal inconvenience. His Majesty the King has always been fairly treated in this respect, but downwards from him there is a gradual declension of scrupulousness. We have seen photographs of the Prime Minister, for instance, with one leg in the air—no doubt in the natural action of walking, but still likely to raise a smile. One may be a novelist with a conscientious horror of seeing one's face in print. Is such a one to have no protection from the telephotographer in ambush? At present for the ordinary person there is no such protection; and the only thing for the sensitive to do is to enter and never leave those courts from which Sir J. Gorell Barnes has excluded the black-and-white "artist"—or to emigrate to more enlightened lands. But it is to be hoped that an assault on a "snap-shot fiend" by his victim or a relative would not be too severely regarded if taken into Court.

**PHOTOGRAPHIC CLASSES.**—Mr. A. G. Field will conduct photographic classes for elementary and advanced students on Monday evenings at the Acton and Chiswick Polytechnic. The fee for either course for the session is 5s., and full particulars as to syllabus, etc.,

may be obtained on application to the secretary, Mr. V. C. Egge, at the Polytechnic, Bedford Park, W.

THE BUSINESS at 5, St. Peter's Road, Great Yarmouth, lately carried on by Messrs. E. Atherton and Co., has just been purchased by Mrs. M. A. Read, who will trade as "Athertons."

**A PHOTOGRAPHIC SOCIETY FOR STOURBRIDGE.**—A meeting was at the Institute last week, under the chairmanship of Mr. I. Cook, in connection with an attempt which is being made to form a photographic organisation for Stourbridge, which shall be affiliated to the Midland Federation. In connection with the Working Men's Institute a photographic club already exists, of which Mr. Cook is president, and in return for a nominal fee its members have the use of an excellent dark-room and apparatus as can be found anywhere in the Midlands. The hope and intention of an adjourned meeting to be held at the Institute on Monday week, is to attract at least 40 persons interested in photography with a view to joining the Federation, and arranging lectures in connection with that, it being rather beyond the power of the present club to incur the necessary expense. In the meantime the secretary of the club, the Institute, Mr. Jay, is endeavouring, by means of enquiries and circulars to arouse the requisite interest in the movement.

**MYSTERIOUS DEATH AT ROCHESTER.**—Mr. John J. Eastmead, secretary to the Rochester Conservative Club, died under mysterious circumstances on Monday night last. He had recently been suffering from neuralgia, and yesterday he was found lying in a helpless condition on the Rochester Esplanade. He expired soon after removal home. The deceased, who was fifty-six years of age, was in business as a photographer in Rochester.

## Correspondence.

\*.\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\*.\* We do not undertake responsibility for the opinions expressed by our correspondents.

### SKIN AFFECTIONS FROM CHEMICALS.

To the Editors.

Gentlemen,—I have noted and followed very closely the queries and correspondence in your paper recently re skin affections. I have taken note to a great extent of the various ways the skin is affected by the constant use of certain chemicals, I myself having suffered very much pain and cracking, and even bleeding, from that of which I can say is due in the first case to neglect of cleanliness. I fully agree with P. H. Adams's statement that the cause is due to the hypo and the water, and believe that "Oak Side" is true to much the same, as I cannot conceive how the sulphocyanide could have any reasonable time to affect the skin, for as soon as a batch of prints is toned the prints are washed free from any chemical the toning, and should therefore wash the fingers clean. Then comes the hypo bath, which then will finish off any remains of sulphocyanide. I am convinced in the same way as P. H. Adams that the hypo is the skin enemy, owing to myself having used one for developing and the other for fixing, the latter cracking the skin. Then, again, I am troubled if I use metol, but in quite a different way—a small blister will almost instantly appear if my hands are anywhere near it; yet at one time I could keep my hands in the developer for hours without any after effect. But, due to carelessness, I am now punished. My letter, however, is to cure and prevent skin affection by treatment, which, if used daily, will certainly prevent it, and, if the ointment is used, effect a cure. The first time on entering the work-room I smear my fingers with lanolin ("Darting" brand I prefer), and rub that well in. That causes the pores to resist the water, but after a few wipes on the towel by degrees removed, so I give an additional rubbing in of "lanoline," after the "lanoline" has been taken in. This resists very well, but the user will have to put up with the odour that comes from it. The slight stickiness will soon leave the fingers, and in case of serious bleeding or cuts I adopt finger-strips. Being thus prepared I can plunge my fingers into almost any chemical that would have nearly sent me crazy with an itching skin.



tion. My day's duties done, I then bathe my hands in the hottest water that I can bear, and wash with soap and wipe on a towel kept for final wiping. This treatment also reduces the pyro stain. It is not commonly known that soap used immediately after pyro tends to make the stain fast. I give here the ointment, which costs very little to make up. It is as follows:—

Ichthylol .....	10 grs.
Lanoline .....	40 grs.
Boric acid .....	30 grs.
Vaseline .....	30 grs.

Smear it on the fingers before retiring, and after a few applications the affected skin will rapidly heal up. By adopting this simple treatment the fingers can be kept in perfect condition. I hope that this letter will be of some benefit to any of my fellow-workers.—I am, yours faithfully,  
JAROB.  
Norwich.

To the Editors.

Gentlemen,—I have noticed the correspondence which has appeared in your journal recently on metal poisoning. As I have had a good many instances of this under my observation, perhaps it will interest your readers to learn how they were dealt with. The number of people liable to this annoying affection does not seem great in proportion to the users of this popular developer. I have found them to be mostly possessors of very dry hands. Directly the first symptoms appear—i.e., redness, slight swellings, and intense irritation—it is advisable to cover the parts affected with Lassar's paste (which any dispensing chemist will make up) and bandage. Night and morning it is advisable to bathe the affected parts in warm water, into which a small quantity of boric acid has been dissolved, say a teaspoonful to a quart.

The above treatment has always been successful in my experience, but the malady leaves the skin very tender; and for some time after it has disappeared it is as well to rub the hands with zinc ointment before going to bed and wear cotton gloves whilst asleep. My experience is that the few liable to this malady readily re-contract it, and it is wiser for them to use another developer which suits their hands, even if they do not get the same results.—I am, Gentlemen, yours truly,  
J. FINDLAY.  
London, W.C.

September 23, 1907.

To the Editors.

Gentlemen,—Re the letter of P. H. Adams concerning the above. My experience is to the contrary. My developing-hand is the one which goes wrong, whilst the one used for hypo has never had anything the matter with it. I find the only remedy is to use finger-stalls on the hand which goes into the developer. It is practically impossible to develop quantities of postcards without wetting the fingers halfway up.—Yours faithfully,  
A. W. HOLLIDAY.  
Station Road, Alton.

## THE PRESENT STATUS OF PHOTOGRAPHY.

To the Editors.

Gentlemen,—A musical comedy company recently visited this city, and it was part of the comedian's gag and business on the stage to be ever presenting his photographic portrait to the other characters. One of the recipients tore the portrait up and threw it on the stage in contempt, which was resented by the giver, with this expression, "Do you know, Sir, that these photographs cost me 7d. a gross?" Thus, "does the stage hold the mirror up to Nature and reflect the image and body of the times, its form, and impress."

"Truth severe in fairy fiction-dressed."  
"Tis true, 'tis pity, and pity 'tis, 'tis true."—Yours faithfully,  
The Studios, 7 and 8, Park Street, Hull.  
W. BARRY.  
September 23, 1907.

[We are not prepared to take our views of the photographic profession, any more than our political opinions, from the comedian of the musical stage. While no one can disguise the fact that photographers are harassed by a plague of cheapness we have reason to know the work which is unmistakably good tends to command a better price.—Eds. "B.J."]

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- E. O. PARKIN, 58, Wilkinson Street, Sheffield. Four Photographs of the Sheffield United Football Players.
- G. T. FILLINGHAM, 9, Crossgate, Durham. Three Photographs of the Rev. R. P. Love.
- J. BORROW, 79A, Waterloo Road, Middlesbrough. Photograph of Woodlands Road, Middlesbrough.
- S. KIRK, 10, Angel Row, Market Place, Nottingham. Photograph. Group of Nottingham Cricketers and Indian Mutiny Veterans with the Mayor of Nottingham and Colonel A. C. Cantrell Hubert.
- R. H. PEEL, 238, Harrison Road, Belgrave, Leicester. Photograph of the Leicester Nomads Football Club.

R. J. OWEN.—We hope to deal with the subject shortly.

GELATINE MOUNTANT.—We have been for some time past using a solution of gelatine for mounting our pictures, as we seem to get on better with it than starch. Lately we have had several returned with yellow stains upon them. The gelatine we use is an expensive foreign one, and very white and pure. We are afraid our mounter has been using it after it has become somewhat sour. Do you think this may account for the fading?—A. AND T.

We think it more than probable that the decomposed gelatine has conducted to the fading. Many of the foreign gelatines, such as that mentioned, are strongly acid and quite unsuitable for mounting silver prints. If gelatine is used it should be tested for acidity, and if found acid rejected. A few drops of carbolic acid added to the solution, when it is made, will arrest the decomposition.

J. C. COUACHE.—Try Gale and Polden, printers and stationers, Aldershot.

A BUSINESS QUERY.—I am in business here as a photographer, and would open a branch in my native town in the purely midget line, but am wondering whether the fact that I was bound in my indentures not to set up within ten miles of that town is prohibitive. I have been told that this is no longer upheld by law. Furthermore, my master sadly neglected his part of the transaction—viz., to teach me the business thoroughly. No premium was paid. Said master is still in business there. How do I stand?—C. C.

Without seeing the indenture and knowing the precise terms of it, we cannot say definitely how you stand, as so much may depend upon circumstances. If the agreement purports to restrict you from starting business, for all time, within ten miles of the place, we should say, in a court of law, this would be ruled an undue restriction of trade, and it would then be null and void. If it only restricts you for a certain period the case might be different. We should advise you to consult a solicitor, showing him the indenture.

DOUBTFUL DEBT.—Please advise me in the following:—A young lady was photographed by me some time ago, who has since died, without paying for same. I rendered account to her father, who has refused to pay, as the photographs were ordered without his knowledge or consent. The photographs were specially good, and I know that some of them are hung about the house. Failing payment, can I order return of the photographs or is the father entitled to pay?—R. D.

We should have thought that everyone was aware that if they gave credit to a minor without the authority of a parent or guardian, except for articles of actual necessity—which, of course,

photographs are not—they cannot recover the debt. However, if the young lady was of full age at the time the debt was incurred you can sue the executors or administrators of her estate, if she had one, in the county court. Of course, you cannot get the photographs back.

**LANTERN.**—May I have your advice re buying a lantern. I use acetylene jet, and find all lantern bodies too short for same, so I cannot shut down back door. (1) Are some makes larger than others in lamp-house? (2) What kind of condenser is best, and size? (3) All objectives I have tried fail to give pictures sharp at edges. Can you name a lens that will give picture sharp all over at same time and yet be large diameter, so as to make the most of the light? Of course, I mean at a reasonable price. I know there are plenty of expensive flat field lenses. (4) About what will such a lantern cost?—C. MARSHALL.

You do not say whether you mean an optical or an enlarging lantern, but from your questions we assume the former. (1) As a rule, the tap end of jet projects through a slit cut in the door. If you buy lantern and jet together the door will be adjusted so that it will close. The ordinary jet will not go right inside any lantern body. (2) The ordinary compound condenser, made of two plano convex lenses, is very serviceable, but the Herschell condenser, with a meniscus and double convex lens, is perhaps the best. This costs a little more. Use 4 $\frac{1}{2}$ in. condenser for lantern slides; 5 $\frac{1}{2}$ in. for enlarging from  $\frac{1}{4}$ -plates. (3) Cheap objectives are deficient in this respect, but no objective will do what you require unless light is properly adjusted. Write to some well-known firm that specialises in lanterns, and they will advise you re objective and price. (4) You can get a very good apparatus for about £5, and a very serviceable one for less.

**W. M.**—The book to which you refer was reviewed in our issue of August 16, 1907, page 622.

**ENCLOSED ARCS, ETC.**—(1) In your issue of March 22 is a letter on the subject of arc-light portraiture, under which you note that further mention is to be made of the subject, but I cannot find any in subsequent numbers. The point is in regard to the visual and chemical focus not coinciding. As I intend opening a studio shortly, in which I wish to instal artificial light, I should be glad to know if this defect is inherent in arc lamps (enclosed), or only in the type mentioned by your correspondent. I have used an open Boardman and do not remember any difficulty, but this is too expensive for me. I cannot alter the focussing screen, as I use the same for daylight. Perhaps you could suggest some other way out of the difficulty. (2) I have been successful with flashlight, and in my method the only disadvantages are that the lamp has to be re-charged for each exposure, and the very slight shock of the flash. Do you think such a flash system would be at a disadvantage from a commercial point of view? I mean would there be any prejudice against it in the public mind? The difficulty of the focussing and the great expense of running are against the arc, while gas is not good enough for me; its limitations are a handicap to good workmanship. I have never seen a studio worked by flashlight, except a "stickyback," and I have heard people remark that it gives such a staring appearance to the eyes. Of course, it does in inexperienced hands, but I am convinced it is a fine thing if properly worked, especially for children, but people seem to expect electric light somehow. It somewhat surprised me that no maker of arc-lights replied to the letter mentioned, either to refute the implied defect or to explain how to overcome it.—ARC-LIGHT.

(1) The effect depends upon the correction of the lens as much as upon the lens. Although there are hundreds of enclosed arcs in use we have not heard of another similar instance, although we have heard of several in the case of enlarging lanterns fitted with arc lamps. We think it most likely that you will not find any trouble with it; but if you do it can be avoided by using a filter of plain glass, which will cut out most of the ultra-violet. (2) We should certainly prefer an arc-light to flashlight, on account of the necessity with the latter of removing the smoke, either by hand in a portable chamber or by erecting a flue.

**MOXA.**—The developer was the Ilford pyro-soda, and the general reference in the article is to portrait negatives on Ilford "Zenith" plates.

**HALF-TONE.**—Could you kindly inform me (1) the process by which photographs are transferred to ordinary newspapers? (2) What are the apparatus and materials required? (3) Failing No. 1, what can I purchase a book giving very full details on the subject suitable to instruct one who knows only the ordinary photographic processes?—T. E.

We presume you mean the half-tone process, a sufficient description of which would occupy far too much space in our columns. The best advice we can give you is to get a book on the subject, such as "The Half-tone Process," by Julius Verfassner. (Liffe, 6s.)

**EMIGRANT.**—"The Photographer," 21 and 26, East Twenty-first Street, New York, U.S.A.

**LENS QUERY.**—I should be glad of your help. Having got the chance of purchasing a whole-plate lens, namely, triple achromatic lens No. 9,052, J. H. Dallmeyer, London, please let me know what work it will best do for, if portrait or landscape, and could be used on a half-plate camera instead of whole plate? I have not got the chance to use until I have purchased.—TROUBLESOME.

The triple lens is suited for much the same class of work as the rapid rectilinear, of which it was the predecessor. But it is much slower, requiring nearly double the exposure. They are frequently to be met with very cheap, as they are now looked upon as being quite out of date. Still, they are very good lenses, except that they are slow as compared with the R.R. (Of course the lens can be used on a half-plate camera if the extension of the latter is long enough to take it.)

**LENS QUERY.**—Could you kindly answer the following query in your valuable paper? My studio is 24 ft. long by 12 ft. wide, and my studio camera has Ross cabinet lens, suitable for single figures or small groups (three or four). Would it, however, be possible for me to get a lens so that I could take large groups on half plate without giving too long an exposure? I will be much indebted to you for same. I am a regular reader, and have had much valuable information from the "B.J." Thanking you in anticipation.—F. R. MURRAY.

You do not mention the focus of the lens you have. As you cannot get far enough back with it to get what you desire, you must get one of shorter focus. Probably one of an inch and a-half or two inches shorter would fulfil your requirements. With the shorter focus one you would have to stop down somewhat to get covering power, which will necessarily make it slower. One of the modern anastigmats, working at about  $f/6$ , would possibly answer your purpose. Such a lens covers a large plate in proportion to its focal length, and has a very flat field.

**FINISHING BROMIDES.**—I shall be glad if you can inform me in next issue of the "Journal" what materials are required for working up bromides, and how used. Is there a book on the subject?—BALDWIN.

There are several different methods of working up bromide such as with water colours, pastels, the air-brush, etc., or combination of them. We should advise you to get Johnson work "Retouching the Negative and Finishing and Colouring Photographs," Marion and Co., 2s. It is the only one on the subject.

**\* \* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

The exhibition of The Society of Colour Photographers has been viewed with the greatest interest by the London papers. The exhibition remains open until October 26. On Friday, October 11, it may be visited up to 9 p.m. At 7 o'clock a short explanation of the processes will be given by Mr. A. J. Newton, Principal of the Old Court School of Photo-Engraving.

An exhibition of examples of portraiture by artificial light will be opened at the house of the "B.J." immediately after the close of the present colour exhibition.

The Lumière Process. We draw attention to a number of points in the manipulation of the "Autochrome" plates which require to be noted. (P. 746.)

"The Amateur Photographer's" remedy for the frilling of Autochrome" plates is quoted on page 757.

The Warner-Powrie Process. Mr. William Gamble, who was in touch with Mr. Powrie in America, reviews the history of the screen plates (P. 748.)

Herr E. Valenta has recorded his results in preparing sensitising solutions which allow of the bathed plates being quickly dried. (P. 751.)

## "COLOUR-PHOTOGRAPHY" SUPPLEMENT.

Mr. E. J. Wall, in reviewing the exhibition of The Society of Colour Photographers, comments on the marked improvement in technique. (P. 75.)

Dr. C. E. K. Mees and Mr. J. H. Pledge have prepared photographs showing the introduction of black when one screen plate positive is printed from another. (P. 75.)

Dr. J. H. Smith, of Zurich, places the Warner-Powrie screen-plate first in its facility for giving colour prints on "Uto" paper. A mirror accessory for use in copying from screen-plate colour positives is shortly to be placed on the market. (P. 77.)

A convenient form of whirler for the drying of "Autochrome" plates liable to frill is described on page 76

Professor Cajal's paper on the Lippmann process is concluded in this issue. (P. 77.)

## EX CATHEDRA.

### Artificial Light Portraiture.

We have to announce that immediately after the close, on October 26, of the present Exhibition of the Society of Colour Photographers at our offices, we shall arrange for inspection by the public, and particularly by professional photographers, a collection of portrait photographs, the interest of which will centre in the fact that in every instance they are from negatives made in the studio or elsewhere, by one or other of the systems of artificial lighting now in practical use. The photographs will be the work of professional photographers, and will differ widely in their subjects and general character. But their common quality of origin from a negative made by other light than that of the sun, and for commercial purposes, will, we believe, give to the collection an interest which will lead photographers in business as portraitists to make themselves acquainted with what is being turned out by the current methods of artificial lighting. Further particulars of this "Artificial Light Exhibition" will be announced in due course. Meanwhile, it may be well for us to point out that no extension of time of the Exhibition of the Society of Colour Photographers is possible.

\* \* \*

### On Methods of Development.

There seems to be a tendency to revive the old controversy with regard to the merits of development by time and development by inspection, and, as usual, both sides are spoiling their cases by going to extremes. In these days it is quite useless to say that no good results are obtained by simple time development, or that nothing can be done by modifying the development. It has long ago been determined that certain modifications of the developer affect the result, and that certain variations in procedure may produce marked differences. At the same time, it has been definitely proved that development by time, with a developer of a fixed composition, is by far the most useful practical method to adopt. Nowadays we aim at producing as nearly as possible a "correct" exposure, and if we attain this a simple normal development is all that we require. It is perfectly true that we can over-expose twenty or thirty times, and by dodging and manipulating the development, still produce a fairly useful result, but few wish to do it. There is nothing to be gained by it, and though the procedure may form an interesting demonstration before a photographic society, it is not one that we care to adopt as a rule in our own dark-rooms. We know that it is easier to control exposure than to control development, hence many have adopted the method of uniform development by time, even though they are perfectly well aware that control by development is a possibility. As a matter of fact, there is very little to be done in the way of controlling development excepting when exposure is very

prolonged. With anything approaching "correct" exposure the effects attainable by modifying development are practically limited to variations of contrast such as can be more readily produced by after-intensification or reduction. At the same time it is none the less useful to be able to save a badly over-exposed plate when the occasion occurs, and a very great deal can be done in this way if the existence of over-exposure is known beforehand.

#### A Photographic Curiosity.

We have received from a correspondent a very curious photograph of what he states to be a mirage. The photograph is one of a stack fire. The stack is smouldering, and in the vapour above the stack there is a distinct representation of the top of a hedge, with a man's head appearing over it. The definition is sharp and the head is erect and greatly magnified, the scale being three times that of the head of a man standing midway between the stack and the camera. If this is a true mirage then there must be a corresponding hedge behind the stack, but at the same time the effect may be one corresponding to a Brocken spectre, that is to say, it may be simply a shadow cast upon the smoke. Presumably our correspondent has settled these points and satisfied himself that it is really a mirage. If he can give us any further information with regard to the conditions that prevailed we shall be obliged, as the effect is very interesting and curious. The position of the hedge represented and that of the sun are important points to be recorded. We assume there is no possibility of its being an effect due to accidental double exposure.

#### The Schott "Gasworks" at Jena.

One of those amusing errors, from which even the most careful editors cannot claim to invariably escape, occurs in a recent issue of an evening paper, where is solemnly printed a report of the arrest of a Japanese engineer on the charge of obtaining by trickery the plans of machinery in the Schott "Gasworks" in Jena. If this paragraph should chance to be read by the staff of the glass works established by the late Carl Zeiss and his friend Schott it may cause them some surprise to know that the Japanese engineer is supposed to be an engineer connected with the "gasworks" at Tokio.

#### Dust on Oil Prints.

A writer in the Journal of the French Photographic Society, M. L. Billioque, makes a short communication on a practical matter connected with the oil process, namely, the removal of dust and particles of hair from the finished oil print. As workers with the oil process know, such frag-

ments of extraneous matter adhere with some tenacity to the pigmented surface, but M. Billioque finds that a simple and easy method of removing them lies in the use of an indiarubber sold in France as the *mic de pain* (bread crumbs), which is used shaved to a fine point, and of the particle of foreign matter being removed without disturbing the pigment deposit. The same rubber rather more vigorously will take off the ink but will injure the gelatine film, and is thus used for putting white accents into the print.

#### SOME POINTS IN THE MANIPULATION OF LUMIERE'S AUTOCHROME PLATES.

CONTINUED experience with the Autochrome plate draws attention to various details that are not dealt with in the instructions, and yet are of considerable importance to the practical worker. So far the frilling trouble has been the most popular topic, but there are several other matters of equal or greater importance, and several causes of failure that are likely to trap the unwary.

The instructions issued with the plates being very detailed, one of the first questions that the practical worker is likely to ask is whether it is necessary to adhere closely to them in every particular. As far as our experience goes, it appears that the correctness of the final result depends almost entirely on correct exposure and correct primary development. The matter of exposure will be dealt with presently. As regards the correct development it is necessary to adhere absolutely to the instructions with the exception that the alcohol may be reduced in quantity in solution A. The next operation—that of reversal with solution C—is a simple one that needs only to be carried out to completion. If carried on too long the image is apparently not affected, but frilling is very probable. If not carried far enough, the parts that should appear nearly transparent are obscured by a muddy brown stain. The disappearance of the last trace of this stain shows that the action is complete, so the time can be governed by inspection. As regards the formula, that can be varied, provided solution E is not made up from solution C. As, however, this is a very convenient way of making up E, it is advisable to stick to the published formula for C.

The next operation—that of redevelopment—is also one that is carried to a simple finish, and the developer, therefore, can be modified considerably. The formula given is rather weak, and we prefer to strengthen it so as to shorten the process. We find, in fact, that any strong amide

#### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

The forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### SCREEN-PLATE THREE-COLOUR PROCESSES

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1908 will be

modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1908 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\* \* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, so as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.



loper, containing about five grains amidol to the acid and no bromide, can be used, and we have employed acid amidol developer with perfect success. An fine developer would no doubt be risky, hence it is able to keep to amidol, but it does not appear that exact formula is of much importance. It is, however, great importance that the redevelopment should be complete, and while there is no difficulty in watching it, there is a very simple cause of failure that most of us seem to have overlooked. If the reversed plate is not exposed too long to daylight before redevelopment, it acquires a "solarised" condition, and then develops either very slowly or very imperfectly. If dried for the purpose of binding, or of varnishing the edge, proceeding with the rest of the operations, either redevelopment should be carried out immediately after binding, or the plate should be kept in a closed plate until ready to proceed. If left for an hour or so before daylight, the redevelopment may fail.

After redevelopment we use solution E to destroy the loper. As this is also a reducing solution, it is unable to stick to the formula and to the time—ten seconds—as given.

The intensifier specified is a good formula, and works well in our hands. Probably any good silver intensifier will work as well, but there appears to be no need to depart from the formula. The time is a matter of personal judgment alone, as is also the question of intensification. As regards the clearing and fixing operations, the action of the former is somewhat vague, as we do not quite understand how it acts, we keep to the instructions. The fixing bath, however, obviously is an important part, seeing that if all operations have been properly conducted up to the time of its application, the image and brightens up the image to a very considerable extent. We are not certain whether prolonged fixing does harm to the image, but we do not get the full benefit of the bath if we under-fix. Two minutes appears to be the right time, hence in this respect it is also well up to the instructions.

A somewhat doubtful-looking feature of the process is the very short washing of five minutes after fixing. It does seem long enough, but we have not tested the point. We have, however, sometimes used permanganate as a eliminator without any apparent ill-effects, and this seems to us to be a rather desirable precaution, especially in the case of a plate bound with rubber surgical tape. If the eliminator is used, we think it advisable to remove this as soon as the plate is dry. This is readily done if a sharp knife is drawn round the film just inside the tape, the tape is tearing the latter off. The upper film around the margin comes off with the tape, leaving the lower film, if the plate is then varnished the cut edges of the upper film are well sealed.

As regards varnishing, the best varnish appears to be a solution of gold dissolved in amyl acetate. This is perfectly suitable to use, but it is advisable to beware of commercial gold varnishes containing alcohol or other volatile substances of the film. The plate is warmed so as to ensure perfect dryness, flooded over in the usual way with a rather thick varnish, and then dried on the whirler.

Drying only takes about two minutes, so the process is a quick one.

One of the minor troubles met with is the appearance of air-bells on the film in some of the various solutions. It is advisable to note that these should not be removed with the finger-tip, for it appears to be quite impossible to touch the wet, delicate Autochrome film without leaving a very obvious finger-print. Cotton-wool should be kept handy for dealing with air-bells, and we also strongly recommend its use for lightly wiping the film when washing after solution C. We are certainly of opinion that this adds to the cleanliness of the final result, and we think also that the same consideration of cleanliness renders it advisable to use solution C once only, not several times over, as stated in the instructions. We have experimented with a used solution on an ordinary negative, and in the result found black specks in the film that could not be removed at all readily. A clean image is most desirable in an Autochrome, and anything that appears likely to be detrimental to it is a thing to be avoided.

We now come to the important matter of exposure. Our experiments up to the present have, however, only proved that on this question of exposure there is much to learn. It does not appear that we can exactly regulate exposure by the same means that we employ in ordinary photography, but one or two points have been ascertained that are of some considerable importance.

In the first place, over-exposure gives a pinkish tint over the whites, while under-exposure gives a bluish tint or fog. The blue is very marked, with bad under-exposure, and it not only affects the whites, but changes yellows to greens, and yellow-greens to blue-greens. The best test for under-exposure is, perhaps, the change in the greens, while for over-exposure the pink on the whites is a good indicator to go by. With over-exposure very light tints tend to disappear, while strong tints become lighter. Slight under-exposure seems to strengthen the tints, while bad under-exposure weakens them and renders them dull and muddy. The effects produced, however, vary enormously with the light and time of day. In bright mid-day sunlight a very little over-exposure is serious, and "full" exposures must be avoided. It is then better to err slightly on the side of under-exposure, but later in the day and in the shade under-exposure is the most important thing to avoid. Very slight under-exposure will then ruin the plate, and very ample exposure is necessary. We are assuming here that a light-meter is used for ascertaining the "correct" exposure in accordance with methods previously described. From the facts stated it is, however, obvious that the meter cannot be giving exactly correct results as regards the Autochrome plate, and that in using it we must make allowances for the time of day and brilliancy of the light. Until this matter has been more carefully studied, we must then depend to some extent on empiric modifications of the exposure.

In the exhibition now open at these offices two plates showing the pink tint due to over-exposure and the blue due to under-exposure are on view. Many have found great difficulty in recognising the effects of wrong exposure, and a glance at these results will show the effects that should be looked for.

DEATH has recently taken place of Mr. George Churchill, of Wootton, a retired photographer, for some years resident in the village, who formerly carried on business at Eastbourne, where he was well known.

CHANGE OF ADDRESS.—Mr. W. T. Whitehead, so well known for his skill in all matters connected with advertising, draughtsmanship, and whose services are much in demand by those requiring really good and artistic work of such description, has removed

from the offices he has so long occupied in St. Bride Street, to more commodious premises at 10 and 11, Fetter Lane, E.C. It may be an item of convenience to Mr. Whitehead's numerous clientèle if we mention that his telephone number is now 8,261 Central.

KIDDERMINSTER AND DISTRICT PHOTOGRAPHIC SOCIETY.—Mr. H. W. West has been elected hon. secretary of the above society, and all future communications should be addressed to him at 12, Shrubbery Street, Kidderminster.

## COLOUR PHOTOGRAPHY BY THE WARNER-POWRIE SCREEN-PLATE PROCESS.

[The article on the Warner-Powrie process which appears below, from the pen of Mr. William Gamble, editor of the "Process Year-Book," is partly retrospective in its character, but none the less interesting in that respect in its account of the line-screen-plate process, which we have brought before our readers in the issues of the "B.J." for September 13, 20, and 27. Mr. Gamble is the only Englishman, and one of the very few individuals, who have been in touch with Mr. Powrie during the earlier period of his work. As his impressions were first gathered in Mr. Powrie's laboratory in Chicago, his estimation of the commercial possibility of the process should be all the more deserving of a hearing.—Eds. "B.J."]

### THE HISTORY OF THE WARNER-POWRIE PROCESS.

It is difficult to say whether it is a fortunate or unfortunate circumstance that the Warner-Powrie process of colour-photography is brought into the full light of publicity after the successful introduction of the Lumière "Autochrome" plate. Certainly it is unfortunate, because the great bulk of photographers who have not followed very closely the chronological order of the development of colour-photography will be apt to think that process is not novel, and is simply an outcome or modification of the Lumière process, whereas it actually ante-dates, and has possibly in some degree suggested, the latter. On the other hand, I think the occasion is fortunate, because the enthusiasm developed by the "Autochrome" plate makes it easy for the photographic public to understand and appreciate such a process as the Warner-Powrie one, when it might otherwise have seemed complex.

I doubt whether the majority of photographers would have understood and grasped the full significance of the Warner-Powrie process had it not been for the propaganda in connection with the "Autochrome" plate, and, therefore, instead of being a dangerous rival, the latter really paves the way for a plate or process which, in my opinion, yields more brilliant results, and is infinitely more practical and simple, while possessing a much wider application in the field of colour-photography.

#### Early Results of the Process.

It is now nearly two and a half years ago since I first met Mr. Powrie in the studio of the Barnes-Crosby Co., in Chicago. He was then carrying out some work in colour processes for this concern, which is the biggest photo-engraving firm in the United States, and disputes with Carl Hentschel here in London the claim to be the largest photo-engraving house in the world. Mr. Powrie showed me specimens of his process of screen-plate colour-photography so modestly that I might have thought they represented the fruits of a casual experiment, and arose from merely a little incident in his everyday work. But I had no sooner examined these results than I felt they portended an entire revolution in the methods of colour-photography current up to that time.

I could not believe my eyes at first. I was inclined to suspect some "fake." The result I held in my hand was so immeasurably superior to anything I had seen before in the way of colour transparencies that it seemed incredible that it could have been produced by the purely automatic action of photography. It was the portrait of a little girl in a garden, and it had all the glow of life and realism of nature, such as one sees on the ground-glass of the camera, and has so often longed to fix on the photographic plate.

#### A Puzzling Principle.

There could be no deception about it. The plate was not even sealed with a cover-glass, and the film surface looked just like an ordinary negative. I took out my pocket magnifier and asked permission to examine the plate, which was cordially granted. Then I saw the familiar striped screen of the Joly process—the alternate lines of red, green, and violet, but ever so much finer than I had ever seen them in the Joly results.

Still I was puzzled. The use of the parti-coloured screen taking and viewing I well understood, but here was a screen the photographic plate itself. It seemed incredible. Then Mr. Powrie explained that the screen was put on the glass before the coating of emulsion was applied, and that the exposure was made through the back. Well, that seemed feasible. But surely a negative image must give negative or anti-chromatic colours, and the plate I held in my hand was a positive, and showed true colours of the natural object represented. Yet, logically, of course, if it was possible to make a negative colour result, must be possible to make by some means a positive and complementary picture from it, and Mr. Powrie enlightened me by explaining that he was able to make a positive screen-plate reproduce the negative image. Nevertheless, it still bothered me, just as it has since troubled even so good an authority as Dr. Mees to understand how a coloured line-screen positive could be printed from a coloured line-screen negative. The old adage, "seeing is believing," was again exemplified.

#### Miss Warner's Part in the Process.

I afterwards had the pleasure of meeting Miss Warner, who has been associated with Mr. Powrie throughout the experiments which are now culminating so successfully. It is no secret that Miss Warner has furnished Mr. Powrie, an old friend of the family, with the necessary financial aid to carry out his invention. But Miss Warner has done more than this: she has taken a deep and untiring interest in the experiments connected with the process, and has assisted in the laboratory work. Mr. Powrie gratefully admits that his success is due to Miss Warner's ability to comprehend the utility and importance of his invention, and to her faith in its ultimate success. Her share in the invention, he declares, is more than a co-partnership interest, and that is why he insists on calling it the Florence Chromo-Process.

#### Mr. Powrie's Experience.

Mr. Powrie was originally working in the half-tone process when it was in its crude state, and had to be accomplished by means of plaster casts from swelled gelatine, over twenty years ago. He was engaged in a half-tone business in Milwaukee in 1892, and from thence he migrated to Chicago to join in partnership in a three-colour business in 1896. He was one of the first to apply the present-day three-colour process to lithography. About this time was formed the International Colour-Plate Company, which proceeded to work the MacDonough process. The company eventually failed after spending, it is estimated, nearly \$500,000 (£10,000) in its attempts to find a way to colour photography through the MacDonough-Joly methods. It should be remembered that this company attempted to introduce the process into England, opening an office in London, and showing some results at the Royal Photographic Society's Exhibition of 1900, without, however, arousing any enthusiasm.

MacDonough began a systematic study of colour, afterwards taking up photography, and finally endeavouring to carry out the idea put forth by Ducos Du Hauron some time about 1860 of using parti-coloured screens. He first tried to stipple a screen by spattering it with colour; and another of his numerous i-



as to powder the surface of a glass-plate with particles of coloured glass (a very good anticipation of the Lumière starch-grain process). Eventually he decided to confine his efforts to ruling screens, and had constructed for him most elaborate machinery.

MacDonough never got any further than using a separate ruling and viewing screen, as in the Joly process, except that he was able to rule finer screens. He did not live to see the outcome of his efforts.

### Expensive Litigation.

The reason the MacDonough process failed was that no cheap way of producing the colour-screen could be found. But Mr. Powrie developed his plan of doing it by means of bichromate printing from a ruled screen of black lines. He applied for a patent on it in 1901, which he only secured after expensive litigation. His application was contested by Ellsworth E. Flora, who was general superintendent of the International Colour Company's works, and who claimed priority for the invention. Flora claimed that he prepared his screen in the same way as Powrie, and submitted a specimen. But a microscope revealed an intervening streak of transparent gelatine, which his patent authorities maintained to be inconsistent with the alleged method of Flora. The Court, with a Solomon-like wisdom, gave Flora the opportunity of proving the claim by making a screen like Mr. Powrie's, but the challenge was not accepted. An appeal was taken, which resulted in the ruling of the Patent Commission being sustained. Then a further appeal was made in the Court of last resort in such cases, and the final decision fully sustained Mr. Powrie's claim. The cost of the litigation was paid by Miss Warner, and she worked indefatigably with her legal adviser to bring the matter to a successful issue, believing, as she did, so strongly in the justice of Mr. Powrie's claim. Since then the International Colour Company appears to have disappeared from the field.

### Making of the Screen-Plate.

For the past three years Mr. Powrie has been busy perfecting his ideas, first in Chicago and latterly in New York. He has evolved a systematic way of making the screen-plates by printing them on bichromated gelatine from a specially-ruled Levv screen. His method was described in last week's *BRITISH JOURNAL OF PHOTOGRAPHY*, so that I need not repeat the details. I would only say that it is just such a method as will strike any photo-engraver as being thoroughly practical. By adopting a ruling as light for printing, and providing a framework which holds the screen-plate always at the same distance from the light, and also by arranging the operations to follow in a regular mechanical sequence, there should not be any doubt about securing absolutely uniform results. The only difficulties I can conceive will be those due to dust and air-bubbles during the coating of the plate, but with proper precautions these can be avoided, just as they are in any dry-plate factory. I understand the coating of bichromated gelatine is put on with a whirler, as in photo-engraving, and although this is not such a mechanical way that used for coating plates with gelatine bromide emulsion, ensures, at all events, an extremely thin coating.

### An Optical Aid.

The method of placing the sensitised plate a second time in contact with the "mother-screen" without requiring elaborate means for registering it parallel to the first impressed set of lines seems to me a very pretty one. Mr. Powrie takes advantage of the appearance and disappearance of moiré patterns when one line system is superposed on another. If one rotates over a single-line or cross-line screen in contact with another, extraordinary patterns are obtained, and they disappear the moment the lines become exactly parallel to each other. Mr. Powrie makes his apparatus so that a slight turn

of a screw one way or another causes these patterns to vanish, and then he knows the screen and plate are in adjustment.

### Printing in the Third Line.

More ingenious still is the way he prints through the transparent space found between the first two lines to make the third line exactly fill the vacant space. It is altogether an extremely well-thought-out method of making the screen, and I hardly see how it can be improved on. It might be possible to impress the screen image on to the glass plate with a rubber stamp or roller, but the lines would undoubtedly be thicker at the edges, and would make an overlap of double thickness, forming almost opaque parts, and giving consequent streakiness to the negative.

By Mr. Powrie's method there is neither any retardation of the light by black separating lines, nor dilution with white light through the coloured lines being separated from each other. All the light must pass through the coloured lines, and by making an emulsion of suitable panchromatic quality, its sensitiveness agreeing with the absorptions of the coloured lines, great rapidity can be obtained, together with the utmost brilliancy of the colours.

### Simplicity of the Process.

If the Warner-Powrie process ended with the production of the negative, and it was converted by a reduction process into a positive—as no doubt it could be by a method analogous to that adopted by Lumière for the "Autochrome" plate—it would in itself be a great accomplishment, but the ability to print as many positives as may be desired merely by contact is of immensely greater importance. Mr. Powrie might well be content to rest there, and, perhaps, from a tactical commercial point of view, it would have been better to do so, keeping the further developments "up his sleeve," so to speak. I am afraid that the description of his method of preparing duplicates and printing on paper is apt to confuse the majority of photographers who are not inclined to go deeply into things, and to make them think his process is a complicated one beyond the capacity of the average man. Demonstration will soon dispel this, as the process is really very easy and requires the simplest apparatus.

This latter feature is one that distinguishes the process from many others that have been put forward. Practically, the photographer employs his usual apparatus and materials, except the special plates. He does not require any special camera or dark-slide, and he can extemporise with an ordinary printing-frame if he desires to adopt one of Mr. Powrie's methods of duplicating the results. Moreover, there is the choice of any system of lighting for the printing—either daylight or electric light (arc or incandescent) and gaslights. For development of the plates it is simply ordinary routine and ordinary chemicals. All this will appeal to the amateur who does not want too much trouble with the processes he takes up.

### Application to "Uto" Paper.

I am afraid many people will think Mr. Powrie's claims are so numerous that he is romancing, whereas he is only stating in sober fact what he has accomplished. In rendering the use of the Uto paper practical, he has done an excellent thing, because it promises to be one of the easiest and most direct ways of making colour prints on paper. Nothing has been said yet of the application of the screen-colour plates to stereoscopy and the lantern, in both of which directions Mr. Powrie has done good work.

### Usefulness for Three-colour Block-making.

Finally, what to me is the most interesting application is the duplicating (or, rather, should I say triplicating) his screen-plate negative to form a set of continuous tone-negatives for three-colour block-printing. I would refer my readers to the explanation of this process under the heading, "Three Negatives from One," on page 689 of *THE BRITISH JOURNAL OF PHOTOGRAPHY* (September 13), if they have not fully grasped this appli-

cation of the process. It will put a great power in the hands of the process block-maker if plates made in this way can be utilised. It will enable him to send a photographer with an ordinary camera to any picture gallery, or to take any view required in colours, and to quickly obtain a colour transparency which will not only be an effective guide for the etcher and the colour proofer, but will give him from the negative trichromatic a set of positives from which he has only to make half-tones in the customary way by transmitted light.

#### The Coming of the Coloured Newspaper.

Such an application of the Warner-Powrie process will be an immense stride forward in three-colour printing, and will bring

us nearer to the possibility, always hoped for, of obtaining coloured pictures of current scenes, at least, for our week illustrated papers, if not yet for our daily newspapers. The will also be an important field for the process in preparing blocks for coloured picture postcards, and in colour-lithography it can be a useful adjunct by reason of the facility with which the colour stones or plates can now be prepared from continuous tone negatives by such methods as the Frey process, which make use of a bitumen grain.

In my opinion, the advantages claimed for the Warner-Powrie process are by no means exaggerated, and it only needs the aid of the dry-plate maker to bring the process into everyday use.

WILLIAM GAMBLE.

## IDEAL PORTRAIT PHOTOGRAPHY AND PRACTICAL ART.

Up till quite recently photographic art-literature has been produced solely for the consumption of the amateur, who has fattened upon it, if he has not gained "tone," as the doctors say. The professional man has been pretty constantly beneath the notice of the critics and teachers. And this has gone on in spite of the fact that professionals here and there in London, Edinburgh, New York, and many other cities in the United States were capable of producing photographic portraits with as much skill and taste, to say nothing of correct likeness, as any of the amateurs who shrank aloof in the superiority of their own "artiness." This fact must signify that the mass of professionals were thought to be as swine before the pearls of art-teaching, and that the few who were admittedly artistic did not require any lessons.

At last, however, a teacher has arisen for the struggling shop-keeper. He is Otto Walter Beck, and is described as "Instructor in Pictorial Composition, Pratt Institute, and member of the Architectural League, New York." We welcome his book,\* not only on account of its intrinsic merit, but because it augurs a happier state of things. There is no reason, physical or moral, why the professional man should be considered dead to art. The fact that he has too often to truckle to the wishes of his customers only points to the awful difficulties that beset his path. The amateur who uses the camera for love and not for money knows nothing of these uphill tasks. His failures he destroys, and nobody knows how many. But it does not pay the man who has to support an establishment for photograph-taking and selling to destroy his work. He has to learn the great art of making a success every time, pleasing his sitter and working up his reputation in the same operation. In his own way he does admirably well, and he has developed rapidly. Many of the regrettable practices alluded to in the book are now things of the past in any well-conducted studio. Here and there he has wisely taken a hint from the leisured and successful amateur; and, more wisely still, he has so far had artistic discrimination enough to avoid the blatant faults which the wish to pose as an artist has led the amateur to commit.

It is too much to say that Mr. Beck's book, and even a hundred others like it, will endue the professional with artistic righteousness; but its recognition of him as a thinking being will, at any rate, help to break down the general impression that the mere professional is a hopeless mechanic, who has taken to his trade, not because he had any natural aptitude for portraiture, but because other things have failed, or because he started in it as an errand-boy.

When one considers the amount of experience acquired by

the professional over that gained in the intermittent leisure of the amateur, the thought occurs that the former might, if he would but let himself go, easily match the latter in the nicety of pictorial work, which are, after all, not opposed to good technique and execution. Mr. Beck's art principles, if read, marked, and digested, would place the two classes of workers at once upon an equal footing. For, after all, the amateur usually as destitute of art training as the veriest scavenger until he, on his part, has picked up some unconsidered trifles from books, lectures, other men's work, and so forth. The truth is quite obvious to any one who watches the career of a typical club man from the time of his "Brownie" boyhood to the day of his becoming a member of the R.P.S., or even "Link." Let the professional man, then, learn these things and use them for what they are worth. Let him absorb the principles of composition, of light and shade, and all the rest of it. Whether he adopts the Beck methods of salvation, background, or some other method, matters not a jot. All roads in this field of work lead to Rome. He will probably find Mr. Beck's well-distilled axioms and clearly-expressed advice can help him swiftly enough along the path—swiftly enough, at any rate, to catch up with the amateur who graduates in art largely by the example and precept of his brother amateur at the local society. In one respect the book is saner than many that have appeared upon the subject of pictorial photography. It does not set out with the assurance that photography is a fine art, and that the great mass of painting is but awful daubing to be despised by the man of superior taste. Mr. Beck, in his opening chapter, says:—

"Art in photography would be undeservedly exalted were it to maintain that the mental and emotional expenditure in production rivals, or even approaches, the output that is attendant upon picture painting."

This is healthy, at any rate, and the author has the wisdom to go to accredited works of art for confirmation and exposition of his own theories. He has a particularly simple and graphic way of forcing home his meaning, while the diagrams he uses are obvious in their truth to the most uninitiated mind.

Of course it is easy to theorise, and upon art subjects anybody and everybody can do it. Moreover, art principles are due to their inception much to the feeling of the individual. Results of beauty in works of art can be fitted with as many different theories to account for them as there are exponents. But that does not matter. All are right from their different points of view, and all are interesting and informing. Mr. Beck's are quite as adequate as any others, and they are not far-fetched. Their great value to those minds who have not yet approached the subject will be their power of inducing further cogitation.

\* "Art Principles in Portrait Photography." By Otto Walter Beck. London: B. T. Batsford. 12s. 6d.



independently. The following paragraph, for example, is enough of itself to make one good lesson:—

"Photographers have sincerely tried to understand beauty; but, failing to discover its relation to the pictorial, their efforts have been misdirected. They have usually sought a fine type of man or woman, relying for their efforts upon the character of the one and the grace and loveliness of the other. The truth that beauty is born of treatment cannot be grasped at once, nor is it easy to understand that the plainest sitter affords material as rich for pictorial beauty as does the physically perfect face or form."

Here, again, is a suggestive sentence:—

"The minute analysis of what constitutes the difference between 'light and dark' and 'light and shade' is necessary."

The author's chief method of arriving at artistic results may be briefly stated as follows:—He does not set up the whole *mise-en-scène*, accessories, background, and all; but he prefers to take a good photograph before a plain background, and then to bring into harmony all the parts of the figure, to enhance the force of the idea and of the pose, and generally to make the effect agreeable to the utmost by working upon the glass side

of the negative with two painting mediums, of which he gives recipes. To do this, of course, certain principles of art must have been thoroughly absorbed and assimilated by the photographic artist, and these principles are expounded in the former portions of the work. Reproductions of photographs worked in this way are given as examples.

Now, the captious and critical may look at these examples and demur as to the undoubted improvement over the plain and untouched prints. But this is not the point. The value of the work lies in the clear enunciation of principles which are certainly sound enough. Their judicious application is alone that by which pictures must stand or fall.

Quite recently we have had books upon art in photography, of which the empty and rambling theorising is little more than unproductive rhodomontade. Such a charge cannot be brought against the succinct manner and matter of this.

It is to be hoped that the book will be well circulated amongst those for whom it is written, for, if studied with care, it will certainly induce habits of thought, and send its readers with new and hungry eyes to the works of the best portraitists, ancient and modern, and that, after all, is the most profitable system of education in these matters.

F. C. TILNEY.

## EXPERIMENTS WITH CYANIN SENSITISERS.

[A Paper in the current issue of the "Photographische Korrespondenz."]

In the case of the majority of the modern dyes of the cyanin group, such as are placed at the present time upon the market for photographic purposes by a number of firms, the clearness with which the sensitised plates will work is dependent upon the greater or lesser speed with which the bathed plates can be dried. It is, therefore, an advantage to hasten the drying by any satisfactory means. For this purpose the use of alcoholic solution of the dyes has been recommended in many quarters; also, drying with moderately warm air; and a combination of these two methods has proved itself satisfactory. In the Imperial School of Graphic Arts, Vienna, an apparatus has been used for the rapid drying of the bathed plates by the aid of heat, and another apparatus on this model has been used by Von Hübl in his laboratory. In the case of plates sensitised in water-solutions of the dyes, drying takes place in this apparatus in one to two hours, but under similar conditions and with a dye solution composed half of water and half of alcohol the plates dry in fifteen minutes.

My experiments were made in the first place to ascertain what proportion of alcohol the bath may contain in order to obtain the greatest possible speed of drying without injury to the plates. The experiments embraced the well-known dye sensitiser, pinachrome, pinacyanol, dicyanine, and ethyl red, the first of which has been used for three-colour work, whilst pinacyanol and dicyanine have been frequently employed for spectro-photographic processes. It will be seen that when using a larger proportion of alcohol, even after a prolonged time of bathing, the effect of the above sensitisers was subdued. Plates of quite exceptional qualities as regards clear working were obtained, but the times of exposure had to be appreciably prolonged, and the minimum at the Fraunhofer line *b* was obtained more sharply.

It is therefore evident that when using sensitising baths containing ethyl alcohol the percentage of alcohol must not exceed

40 per cent. The most favourable action resulted from this proportion of alcohol in the case of pinacyanol, very clear plates being obtained with this bath.

Baths containing alcohol being particularly liable to give markings, my further experiments were directed towards employing methyl alcohol in place of ethyl alcohol in the preparation of the baths. The best results were obtained when the solutions contained 50 per cent. of methyl alcohol, and when this was done the result was better than those with ethyl alcohol only in the case of dicyanine.

In the case of ethyl red the methyl alcohol was not found advisable, the plates working far less clearly than with the ordinary alcoholic bath. Acetone in the sensitising baths acts similarly to alcohol, accelerating the drying of the plates and possessing the advantage over ethyl alcohol that markings do not take place, even with a very high percentage of acetone. As acetone is not much dearer than pure alcohol, and as the baths can be used repeatedly by the addition of further quantities of the dye stock solution, the use of a bath of this substance would appear to have something to recommend it. The most favourable results were obtained with 50 per cent. of acetone, which was found to work well with ethyl red, pinachrome, and dicyanine, and less favourably with pinacyanol, for which dye I can recommend a mixture of equal parts of alcohol and water. For the other three dyes, acetone with an equal part of water was found to give a very satisfactory bath.

Before closing the account of these experiments mention should be made of two isocyanin dyes placed upon the market by the well-known Bayer firm, of Elberfeld, under the names of "pericol" and "isocol," which were examined in a similar manner to the above and proved themselves amenable in both cases to the use of an acetone bath, whilst "isocol" works well with an ethyl alcohol bath.

E. VALENTA.

R.P.S.—The following lectures will be delivered at the New Gallery:—Saturday, October 5, "Wedgwood: His Life and Work," by Harry Barrard; Monday, October 7, "Ancient Egypt," by C. J. Marshall, A.R.I.B.A.; Thursday, October 10, "The Romance of Insect Life," by F. Martin Duncan, F.R.P.S.

NOTICE OF REMOVAL.—M. Gabriel Fermé writes that, owing to continued increase of business, he will remove to more commodious premises at 55, Boulevard de Strasbourg, Paris (Xe.), on October 15, after which date all communications should be addressed to him as above.

## THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

In concluding the review of the pictorial section of the R.P.S. Exhibition we cannot find space to refer to every photograph or even to every exhibitor, but the prospective visitor who runs his eye over the following notes will be able to pick out what is best in the pictorial work on the walls.

### THE PICTORIAL SECTION.

#### Seashore and Shipping Scenes.

This subject leads us to speak of "Beaching a Coble at Staithes" (No. 179), the excellent and spirited subject by C. E. Wanless. The action of the men, the motion of the sea, and the tossing of the boat could hardly be better done. It is a thoroughly satisfactory enlargement, wherein the tone values appeared not to have suffered a whit. "Land's End" (No. 113) and "Sea Mists" (No. 143) are two fine coast scenes by W. T. Greatbatch. The rocky shores have an undoubted appearance of that desolate and hopeless look which such scenes convey to romantic minds. There is good composition and a sense of motion in G. L. A. Blair's "Dutch Barge" (No. 305) and a fine arrangement of material in "Liverpool Docks" (No. 18), by H. J. Elliott, who has produced a delightfully silvery print. In "Under the Pier" (No. 26) Ellis Kelsey has given a striking effect of sunlight gleaming amongst the heavy structures and in the puddles which belong to the lower storeys of piers. "Marine" (No. 6), by T. Steidel, "The Quay, Ostend" (No. 10), by Oscar Hardee, and "Waiting for a Breeze," (No. 11), by W. A. I. Hensler, are three good sea-pieces. In the first the tones are well caught, particularly those of the atmosphere and the smoke from a funnel, whilst the sun and its reflection upon the water are convincing in their force. The other two are fine too, though of more ordinary treatment, Mr. Hensler's motionless vessels helping in a nice effect of mist and light. Of the sea-pieces bearing the accredited name of F. J. Mortimer, we prefer "Running Home" (No. 70) and "A Freshing Breeze" (No. 133). The first has fine movement, and the other almost deceives the eye by its irresistible impression of the swing of its single wave. Bertram C. Wickison's "On the Tide" (No. 208) suffers only from an unnecessary heaviness in the sky. Straightforward in manner and very pleasing in its general effect "The Thames at Limehouse" (No. 161) with barges and tugs is highly creditable to its author, Walter Selfe. And before we leave the water subjects we should mention the extremely nice "Winter on the River Lea" (No. 63), by W. Rawlings, adding merely that we do not quite approve of the general lightening of the right side of the print.

#### Streets, Towns, and Buildings.

The run upon Bruges has not abated. It was going strong last year, and this year it is as noticeable. The bridge is the favourite; the belfry seems to have had its day. Albert Valcke's "Old Bridge" (No. 29) is very pretty, and we may safely say as much of his "Béguinage de Bruges, Matin d'Hiver" (98). The bridge is supported by more of the houses in D. Feledi's "Motive from Bruges" (No. 111). The "Bruges" (No. 132) of J. H. Gear is nice in selection; but perhaps a little too obviously forced in effect. W. Davenport's "Bruges" (No. 308) shows us the bridge again, exactly as we had it once or twice last year. Mr. Gear grants us a little variety in his other city view, which is of "Burgos" (No. 140), a first-rate subject with a peculiarly softened treatment. C. F. Stuart's "Auld Reekie" (50) is so much "controlled" as to give undue prominence, we think, to the merely reekie. His "Shambles, York" (No. 92), with its wet pavement, is capital, if its strong contrasts do not mar it. Near together hang Arthur Staddon's "Chioggia" (No. 64), and B. C. Wickison's "Corbridge" (No. 66), both prints showing great feeling. The former sends also "Venice" (No. 75), and a better thing called "Early Morning on the Rialto" (No. 238), excellently carried through but for a little heavy smudginess in the sky. Mr. Wickison's oil-print of "Marylebone Road" (No. 294), with the Horse Guard wringing down the street, has an effect almost too brilliant in its contrast—the danger of this process.

The works of A. H. Blake are always executed with taste and feeling; but it seems to us that his subjects are, in themselves, sometimes rather poor. Perhaps this goes to their pictorial credit. "Grey and White" (No. 93) has this peculiarity we think. "The Gondola Pool" (No. 114) which at the Salon we took to be in Venice,

appears to be at Earl's Court. There, again, is a feather in Mr. Blake's cap. We need not dwell upon his other duplicates. "Reflections" (No. 281) is certainly good; but who but Mr. Blake would think of such a selection? We should like Lette-Verein's view of the "Wartburg" (No. 104) were it not in such violent contrasts. His "Kloster Malchow" (No. 104), however, is of fine and simple effect, and occupies the place of honour on the north wall. The play of light in it is well studied, and its size and dignified appearance are of the utmost value in the appearance of the gallery. Aubrey Harris's "Ludgate Circus" (No. 109) is a little tame, as, indeed, that place sometimes is. "Dingy London" (No. 116) approaches nearer to the fine broad effects of London, though we dislike the sudden patch of light in the sky. There is something strong and irresistible about the two sunny gables in A. Elliott's "De Dammetje-Paarl, Cape Colony" (No. 120), and an arresting effect in the rainy vista of Tower Bridge, which O. Hardee calls "A London Portal" (No. 121). The selection is quite admirable, emphasising the immensity of the structure. A queer collection of picturesque gables is given in "Aus dem Bergischen Land" (No. 211), by E. Quedenfeldt, and a black one in "Der schwarze Giebel" (No. 213), by O. Erhardt, a print of fine values. But the best work of Dr. Quedenfeldt is undoubtedly his "Hühner-Hof" (No. 303), a yard where a few fowls are picking their meal in the sunshine, which is given with remarkable truth and quality. This is entirely an "artist's picture." That J. Steidel's "Tyroler Burg" (No. 270) is not exactly a taking thing is due to some unfortunate choice in the colour of the print; for the subject itself is noble and romantic enough, and the effect of sunlight glaring upon the roofs is entirely in accordance with natural effect. "Eifeldorffbrücke" (No. 276) is a capital village scene by O. Scharf, just a trifle hard. If the red colour is a little unsuitable, and the composition not over good, yet the sun-flickerings through the trees are enough to make a fine thing of S. Jaffé's large print, which the catalogue rather doubtfully gives as "Gracht im Haag" (No. 294). (What is this "Gracht," which is in The Hague?)

#### Landscape.

Snow seems to be coming thicker and faster among the landscapes, and most of the pieces have tree-trunks and sunshine as accompaniment. One of the nicest of this order is Marie Ruge's "Im Grünewald" (No. 288), with its excellent effect of daylight, and not the least good is that of Paul Mühsam, "Schnee" (No. 16), with its fir trees and its strong side light from the sun. W. H. Evans's "Snow Bound" (No. 95) has a good sky and true tones. Curious and simple, but very good too, is L. D. Sweet's "Winter in the Country" (No. 102), and another version of the favourite subject is "Winter Sunshine" (No. 110), by J. J. Rutherford. The President's "Winter Landscape" (No. 123) is hard to match among the best of them. It gives the snow-covered margin of a pool, with a distance of dark trees and farm buildings, and is very rich and varied in its tones. Dr. C. Thurstan Holland sends his fine and impressive "Head of the Valpelline" (No. 226), a convincing and vigorous Alpine view. Again sunlight on the snow appears as the subject of "Wintersonne" (No. 295), perfectly good and true, by J. Steidel, whilst Dr. Kühfahl's "Winter in Riesengebirge" (No. 309) shows in an expansive and expressive scene how the snow, drifting against the stunted firs, makes white hummocks of them.

Less forbidding subjects are A. H. Piddington's exquisite little "River in its Childhood," (No. 28), a shaded stream with children upon its banks; "Crépuscule," by F. de Thierry; another "Crépuscule" (No. 51), by L. Missonne; and G. Bowley's "Dying Day" (No. 53), a little thing of choice quality and much romance.

"Die Nonnen" (No. 41) belongs to that new phase of landscape art which is best described as Modern German, the characteristics of which are great breadth of treatment, a certain wildness or baldness in the subject matter, and a strong romantic feeling. Paul Mühsam's "Nuns" is touched with all this. The women are on the edge of



ground against the sky, across which cut the stems of large in the foreground. Everything but the sky is in almost flat ouette. Of the same school really belongs "Sommerlandschaft" (No. 118), by A. Meyer, although it is neither dark nor flat: but its simple lines and impressive breadth give it the same look of originality. The clouds are curious in this. In O. Scharf's "Eichen" (No. 173) little more than the stems are shown, the work by its silent strength belonging to the same school still, as also does Dr. Arning's "Elegie" (No. 265), although this loses some exaltedness of reason of the feeble sky and by the introduction of two ladies in a day dress, the right-hand one of which had much better have been omitted in the interests of the composition. How much finer "Morgen" (No. 275) is, with its carts in the sun-laden fog of a wet. Here faithfulness to nature gives him the poetry that his "Elegie" lacks. The dignified "Cypressen" (No. 131) of Dr. Arning, with a peasant woman and children figure importantly, is not only pleasant in its hard lights upon a dark effect, though it is doubt true to strong sunshine among dark objects and in air so rare. The English view by R. G. Lynam, called "When Shadows lengthen" (No. 124), has a similarity in subject, but freedom from drawback.

In the "Wilderness" (No. 144), by Arthur Elliott, is at the opposite pole to the modern German style. It is not "treated," but, on the contrary, it contents itself with being realistic. The result is that it appeals to the same sensibilities in us, though by a different method. There are few things in the gallery more realistic and yet so impressive and poetic. It is a deep ravine, the sides of which are covered with woods reaching down to a still lake below. From the zenith come the clear rays of the sun, striking only upon the surface of things and showing all else black from lack of direct illumination. Observers of nature will be able to testify to the truth of the effect.

We welcome J. C. Warburg's "Bastide Among the Olives" (No. 100) as an ambitious attempt on his part, which will certainly enhance his reputation. Its picturesque stems have much in common with the modern German feeling for such pictorial items. We think the print would have gained had the house been in darker tone. English is Rev. H. W. Dick's highly pleasing "River at Rest" (No. 90), although its evening effect seems, judging by the smothered light, to be due more to extraneous darkening than to an exposure made at late evening; but opinion is risky on such points. In style of appearance "A Sunny Glade" (No. 147) is not unlike some of

the popular architectural subjects that Mr. Kimber gives us. He has a little over-balanced his sun with shade and falsified his title, which might better have been "A Shady Glade." We confess to a feeling of getting used to the sweet conventionalities of C. F. Stuart. We still admire them, and admit all the beauties of his very charming "Chill October" (No. 196). But the strong family likeness it bears to its forerunners induces us to think that Mr. Stuart may be too rapidly developing a mannerism in his work. Mr. Bertram Park's delightful little stream (No. 202), shaded by willows, is quite unsophisticated, and its shady effect, wherein one can almost feel the green light that filters through the trees, exalts it into the highest rank of landscape. F. de Thierry's "Nuit d'Été" (No. 252) is a tiny and romantic print that reminds of an early Demachy. About the landscapes of B. Ward-Thomson we have mixed feelings. His love of the subjects he portrays is evident, but he is perhaps too jealous of losing a particle here and there. As a consequence he rather damages them by over-hardness at the edges of the hills. On this account we much prefer "Patterdale" (No. 258) to "The Cumberland Hills" (No. 219). The former has some charming passages. In "Ein Sommernachmittag" (No. 264) A. Erdmann gives us with startling truth the sunny aspect of a summer's afternoon; tone values could hardly of themselves be made to express more. Unfortunately the clouds in the sky are so hard as to look almost like Alpine peaks. "Grünwaldsee" (246), another of Miss Ruge's works, very cleverly deals with a rushy pool at the edge of which grow birches. She has imbued the whole with nice poetic feeling. "A l'Eau" (No. 239) is again more realistic, but excellently done by M. Missonne, who has quite conveyed the beauty of the effect of the cattle in sunlight and the perspective of their shadows.

In John M. Whitehead we have another clever worker who seems likely to drop into mere mannerism. All the nice things he shows this year at either gallery are as like as peas to each other. His "Moonrise" (No. 285) has great feeling, and his "Silent Moor" (No. 119) romance. We hope he will go back occasionally to his excellent still-life work. Dr. Evershed's "Wayfarers" (No. 304) are a flock of geese, represented, by the oil-process apparently, with much skill and liveliness. Perhaps the background has been allowed too much nebulousity. This and James Shaw's "The Captain's Horse" (No. 138), a clever result from a Rothenburg pageant snapshot, are the only pictures in the exhibition that can be at a pinch classified as animal subjects. Animals and architecture are a little "slumped" this year.

## THE TECHNICAL SECTION.

It can hardly be said that the technical section is satisfactory. Probably it is inevitable that one should have this year so many bits of the same type as last year. Certainly, with the exception of the Martian photographs and the Autochromes, there is nothing particularly striking. The exhibits naturally fall into two groups, the largest of which is that devoted to natural history subjects. We will, however, as befits the present interest in colour processes, treat first of the colour work.

The Judges and Selection Committee in this section were Messrs. J. Bolas and Chapman Jones, Dr. C. E. Kenneth Mees, Mr. E. J. Shepherd, Sir Joseph Swan, Mr. E. J. Wall, and Major-General Waterhouse.

### Colour Work and Autochromes.

It is unfortunate that the examples of colour photography should be scattered in different parts of the exhibition—the paper prints at the extreme end of the balcony and the examples by the Sanger-Shepherd process among the lantern slides in the north room. A comparison of the different classes of colour work, which could only have been made possible, thus involves journeying from one of the New Galleries to the other, and even then the totally different illumination of the Autochrome and Sanger-Shepherd results make it impossible to form an idea of their relative brilliancy. Among the prints Mr. Comley's exhibit is easily first, one or two of most excellent. Mr. Gill also sends one or two examples of the first-rate work.

Coming to the Autochromes, there is no doubt that the collection includes some remarkably successful work, though about one-third of the transparencies are so placed in relation to the reflecting screen, or are not in relation to it, that they cannot, or could not when seen a day or two ago, be properly seen by persons of

average height. The reflectors are not carried out far enough, and lights on the other side of the fountain court are visible through the transparencies. The receiving chamber, in which spectators observe the pictures, receives absolutely no light, except that coming through the transparencies, so that the gain in brilliancy of the Autochromes is obtained at the sacrifice of convenience in finding the number on each. A prominent though occasional writer on photographic art was overheard to remark: "The Autochromes are fine, but you want a lighthouse to show them." The R.P.S. has done its very best to enhance the qualities of the new transparencies and shirked the comparison of them with other processes. Its obvious duty as an educational body should have been to render such comparison as full and as convenient as possible. Yet the attitude of the Society, as further evidenced by a poster which it displays on the doorway of the New Gallery—and, for all we know, elsewhere—seems to be that of a boomster on the platform of a booth inviting the great British public to come in and see a side-show of unrivalled interest. Not a particularly dignified attitude for the Royal Photographic Society.

The best of the Autochromes are, we think, the portraits of the President of the R.P.S. and Mr. John Sterry, by R. Child Bayley; and a study of some books. Mr. McIntosh's spectra are very interesting, but quite wrong. If this be the fault of the plates—we are not prepared to say it is—it shows the limits of their capabilities. Particularly striking is the want of true red-sensitiveness (the red does not appear to extend beyond about  $\lambda$  6,500), the entire absence of pure yellow, and the lack of blue. Certainly, in the arc spectra, we think that in some cases the failure is due to errors in exposure.

Two specimen plates and a yellow filter are shown by MM. Lumière, and the plate deservedly receives a medal. The exhibits as a

whole include some really beautiful examples of colour rendering, the truth of which is, however, not invariably apparent; whilst not a few examples are obviously false in their colouring. One or two stereo-Autochromes available for inspection outside the gallery show very brilliant colouring, but demonstrate also the distressing granular and pattern effects which result when a stereoscopic transparency is examined.

### Natural History Photographs.

Most prominent in the technical section are Mr. Douglas English's exhibits, because of the very striking and successful attempt to show the animal or insect in as far as possible facsimile as regards colour. They are not three-colour prints, but have been merely locally treated, in the case of two, at any rate, with mercury and ammonia. With what success this can be done is easily seen by comparing the actual skin of the mouse with the print, the skin being in a pouch at the back of the frame, No. 318. The two insectivorous studies by the same worker are so successful that doubtless we shall have imitators next year.

Possibly the most interesting, at any rate from the ornithologist's point of view, are Nos. 330 and 333, the former by Miss E. L. Turner, showing the decidedly rare Reeve, and the latter the Bearded Tit, by Mr. W. Farren.

Mr. G. A. Booth's heron studies are also good, but he is run very close by A. Taylor, whose print, No. 345, has a fine decorative effect. Other exhibits of this class do not call for much particular notice. There is, as we have already pointed out, a great similarity to prints in last year's show.

### Nature Studies.

We may thus comprehensively class all the creeping and other beasties, such as Mr. Martin Duncan's "Larvæ of Privet Hawk Moth," his Crab, and other studies, which display the excellence of technique for which he is famous. Mr. Douglas English's life history of the mud wasp is of considerable educational value. Mrs. Veley is happy in her studies of the restless Lemur, and the fair visitors will naturally admire Mrs. H. C. Sutherland's "Persian Kittens."

As to plant studies, Mr. Daniel Finlayson is easily first with his three frames, which are very educational and a good example of the application of photography to a fruitful field. The same may also be said of Mr. A. W. Dennis's frame, which shows a year's life of the common walnut tree. Of the other flower studies one can only say that they are just passable, there is nothing of striking merit.

## PROFESSIONAL AND TRADE EXHIBITS AT THE R.P.S.

Pressure on our columns this week compels us reluctantly to hold over a notice of this section of the exhibition until next week.

### THE CHOICE OF LENSES.

(From the new Goetz Catalogue.)

THE following hints on the choice of lenses may be found useful:—

The single combinations of the "Dagor," when stopped down, form admirable long-focus lenses. The value of the stop is one-half of that indicated by the diaphragm, and the intensity one-fourth, i.e., if the single combination is employed and the diaphragm is stopped to  $f/16$ , the stop in use is  $f/32$ , requiring four times the exposure of the former.

Under less favourable conditions of light the "Celor" may be used with advantage, as their rapidity is double that of the "Dagor." Hence they are eminently suitable for indoor portraiture, for snapshots, and for telephotography.

The photographer is cautioned against using the full aperture ( $f/4.8$ ) for views requiring great depth of focus, such as street scenes, landscapes, etc.

"Depth of focus," so little understood, is the capability of a lens to render objects at various distances from the camera with sufficient sharpness. This is governed by optical laws which are unchangeable, and is not the attribute of any special form of lens. The more rapid the objective, i.e., the larger the aperture in proportion to length of focus, the less is the depth of definition; the slower the lens the greater is the depth. In lenses of the same rapidity, but of varying foci, the greatest depth will be given by the shortest focus.

With such a large aperture as  $f/4.8$  the depth of focus is very

### Photomicrographs and Radiographs.

Probably the most interesting photomicrographs are those Messrs. Lynch, of "the human hair, with its sebaceous glands," which illustrate the absolute falsity of many advertisements appearing in the public Press.

Particular notice should be taken of Mr. Martin-Duncan's photomicrographs of living bacteria. The results are totally different from those one is accustomed to see of bacteria killed with acids or other reagents. When examined with a glass one can actually see the structure of these minute organisms.

### Spectra, Cloud, and Astronomical Work.

Particularly interesting are Mr. K. J. Tarrant's artificial light studies. These should go far to help us to learn more of the nature of real lightning. Professor Konen's spectra of iron cyanogen are superb in definition, but the prints are far surpassed by his transparencies shown under the lantern stand. Sir V. Huggin's spectrum of the glow of radium is excellent. The cloud studies by J. Howden Willie are good.

One of the only two medals awarded goes to Professors Loew and Lampland for the Martian photographs, and these should be very carefully examined, not only on account of the famous canals but also for the very clear view of the polar cap. Dr. Vaughan Cornish's studies of the Kingston earthquake show in a very striking manner the effects of this awful visitation, but the notes appended in the catalogue are rather meagre.

There are many other good things shown, but one of the most interesting is a specimen of the new "bromoil" process by C. V. borne Piper, which should bid fair to become a popular and effective method of pigment printing. The colour reproductions by H. Staengel are worth noting.

### Lantern Slides and Transparencies.

There is but a meagre show of these, but they are most of the highest merit, and we should give the palm to a portrait by Sanger-Shepherd three-colour process, by A. W. Everest. In this section one must not omit to note also Professor Lowell's transparencies of Mars, and Dr. Homolka's set, showing the use of indoxyl and thioindoxyl, full particulars of which have appeared in the "B.J.P." The architectural work of Messrs. Bull and Plomer Young is excellent, as are also Mr. Ellis Kelsey's slides.

Those interested in spectroscopic work should make a point of seeing Mr. F. E. Ives' grating replicas.

limited, and at this intensity some part or other of a general view must of necessity be blurred, unless it can be taken from a considerable elevation so as to cut off a great extent of foreground. The legitimate use of such a lens as the "Celor" at full aperture is therefore, for subjects that require little depth, i.e., where all essential objects in the field of view are approximately the same distance from the camera.

It must not be forgotten, however, that unlimited depth of focus may be introduced by stopping down the lens sufficiently, and that the "Celor" and the "Dagor" have precisely the same depth of focus at the same intensity.

The  $f/8$  aperture is a valuable adjunct to hold in reserve for suitable subjects, and the photographer has only himself to blame for failure if he uses this indiscriminately.

The foci recommended for the various sizes of plates in the following lists are those which will be found most generally useful when one lens only is used for all purposes. For interiors and other wide-angle views, a shorter focus must be selected (unless the same lens is used with a larger camera); but in some cases it may be advisable to employ a longer focus, when the main object is to obtain as natural a perspective as possible.

All lenses transmit the greatest intensity of light to the centre of the negative. Over an angle of 60 deg. there is scarcely any perceptible difference, but as we approach 90 deg. the inequality becomes more apparent. This defect can only be remedied by using a smaller stop.



## DEATH OF MR. WILLIAM HARDY KENT.

MR. WILLIAM HARDY KENT, who was regarded as the oldest photographer in the world, died at Eastbourne on Sunday last, aged eighty-eight. An American by birth, he spent his early years in New Bedford, Massachusetts. Five or seven years after Daguerre's invention, Mr. Kent learned the art of photography, and in 1848 he opened his first studio in New York.

So great was his success that after realising a small fortune he came to England in 1854 and opened three London studios—one in Oxford Street, one in Regent Street, and the other at Knightsbridge. He had an intimate knowledge of the improvements successively introduced into photography, but for a time devoted his attention to a manufacturing business. A change in fashion induced him to return to his first occupation, and in 1878 he opened a business in Eastbourne. At the time of his death he was also interested in businesses at Brighton, Hastings, Newcastle, and Harrogate. He retained his mental faculties to the last, and only recently manifested a deep interest in a new method of photographic portraiture.

Mr. Kent was a constant traveller to the States, having crossed twenty-nine times, the last occasion being at age eighty-five, when, quite alone, he made a tour of four months' duration. He has not controlled the business of Kent and Lacey, at Eastbourne, for the past seven or eight years, though he took a keen interest in all its affairs and every new development.

## Photo-Mechanical Notes.

## Made-ready Printing Blocks.

A SPECIFICATION has been published of a patent of William Bell and Harry Bryce Bell, of Cowles Road, Mosman, New South Wales, in which the claim is for producing an embossed etched plate for half-tone printing, by printing the face of the plate, supporting the back of the plate below the "blacks," pressing the plate to sink the surface in the "high-lights," and finally etching the embossed face. The specification, No. 27,529, 1906, thus describes the process:—

The production of the printing block entails the treatment, in one instance, of both surfaces of the plate; in another, of one surface only of two metal plates; and in a third, the treatment of one metal plate and one gelatine sheet. That surface, which is ultimately used as the printing surface, is here referred to as the "face," and the other, which is not used for printing, is referred to as the "back."

In referring to the operation in which both surfaces of the plate are treated, a photographic negative of the object to be reproduced is taken in the ordinary way through the usual lined, Levy, Metzograph, or other similar screen. The negative is then stripped on to a thin celluloid film, and allowed to dry thereon. The metal plate—preferably copper or zinc—which is to be used for the production of the block, is sensitised upon its "back" with any of the well-known sensitising solutions, preferably fish glue and bichromate of potash or ammonia, and a print is then taken upon it from the celluloid mounted filament by placing the celluloid "face" thereof in contact with the sensitised surface of the metal in a printing frame, and exposing it to light in the usual way. The "back" of the plate is then developed—namely, washed in water, soaked in an aniline dye, the soluble glue washed out, and the print upon it "burnt in." The plate is then placed in a mordant or acid bath, and the "back" thereof deeply etched for a period of time sufficient to secure the required weakening of the plate upon those portions representing the "high-lights" and "half-tones," the face meanwhile being protected by being coated with an acid resisting substance or material. In this part of the operation very little skill is required to effect the correct etching. The plate is withdrawn from the bath when the required depth has been obtained. The "face" is sensitised, and a print taken upon it from the same celluloid backed negative. In this case, however, the collodion film on the celluloid mounting is placed in contact with the "face" of the plate. Care must be exercised in the placing of the film on the "face," so as to ensure the accurately registering or coinciding of the prints on the back and front of the plate. The "face" is then developed, the print "burnt in," and the plate, whilst still hot, placed upon a hard metal slab

in a pressure press, with its deeply etched surface or "back" resting upon the slab, and a sheet of lead placed upon its upper surface or "face." Sufficient pressure is then applied through the lead sheet to cause the thinned or weakened portions to be forced downward to a degree corresponding to the amount of the weakening the plate had been subjected to at these parts; thus those portions which represent the "high-lights" or "whites," and which have been most deeply etched, are forced downward the most, whereas those representing the "half" or "middle" tones do not sink so far; whilst those portions representing the darker shades or blacks do not compress. Should the plate be allowed to cool after the "burning-in" process is completed it may be re-heated to soften it prior to embossing it in the press. Should it be found inconvenient, however, to submit the plate to pressure whilst hot, this operation may be carried out when it has cooled, in which case a sheet of gutta-percha, leather, or lead may be used to effect compression in the pressure press. Greater pressure, however, is required in this case. The "face" or printing surface of the plate when removed from the press presents an embossed surface. It is then subjected to the action of a mordant or acid bath to etch the "face," the "back" meanwhile being protected by an acid resist. Owing to its embossed surface the plate requires comparatively little fine etching to produce a clean, sharp printing surface, thus the time at present employed to effect the fine etching of a "half-tone" plate is reduced.

The plate is now ready for "proving," and is mounted in the usual manner.

## PHOTO-MECHANICAL PATENTS.

The following patents have been applied for:—

SCREENS.—No. 18,957. Improvements in ruled screens for process engraving. John J. Griffin and Sons, Ltd., and William Joseph Holt, 322, High Holborn, London.

GUIDING APPARATUS.—No. 19,408. Arrangement for guiding off the printing material in photographic printing apparatus, with apron and rotatory printing cylinder. Hans Viggo Siim, 65, Chancery Lane, London.

## New Materials.

The Page-Croft Tinted Gaslight Papers. Made by the Page-Croft Paper Company, Cooksey Road, Birmingham.

It was not very long ago that we were able to review favourably the tinted P.O.P. papers and postcards which had been placed on the market by Mr. Page-Croft's firm. On their now sending us some samples of gaslight paper, coated on some similarly tinted supports, we are glad to find that the makers have exercised a similar reserve in using a paper stock of not too pronounced a tint. The papers are obtainable of tints—grey, pale green, pale blue, and pale pink, and the effects obtainable by the ordinary procedure of gaslight printing should be very acceptable to those who are looking for a variation from the usual results. In all ordinary respects the papers are treated like any other gaslight prints, and are amenable to the sepia toning by the sulphide process, which renders possible a further variation in the contrast of tones. We are glad to draw attention to this further departure on the part of Mr. Page-Croft's firm, particularly as there are but few tinted papers of this description upon the market. The tinted gaslight papers are issued at the ordinary prices.

TWO ARTICLES which should be read with special interest in the current issue of the "Strand Magazine" are "Up-to-date Telephotography," by Captain Owen Wheeler, who also recorded his experiments in our issue of September 27, and "Beauty and the Camera," an article with numerous illustrations, which should appeal to all portrait photographers.

PHOTO-APPARATUS IN BELGIUM.—The "Board of Trade Journal" reports that folding and pocket cameras are popular in Belgium, and are in considerable demand. All accessories, such as plates, films, printing papers, etc., of British make have a good sale, but Continental sizes predominate, and it is of little use for British firms to endeavour to sell the sizes used in the United Kingdom.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received between September 16 and September 21:—

**PRINTING PAPERS.**—No. 20,641. Adhesive coating for photographic printing papers; also for single or double transfer paper, or final support, for use in conjunction with carbon printing or other photographic printing processes. George Wilson Morgan, 393, Union Street, Aberdeen.

**LENS' HOODS.**—No. 20,706. Improvements in hoods for photographic lenses. Owen Wheeler, "Strathmore," Prince's Road, Weybridge, Surrey.

**EMULSION.**—No. 20,740. Improved photographic emulsion for pigment printing. Jacques Theodore Gateau, 2, Boulevard Beaumarchais, Paris.

**ENLARGING.**—No. 20,940. Improvements relating to photographic copying, enlarging, and like apparatus. Alchanan Cohen, 53, Chancery Lane, London.

**CAMERAS.**—No. 20,989. Improvements in folding cameras. Cranley Lancelot Perry, 73, Cheapside, London, for Emil Wünsche Aktienges., für Photographische Industrie, Germany.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**GLAZING PRINTS.**—No. 38,811. 1906. The invention consists in the burnishing or glazing of photographic prints by a machine, which consists of a travelling plate or table, and an adjustable pressure roller adapted to revolve as the plate travels; this roller is preferably hollow, and may be heated by a Bunsen gas burner or other suitable means. When the photograph is treated by a heated roller it is placed face upwards on the plate or table, and when treated cold it is placed face down on the plate or table. The plate or table is caused to travel under the pressure roller by any suitable means, and takes the print with it, and the print is burnished or glazed, as the case may be, by the act of passing to and fro under the pressure roller, the pressure of the roller being adjusted to suit either unmounted or mounted photographic prints. James Thomas Eltringham, 23, Portsmouth Road, Worlston, Southampton.

**VIGNETTING BOX.**—No. 25,880. 1906. The apparatus comprises a box *a*, open at one of its extremities *b*, to permit of inserting a printing frame *c*, which is shown in broken lines, whilst it is closed at its other extremity by a frame *d*, carrying two ground glasses *e* and a dark shutter *f*, capable of sliding between these two glasses.

Two screen or mask holders are fitted in the box *a*, one of them, *g*, being fixed to a small plate *h*, which rests on the bottom *i* of the box, and the other *k*, being fixed to a small plate *l*, likewise resting on the bottom *i*; the two plates, *h* and *l*, are each of about the same width as half the width of the bottom *i* of the box, and in sliding on this bottom enable the screen holders *g* and *k* to be advanced or withdrawn relatively to the ground glasses *e*; a flat spring *m* fixed to the side *n* of the box *a* constantly bears against one side of the plate *l*, a set screw *o*, which is screwed into the side *n* enabling the two plates *l* and *h* to be fixed when the screen holders are arranged at the appropriate place.

The screen holders are each formed of a plate *g* *k*, open at *p*, and to the sides of which there are pivoted metal plates *q* *r*, forming springs, and intended to hold against the plates the screens, which are generally of black paper, their aperture being of an appropriate form for obtaining the desired vignetting of the prints. The strips *q* pivoted at *s* to the plate *k* may be engaged beneath catches *t* screwed on to the plate, and the strips *r* pivoted at *u* on the plate *g* may be engaged beneath catches *v* screwed to this plate.

The vignetter may be used in the following manner:—

The front of the apparatus carrying the ground glass *e* is placed in front of a lantern, not shown in the drawing, containing a source of artificial light, such, for example, as a electric lamp,

a gas burner, or the like, in such a manner that no ray of actinic light issues from the lantern or from the joint between this lantern and the front of the vignetter.

The dark shutter *f* being opened, the negative plate arranged in the printing frame *c* is focussed by moving forward or back-

Fig. 1.

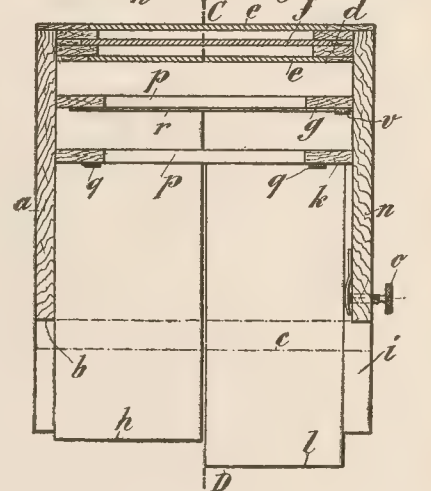
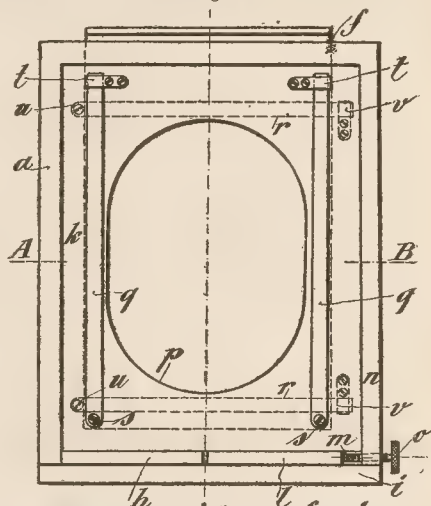


Fig. 2.

ward, or to a greater or less extent, one or other, or both the two plates *h* and *l* solid with the screen holders *g* and *k*, until the desired vignetting effect is observed upon the plate. The shutter *f* is then closed, the sensitive paper is placed upon the negative plate, the plate-holder *c* of which is arranged as represented in Fig. 2.

The plate is then exposed in contact with the sensitive paper by opening the shutter *f* for the desired length of time, the shutter is closed, and the operation is repeated as many times as it is desired to obtain positive prints. Philémon Makeeff, 26, Rue de la France, Le Locle, Switzerland.

### New Trade Names.

**ERROR.**—No. 293,546. Photographic developers. The Chemische Fabrik auf Actien (vorm. E. Schering), 170, Müllerstrasse, Berlin, manufacturers. June 6, 1907.



OTOPHANE.—No. 295,381. Printed matter produced by the colotype process. Alfred Henry Cooper, trading as the Photophane Company, Cranfield Works, Harefield Mews, Brockley, Kent, colotype printer. August 9, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### How to Overcome Frilling of Autochrome Plates.

The "Amateur Photographer," in its issue of Tuesday last, publishes among its weekly notes on colour photography the following hints on the avoidance of the frilling prevalent among autochrome plates. Our contemporary's other paragraphs on the recent advances in colour photography are deserving of a careful reading, and we may refer our readers to its regular page, "Colour and the Photograph," for the announcement, among other matters, of still other "colour-screen plate." The writer says: "Our earlier series comparative experiments on the use of the various modifications formula for the F solution were considerably disturbed by frilling, this being more particularly the case with the two modifications of F solution, in which citric acid is used in the proportion of grammes to the litre, but by adopting the following course we have completely overcome the tendency to frill, and this without the aid of any impervious or waterproof edging; at any rate, there has been the slightest indication of frilling since we have adopted the following course, and in illustration of this we may refer to the sets of four plates now on view at our office, as illustrating the various prescriptions for intensifying. Although the plates used were cut from larger sizes and no edging was used, the film is perfect and unfrilled up to the extreme edge in every case. Careful comparative trials showed that no disadvantage followed the course now recommended. After the use of the C solution (acid permanganate), and rinsing during about forty seconds, the celluloid strainer bearing the plate or plates was immersed in a 3 per cent. solution of purest recrystallised chrome alum (Hopkins and Williams), not the impure commercial chrome alum obtained as a residual product in oxidising aniline colour materials. In this bath the plates were allowed to remain for ten minutes, the celluloid strainer being lifted occasionally. The plates were then washed for five minutes, the celluloid strainer being kept in constant motion up and down in changes of water, and now the D solution was used in the ordinary way, and after its use and a slight rinsing the celluloid strainer was placed in a 1 to 6 formalin bath and allowed to remain for five minutes. Then, after a washing of forty to sixty seconds the E solution was used and the plates rinsed. Now there was another immersion for five minutes in the formalin bath, followed by washing and intensification. Similarly the plate was immersed in the formalin bath before and after the use of the H solution, thorough rinsings being resorted to to avoid mixing the solutions.

### CATALOGUES AND TRADE NOTICES.

MR. J. LIZARS has issued an illustrated catalogue, which deals chiefly with the latest addition to and improvements in his well-known "Challenge" cameras, and in order that any one still unacquainted with these cameras should speedily remedy that defect Mr. Lizars makes a special offer of an "advertisement outfit" at a considerably reduced price. Other specialties manufactured by the same firm are also dealt with in the latter portion of the list, which may be obtained by any of our readers on applying to Mr. Lizars, 101, Buchanan Street, Glasgow.

HULL PHOTOGRAPHIC SOCIETY.—The members of this society have contributed the sum of £12 10s. to the Selby Abbey Restoration Fund. THE HON. JOHN COLLIER is exhibiting his important picture, "Lady Godiva," at the Modern Gallery, 61, New Bond Street, W., for a few weeks.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### MONDAY, OCTOBER 7.

Southampton Camera Club. Slide Criticism.  
South London Photographic Society. "Portraiture." Mr. Harold Baker.  
Bradford Photographic Society. "Ideas on Exposure and Development." J. F. Seaman.  
Lancaster Photographic Society. "Carbograph." Rotary Photograph Company, Ltd.

#### TUESDAY, OCTOBER 8.

Keighley and District Photographic Society. "The Land of Carillons, Canals and Coifs." Chas. B. Howdill, A.R.I.B.A.

#### WEDNESDAY, OCTOBER 9.

Worthing Camera Club. Outing to Angmering and Decoy Ponds.  
Everton Camera Club. Photographic News Prize and Members' Slides.  
Croydon Camera Club. "The Oil Printing Process." J. J. Griffin & Sons.  
Birmingham Photographic Society. "Marine Photography." F. J. Mortimer, F.R.P.S.  
Coventry Photographic Club. Exhibition of R.P.S. Affiliation (1907) Prize Prints, also Autochrome Pictures.  
Leeds Camera Club. "Control in Simple Combination Printing on Bromide Paper for Pictorial Effect." Harold G. Grainger.  
South Suburban Photographic Society. "Points for Picture Makers." H. Snowden Ward, F.R.P.S.

#### THURSDAY, OCTOBER 10.

Richmond Camera Club. "Home Portraiture." P. G. Payne.  
Liverpool Amateur Photographic Association. "Black and White Art." E. Rimbaud Biddin.  
North London Photographic Society. "Possibilities of Autochrome Plates." C. H. Madden.  
Wimbledon and District Camera Club. "What Can be Done with a Hand Camera." C. P. Goerz.  
Hantsworth Photographic Society. "Tentative Development." F. Holloway.  
London and Provincial Photographic Association. "Flower Photography." E. Seymour.

## Commercial & Legal Intelligence.

"PROCESS" DIRECTOR'S BANKRUPTCY.—The Official Receiver, in the Bankruptcy Division of the High Court, has now issued particulars under the failure of Thomas William Lascelles, photo-mechanical etcher, and director of Lascelles and Co., Ltd., from which it appears that the debtor has filed a statement of affairs showing unsecured liabilities amounting to £225 0s. 6d., and assets nil.

The report and observations of the Official Receiver are to the following effect:—The receiving order was made on a creditor's petition, the act of bankruptcy being non-compliance with the requirements of a bankruptcy notice. The adjourned first meeting of creditors was held on September 5, when no resolution was passed. It appears from the debtor's statements that he has been for the past eight years, and still is, the managing director of Lascelles and Co., Ltd., photo-mechanical etchers, at a salary of £7 a week and 15 per cent. of the net profits; that he is a director of two other companies, from each of which he receives £25 a year, and that his income up to three years ago amounted to about £1,000 a year; but owing to decrease of profits it has since been about £500 a year, out of which he has had to pay £100 a year for travelling and other expenses. The debtor attributes his failure to liability in respect of rent and dilapidations of a house, which he took on lease at £95 a year, and which, owing to the decrease in his income, he had to vacate some years ago. The unsecured liabilities include £6 13s. 6d. for goods supplied, and £52 5s., the amount of a judgment obtained for rent to September, 1906, of the house mentioned above. The "other liabilities" include £71 5s. for three quarters' rent of the house to June, 1907, and £95, the amount estimated to be due for dilapidations. The debtor states that he sold his furniture shortly after he left his house.

UNLAWFUL POSSESSION.—Samuel Wiltshire, aged 20, and William Gaskell, aged 50, two rather rough-looking customers, when met by Detective Mullins last week in High Street, Brentford, carrying a valuable camera, were asked how it came into their possession. Samuel replied that his uncle had made him a present of the instrument that very afternoon, and he was taking it to a Brentford photographer in order to try to effect a sale. The detective

appearing doubtful, William seems to have thought that the story needed reconstruction, for he is alleged to have said that he himself had bought the camera some time previously in a lumber room. The detective was here faced with the delicate task of deciding which of these stories, if either, was correct, and he decided to shift the responsibility on to the local Bench. Even their Worships, however, failed to decide the question offhand, and after hearing the evidence they remanded Samuel and William on the charge of unlawful possession.

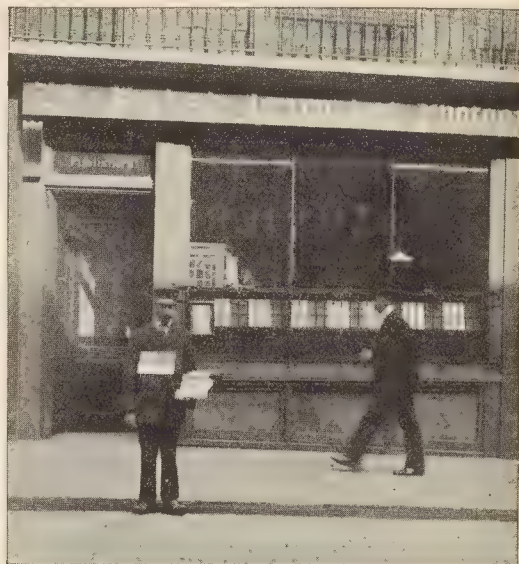
## News and Notes.

**THE NEW GOERZ CATALOGUE.**—In its handsome cover, embodying a design by Mr. Eduard Steichen, the new catalogue of the firm of C. P. Goerz, is a notable publication of the greatest interest to all photographers studying that most important part of their outfit—the lens. Messrs. Goerz believe in doing everything well, and the production of their list is but in keeping with their sustained performance as opticians, which is only to say that it represents a standard of efficiency and excellence not easily surpassed. The list first of all explains very succinctly the principles to be borne in mind when selecting a photographic lens, the matter of which appears to us to be so precisely to the point that we quote most of it on another page, though certain of the paragraphs lose something from their withdrawal from the context. The list portion proper of the publication enumerates the various series of Goerz lenses, with notes in each case on the purposes for which the lens is chiefly fitted, and on the facilities provided in the way of sub-division into two or more instruments, and in other respects. Accompanying these particulars, which, by the way, are very clearly printed, are a series of half-tone reproductions representing some highly technical and critical work done with the Goerz instruments. There is also a frontispiece on Wellington carbon-surface bromide paper, showing the fine definition to the corners of a plate afforded by a 6-in. "Dagor" (the 5 x 4 lens) on a whole-plate. The list is obtainable gratis from Messrs. Goerz at 4 and 5, Holborn Circus, W.C., and should be studied with interest by every photographer.

**PHOTOGRAPHIC SURVEY OF DUNDEE.**—Dundee has been placed under great obligations to the Dundee and East of Scotland Photographic Association for the exhaustive work undertaken by the members to produce a historical photographic record of the city. In the latter half of the nineteenth century Dundee, thanks to municipal enterprise was transformed from an old-fashioned town, with narrow streets and tumble-down buildings, into a modern city, with wide thoroughfares and handsome blocks of property. But the great change was not accomplished without the demolition of buildings of some historical significance. During the past four years of the association in making the photographic survey, in that time about 2,000 prints have been obtained, and the work is not yet completed. The labour has obtained an incentive through grants from the Town Council, although the money does not by any means represent the labour and cost of the extensive operations. Last week the public for the first time had an opportunity of witnessing the results of the society's effort, the prints having been hung in two of the galleries of the Albert Institute, constituting one of the most unique and interesting exhibitions Dundee has had for a considerable time past. The work produced is very varied in character, the exhibition being a pictorial record of what Dundee is to-day, regard being given to public buildings of all kinds, industrial activities, municipal enterprise, and the life generally of the people in their employment, leisure, and pastimes. There are also many street scenes and river views, and a military section. A proportion of the prints are taken from negatives obtained forty years ago, these portraying bits of the city which have since passed away. After the exhibition closes a complete set of the prints will be made up into books, and placed in the Albert Institute for the use of the public, while a duplicate set will be handed over to the custody of the Town Council for preservation in the city repositories. Attached to many of the prints is descriptive literary matter, and this will in time be completed so far as is necessary. This section of the work has been undertaken by, among others, Mr. John Macdonald, Mr. A. H. Millar, Mr. Alex. Hutcheson, Mr.

T. S. Robertson, Professor Steggall, ex-Councillor Elliot, and Dr. Templeman, and the entire survey has been organised and supervised by Mr. O. B. Hatch, the secretary of the society.

VISITORS to the exhibition of the Society of Colour Photographers at the house of the "British Journal" were no doubt grateful for the enterprise which gave rise to the presence, at the edge of the



footway, of a street merchant from whom they were able to purchase copies of a manual entitled "Real Colour Photography," which we understand has been issued by a contemporary. The photograph here reproduced was taken on Wednesday afternoon.

## Correspondence.

### AUTOCHROME RESULTS AT THE R.P.S.

To the Editors.

Gentlemen,—I am receiving many inquiries about the autochrome photographs in natural colours now on view at the Royal Photographic Society's Exhibition at the New Gallery, 121, Regent Street, W., and shall be much obliged if you will publish this letter by way of answer.

The autochrome pictures in the balcony are on view all day, from 10 a.m. till 6 p.m., and also in the evening on Mondays, Thursdays, and Saturdays, from 7 till 10 p.m.

In addition, a number of autochrome pictures are exhibited by the optical lantern daily, in a darkened enclosure, near to the South Room, from 11 a.m. till 1 p.m., and from 3 till 6 p.m. at frequent intervals, when brief descriptions of the process are given. These lantern displays are also given on Monday, Thursday, and Saturday evenings before and after the advertised lectures.

To relieve the anxiety of those who have contributed transparencies to the colour section, I desire to say that none of these are shown by the lantern. Those so shown are a special set made for that purpose.

It may interest exhibitors and your readers generally to know that the number of visitors to the gallery is much in excess of last year, the actual numbers for 1906, to Thursday, September 27, being 2,722; and for 1907, to Thursday, the 26th inst., 4,220.—I am, yours faithfully,

J. MCINTOSH, Secretary.

The Royal Photographic Society of Great Britain, 66, Russell Square, London, W.C.

September 27, 1907.



## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Sargent, 12, Albany Road, Cardiff. Photograph of Mr. Will Crooks, M.P. Calhoun, 124, St. Domingo Vale, Anfield, Liverpool. Photograph of an actress on Deck of the Ship "Scottish Hills."

Perkoff, 188, Commercial Road, London, E. Photograph of Mr. Isador Epstein.

Blackburn, 43, Revidge Road, Blackburn. Photograph of the Blackburn Rovers Football Team and Directors.

Tom Thomas Whiffin, 770, Harrow Road, Willesden, N.W. Photograph of Queen's Park Rangers Football Team with Directors.

W. H. Redcliffe, Harpenden, Herts. Photograph of Mr. H. Steers as a knight.

ENLARGED NEGATIVES.—I shall be much obliged if you will advise me how best to make enlarged negatives with the least possible loss of quality. It suits my purpose (for working-up reasons) to make an enlarged positive, and from that to make my big negative. The latter I have been doing by contact. The enlarged positive I get as I want it, but then comes my trouble. The resulting negative therefrom is, in nine cases in ten, a great disappointment. It is woolly and lacks quality, no matter how I expose and how I develop. I use ordinary plates. Will you please tell me if I should do better with (i.) process plates, or (ii.) lantern plates, or (iii.) if I should do better still by making my big negative from the enlarged positive in the camera?—N. A.

We do not think you will find any advantage in using a lantern or process plate, supposing that at present you are not complaining of excessive or insufficient contrast. You will get a crisper negative by copying in the camera. The best work is done in this way, and on backed plates. Probably neglect of this latter is the cause of your trouble.

GOLD CHLORIDE.—(1) I should feel much obliged if you would kindly let me know the address of a firm who supply gold for making gold chloride. (2) Whether an apparatus made of brass and then silver-plated, and to contain a number of prints, could be used for washing, toning, fixing, and then again washing, by placing the apparatus in the different solutions? I should like to know if stains would result on prints, and if so, could you advise any other metal for the purpose?—J. T.

(1) Gold coins of the realm contain metallic gold of face value, and though, strictly speaking, it is illegal to use them for the purpose, there is no cheaper source of supply. (2) Most decidedly it will be unwise to use it, as silver is easily attacked by gold toning solutions. Only glass or porcelain should be employed.

TEMPER.—(1) Information as to the Warner-Powrie process plates will appear in due course. (2) As regards the "Autochrome plates," see our advertisement pages.

MERCURY VAPOUR LAMPS.—As I am about to buy a mercury vapour printing lamp, will you please let me know if, in the event of the mercury tube being broken whilst printing, the persons in the room are suffocated, having no chance to escape. I have been told that this is so, but I wish to obtain reliable information.—L. T.

There is no danger of the kind that is worth consideration. In the event of a lamp breaking, the mercury immediately condenses to the liquid state, in which form it can harm only metallic objects with which it remains in contact.

L. EDMUND.—Yes, "Aristo" is a registered name of the Kodak Company.

BROMIDE EMULSION.—Will you please give me, through the "British Journal," a formula for making bromide emulsion, suitable for matt surface, rapid bromide paper? Some years ago I made emulsions for paper, but have mislaid formulae, and fail to find such information in the "British Journal Almanac." I also wish to coat ground opal glass. Would the emulsion require more gelatine to prevent frilling, or is a coating of chrome alum and gelatine used, or would that make the emulsion too insoluble? I require the paper for enlarging by artificial light, and a paper that will give plenty of contrast and good blacks.—S. H.

We can best assist you by referring you to the book, "Photographic Plates and Papers," by Stiefel (Iliffe and Co.). The methods adopted in the making of modern bromide papers, which rarely frill, are not published.

BLACK AND WHITE DRAWINGS.—I should be glad if you can inform me what materials are required for working a black and white sketch for the press. Also what Indian ink or lamp-black and the best cardboard to use.—J. BURNS.

Get a good process Indian ink from Penrose and Co., or from an artists' dealer. Best white Bristol board, about as stout as the usual postcard, is the best.

PYRO-SODA DEVELOPER.—May I ask is there not an error in the formula of pyro-soda developer given on page 751 of the "B.J.," 1907? The quantities given show about 4 grains to the ounce of pyro, and 48 grains to the ounce of soda. Diluted with same quantity of water it would be about right.—JOHN A. D. LLOYD, Kodaikanal, Madras Presidency.

The formula is correctly stated. The larger proportion of pyro, in fact, general greater strength, is necessary to secure good density in a reasonable time. It can, of course, be mixed with an equal bulk of water, but will then be slower in action. We hope to obtain good keeping qualities and speed in one and the same solution, and our further results will be given in the "B.J."

GASLIGHT DEVELOPER.—Can you tell me, through your valuable journal, a good developer for gaslight postcards and paper, so as to get a good blue-black tone? What I am using now is metol hydroquinone. Sometimes the prints are all right, but the majority are rusty colour in the shadow, and if I under-expose they are green, so something must be wrong. I am most particular in mixing up the developer according to the formula.—PRINTER.

Any developer will behave as you describe if used improperly, that is, with too much bromide for the particular brand of paper.

We advise you to make one or two careful tests on the same negative with different exposures, and differing doses of bromide.

GENUINE PHOTOGRAPH.—Can you tell me if enclosed (which has been submitted to some rough tests) is a genuine photograph? I have an idea that it is a clever imitation made by some collotype process. If it is a recognised commercial product where can such work be obtained? They are being retailed here at 2d. each, and, I understand, are supplied wholesale at a lower rate than I insist on charging.—F. NEWELL.

The picture is a genuine photograph, and not a mechanical print. Thousands of such are retailed at 2d. each. The Rotary Photographic Company and similar firms will supply them.

REMOVING RETOUCHING MEDIUM.—Lately I had to reduce a negative which had been retouched. I have done this quite successfully at other times, but in this instance finger markings (made when putting on the medium) show. Can you tell me how to obliterate them? Retouching medium has no effect on them.—STAINS.

If the retouching medium does not remove the finger marks we should advise you to try turpentine. If that does not take them off try with benzol. One or other of these will no doubt clean the negative.

INTERNATIONAL COPYRIGHT.—Please let me know, through "Journal" correspondence, if the registration of a copyright in London covers me for British Isles only, and has anyone outside (for instance, Canada and United States) the liberty to copy for publication without any permission?—CARBON.

If the copyright in a photograph is registered in England it

is protected in all countries that subscribed to the Berne Convention. A list of the countries are given on page 677 of the "Almanac" for 1906. The United States do not subscribe to the Berne Convention, and the copyright is not protected there. As to Canada and some other British colonies, copyright law is somewhat lax, and protection under the International Convention does not amount to very much.

**RIGHT TO PUBLISH.**—(1) The enclosed view is taken from the high road. The people in the picture are making a great fuss because the cards are on public sale. When I took the view I had no knowledge who the people were. It was just an accidental picture. As the people are trying to bully me I should like to know if they can suppress the sale or demand the destruction of the plate. (2) If a lens cap is used clumsily and the lens is shaken would the definition suffer equally all over the picture or mostly at the outer edges? I use a cap with my W.A. lens, and at times get bad definition at the edges when the stopping down has been ample.—**CROSS ROADS.**

(1) The people certainly cannot restrain the sale of the postcards. They do not in any way hold them up to ridicule, and, moreover, the faces are so small and indistinct that no one would recognise them if they did not know who they were. (2) If the camera were moved in uncapping the lens the sharpness would be impaired all over the plate. The bad definition at the edges is probably due to the lens not covering properly.

**STUDIO QUERY.**—I am thinking of building a studio, and should esteem it a great favour if you could give me any advice on same. I am rather pushed for room. I have plenty of length, but only 10ft. in width, and thought of building one 24ft. x 10ft. What amount of glass would you advise? I am enclosing rough sketches. Which do you think the best construction suitable for a N.E. light? The studio would be rather overlooked. What glass would be most suitable?—**F. E. KINSEY.**

Opinions are very much divided as to which form is best—both are good. Personally, we should prefer No. 1. As the studio is so narrow 11ft. or 12ft. of glass will be ample. If the side is glazed with fluted glass no light will be obstructed, and it will not be overlooked. If you have space at your disposal we should advise that the studio be 3ft. or 4ft. longer; that would permit the use of lenses of longer foci than would be necessary were it only 24ft. long.

**ENLARGEMENTS ON CANVAS.**—Would you kindly answer, through columns of your paper, the following question? I am desirous of making club enlargements, 20 x 16, on wooden stretcher of calico or canvas. Could you give me a formula sensitising the cloth, as I understand that is the way they are done? Also some hints as to manipulating in development, etc.? Also where they can be bought commercially?—**NEMO.**

We much question if you will be able to prepare canvas for yourself at a price that would enable you to produce club portraits on it. If we mistake not, Messrs. Morgan and Kidd supply the canvas ready for use, and, if so, we should advise you to purchase it rather than attempt to prepare it for yourself on the small scale you would require it. Formula for working is supplied with the canvas.

**COPYRIGHT PROCEEDINGS.**—Will you please inform me how I am to get around publisher of picture postcards from a copyright photograph of mine taken in 1898? A postcard which I bought in a dealer's shop had on it name of "Hely, Printers, Dublin." Who am I to sue? I believe it was the dealer who sent the photograph. Could I sue if I had not the negative? What would be reasonable to sue for? It is of little or no use—negative at present torn. I had copyright in 1898. I have receipt from Stationers' Hall.—**PHIL CAHILL.**

You can sue the printers, the publishers, and the sellers of the piracies, or anyone who deals with them. The fact that you may not have the negative makes no difference. In suing, you will do well to sue for penalties, making damages a secondary consideration. The penalties awarded will probably come to a larger sum than any damages you can prove you have sustained by the sales. But you can sue for both. If you are a member of the Professional Photographers' Association we should advise

you to place the matter in its hands. It would save you a lot of trouble.

**BROBRINT.**—We are unable to account for your trouble, but I like to send us up the formula for your developer and unexposed cards we will try them and see if we can trace it.

**COMBINED BATH.**—Would you kindly give, in your "Answers to Correspondents," formula for combined toning and fixing bath, P.O.P., one which will keep well and give permanent print.

See the formulae in the "Almanac," p. 984. The permanency of the results depends on the care taken to avoid over-working the bath.

**EXPOSURE OF AUTOCHROME.**—I have carefully noted your instructions in the last issue of the "B.J." for the exposure of the Lumière plates, but I would thank you if you can give me an approximate idea of the differences of speed comparatively between Lumière plate and the Imperial S' S' 250 H. and D.—**J. M. A.**

The Autochrome with filter works out at about 2 to 3 H. and D. We give some further hints on exposure in the concluding part of this week's "Leader."

**COPYRIGHT.**—A goes to a sale and buys a quantity of negative original owner having recently died). B—at the same time amongst other articles he purchased—obtains the possession of the certificates of registration of a portion of the negatives by A. Has he any claim to stop A printing from the negative picture postcards?—**BURNLEY.**

Certainly not; but the sale of the negative without transfer of the copyright causes the latter to be destroyed—that is to say, anyone is at liberty to copy and print any of the photographs which you may take from the negatives.

**B. D. G. and others.**—In our next.

**W. BATES AND SONS.**—In our recent issues.

**H. H. THOMAS.**—Unless the copyrights are assigned to you at the time of purchase of the negatives, they become void, and anyone may copy the photographs. See the article in the "Almanac" for 1906, p. 652, where this and other questions are very fully explained.

**IMPROVER.**—We should say your best way would be to get an engagement with some good house as an improver at a salary, and then make the best of your time. With your present limited qualifications you must expect only very small results as you know but very little of the business.

**A. CAMBRIDGE.**—It is impossible to say what you should get, but you know nothing of your work or speed.

**CLASSES IN PHOTOGRAPHY.**—Mr. E. Senior, the well-known photographic expert, will conduct classes in all branches of photography at the Battersea Polytechnic on Tuesday and Thursday evenings, and at the Woolwich Polytechnic on Wednesday evenings. Programs, together with syllabus, etc., may be obtained on application to the above-mentioned institutions.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received for publication only on the understanding that they are subject to the approval of the Publishers, and advertisements are not published absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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### SUMMARY.

A text-book giving practical instruction in the use of Autochrome plates has been issued by Messrs. Houghtons, Ltd., at the moderate price of 2d.

"The Amateur Photographer" finds the Autochrome plate amenable to reasonable methods of after-treatment. (P. 772.)

The first accessory to the Autochrome process has emanated from the firm of Fallowfield. (P. 774.)

A practical note on the Autochrome process. (P. 762.)

The technical and lay press, with one exception, have reviewed the exhibition of the Society of Colour Photographers. (P. 766.)

The Warner-Powrie Process. We reproduce enlargements, of various diameters, of a portion of a Warner-Powrie screen-plate positive of the continuous-tone positive obtained from it. The two demonstrate the accuracy with which the linear ruling of the plate is eliminated. (P. 763.)

Mr. E. Grills contributes some practical notes on printing in pinatype from the Warner-Powrie negative. (P. 764.)

The patent specifications of Dr. J. H. Smith for bleach-out (Uto) never appear in this week's "Patent News." (P. 771.)

The R.P.S. Exhibition. Our concluding notice embraces the examples of professional portraiture and the trade exhibits, among which are several interesting novelties. (P. 767.)

We refer to the failure of the recent arrangements of the Royal Photographic Society in reference to the inclusion of professional photography in the annual exhibition. If professional portraiture was thought necessary to the annual display at the New Gallery, revision of the present regulations would appear to be necessary. (P. 762.)

### EX CATHEDRA.

#### Instruction in the Autochrome Process.

By the time these lines appear, a booklet on the use of the Autochrome plates will be obtainable throughout the United Kingdom, and will, there can be little

doubt, be eagerly read by those practising the new process. The manual is issued under the title "Colour-Photography with the Lumière Autochrome Plates," and is the joint work of Mr. George E. Brown, Editor of "The British Journal of Photography," and Mr. C. Welborne Piper. It is issued by and is obtainable in wholesale quantities only from Messrs. Houghtons, Ltd., 88-89, High Holborn, London, W.C., and 70-78, York Street, Glasgow. Its price is but 2d., yet it deals without waste of words, and in the simplest language, with the practice of the Autochrome process. It should be particularly noted that the booklet is not obtainable from "The British Journal of Photography," except over the counter in single copies. All orders by post, and all inquiries as to copies for re-sale, should be addressed to Messrs. Houghtons. Neglect of the fact will only lead to delay in the supply of copies, for which there is already a very large demand.

\* \* \*

#### The Artificial Light Exhibition.

Our arrangements for the exhibition of examples of portraiture by artificial light by existing methods are now concluded, and we may therefore announce the date of November 1, on which the collection will be opened for inspection. The exhibits, it should be understood, are shown in every instance as specimens of the average work produced by the exhibitors, and therefore are retouched and otherwise prepared as customary in the establishments from which they emanate. That this will not in any way diminish the interest in the exhibition, but rather intensify it, is evident from a letter received from a well-known professional photographer, who, in so many words, writes: "I think the idea of the exhibition a fine one. It may not be scientific to show the comparative result plus retouching, but practically and commercially it's the only basis of comparison. If such and such work can be done by artificial light, that is all I, as a professional photographer, want to know." Admission to the exhibition, as to the present collection of colour photographs, will be free on signing a visitors' book.

\* \* \*

#### A Precaution in the Autochrome Process.

At one stage of the process of producing an Autochrome there is a possibility of mishap that is likely to be overlooked. It has been complained that the intensifying solution at times deposits silver in wrong parts of the plate, and thereby fogs the image. The reason of this is not likely to be the nature of the intensifying formula,

as has been suggested, but rather traces of the amidol developer, D, left in the film. Solution E is intended to destroy this developer, but if applied too soon it will fail to do so. If the developer is in excess it is Solution E that is destroyed, and if this happens it can be at once detected by the solution rapidly losing its pink colour and changing to brown. If the washing between D and E is sufficient the latter solution will still be pink at the end of the ten seconds for which it is applied. It is, therefore, important not to scamp the washing after the re-development, and it is best to wash for the full forty seconds prescribed.

\* \* \*

#### Securing White in Autochromes.

As we have pointed out, one of the effects of over-exposure of an Autochrome is a pink tint in the whites, or what should be the whites of the picture. If exposure is very much overdone, all the faint tints turn pink, and all distinction between them is lost. The whites and the light tones are then all of the same pink tint, which is very slightly deeper than the pink of the starch grain screen. There can be no doubt that the tint is that of the grain screen, deepened, perhaps, by a little fog in the upper film, and the question has often been asked, How is it that a perfect white can be obtained at all, considering that the screen itself is so distinctly coloured? One suggested explanation is that the white is only an effect of contrast. It is, however, a little difficult to see how the pink could possibly be changed to white as an effect of contrast alone, and experimentally we have failed to produce any such change. If the whites are slightly pink to start with, no amount of intensification will turn them to white, even though the contrast may be greatly increased. As we have pointed out above, under-exposure turns the whites blue and gives a bluish veil of fog over the rest of the colours. In this fact we believe the explanation of the production of white is to be found. If, owing to slight under-exposure, the colour of the pink screen is slightly veiled by a faint bluish or greenish complementary tint, then grey should be produced, and, if sufficient contrast is present, this grey should give the effect of white. From this it would appear that pure whites are only obtained when the plate is slightly under-exposed, and from our experience we believe this is actually the case. It may be asked, Why should not the exposure that gives white be called "correct"? We can, however, hardly consider exposure to be correct when the highest lights are veiled, and as a matter of fact in some subjects, especially those containing much green or yellow, traces of under-exposure are apparent when the

whites are good. It would appear that in the ideal the screen should be a perfectly neutral tint that would appear white by contrast, and until this ideal is attained we must make a certain amount of compromise in exposure to secure good whites.

\* \* \*

#### Control of Gradation.

In connection with the "Polytechnic" classes referred to on another page it is interesting to note that special attention is being given to the control of gradation. This is an old subject with Mr. Farmer, both as regards half-tone negative making and direct bromide enlarging, and many of our readers will remember the illustrated paper read before the Royal Photographic Society some three or half years ago, in which control of gradation in bromide enlarging was obtained by the aid of an ordinary half-tone Levy screen or a reproduction of such a screen. Apparently much time has been given to an exhaustive series of further experiments, and it is now capable of demonstrating that control can be obtained and the gradations vastly improved by instrumental means. We gather that the control of gradation is really the bringing of the steepness of the scale of the negative within the compass of the bromide paper without in any way modifying the negative by chemical or mechanical reduction, and if this can be done, the calculation being made from a formula, the production of harmonious results either in direct enlarging or enlarged negative making will be enormously simplified.

#### PROFESSIONAL PHOTOGRAPHERS AS PAYING GUESTS AT THE R.P.S. EXHIBITION.

A few years ago there was something in the nature of agitation on the part of professional photographers for greater amount of recognition of professional work by the Royal Photographic Society. The result was that at annual exhibition a room was set apart for such work, the wall space being rented to the exhibitors who hung whatever work they wished. Some exceedingly fine displays of professional work have been seen from year to year, and, presumably, those who have exhibited their work have done so, either in order to see it under similar conditions with the work of their confrères from other parts of the country, or in order to educate the public taste to what is good in portrait photography. It is difficult to see that the showing of work in a London gallery can be of much benefit to a professional whose studio is situated in, say, Penzance or Keswick, from any adverse

### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### SCREEN-PLATE THREE-COLOUR PROCESSES

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1908 will be

modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1908 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.



point of view. This year, if we accept the ordinary definition of a professional as a portrait photographer, the number of professional displays has dwindled to three. Mr. Hollier is, of course, well known as a professional, and his present exhibit, consisting as it does of platinum type reproductions, is brought rather more under the head of publication work than of regular professional photography. The interesting and beautiful prints composing Mr. Staengl's display are quite a trade exhibit which has doubt been crowded out of the North Room. This falling off in the number of workers will possibly mean an abandonment of the professional section as at present constituted another year. It is, indeed, doubtful if such section is what professional photographers really wanted when they asked for more consideration. Some years ago there was perhaps more tendency than can readily be believed to-day to show work which was characterised by softened definition, and many professionals regarded this diffusion as a defect, and could not understand the recognition of many of the examples as pictorial work. Their own clean-cut specimens of in many cases difficult subjects in portraiture, architecture, and other branches appealed to themselves. They were regarded, and rightly so, as *tours de force* and as examples of high technical skill, and the recognition which would have been appreciated would have been the institution of a separate class for professional work in which coveted awards would be given. The technical section of the R.P.S. exhibition of the present is rather to be regarded as a collection of scientific work in which commercial photography stands no chance at all of receiving any award. We are not merely expressing our own view in this matter, but are giving the opinions of a great many of our readers with whom we are brought into contact. This is not the place for time for discussing the matter from all points of view, but there is naturally much to be said both for and against. The awards were very limited a good deal of heart-burn would doubtless ensue, and to multiply the medals would be to cheapen both them and the society offering them, in the eyes of all the better workers. At the same time, the Royal Photographic Society is a catholic body which seeks to encourage all branches of the photographic art and trade, and the present exhibition unmistakably demonstrates the failure of a method which has been tried in connection with professional photography. We know we shall be told that the professional section

is open to any portrait photographer who likes to hire space in it, and the pictorial section is not necessarily closed to any professional electing to submit his work to the committee, merely because he is a professional. Both arguments, however, though perfectly sound, do not help in any way towards a representation of the good professional work at the Royal. For whatever we may think of, or hope for, professional photography, the fact remains that in the bulk it is commercial work, done for gain, and, therefore, done, in the great majority of cases, in a way which will commend itself to the photographers' patrons. There are photographers who can afford to say, "Take the portrait as I offer it to you, or seek another studio"; but the defiles of Bond Street are not exactly as thick with them as Vallombrosa with autumn leaves. And thus the professional's work is in this respect on a different footing from that of the amateur. We do not say it always will be, but at present it is, and the arrangements of the Royal Photographic Society in regard to professional work are, of course, a recognition of the fact. Yet they have failed to produce a sustained display of the best professional work for a reason which is not very far to seek. The Royal Photographic Society proposed to recognise professional photography by exhibiting examples at so much per square foot. In doing so they put all photographers on a level as regards the right to exhibit, although no indication of that equal monetary basis is given to the visitor to the exhibition, or to those into whose hands the catalogue falls. Is it surprising, then, that many of the very best photographers should be quite satisfied to be outside if their work is to be shown under conditions which can most easily mislead the public into supposing that their work is regarded by a great and unique body like the Royal Photographic Society, as on a level with that of anybody who can engage space for the display of their work? The remedy is for the Royal to abandon the "paying guest" system, and either by open competition or invitation procure, what is most easily procurable, a selection of works showing the best work in professional portraiture in this and other countries. It would be invidious to name those in this country who would strengthen such a scheme as this, but on the Continent, men like Dührkoop, Raupp, and Perscheid—we have seen this year how the Germans have progressed—could, and would, contribute work which would make the professional section at the Royal a source of strength to the Exhibition.

## SCREEN-PLATE COLOUR PHOTOGRAPHY BY THE WARNER-POWRIE PROCESS.

There can be no doubt that, in spite of the fact that they themselves are not yet on the market, very great interest has been shown in the Warner-Powrie process, and it has generally been conceded that the process possesses characteristics which should assure it a place among the one or two processes which are of practical usefulness. This is a small estimation of its future; but when the verdict of the majority, after practice of the process, is not forthcoming, just as well to let events speak for themselves. We may, however, reproduce here a couple of photographs which go to show the thoroughly practical character of the process. Both enlargements to eight diameters, the one (Fig. 1) of a Warner-Powrie colour positive representing a small portion— $\frac{1}{8}$  in. by  $\frac{1}{8}$  in.—of No. 84 of the transparencies in the exhibition of the Society of Colour Photographers. The other

(Fig. 2) is a similar enlargement of the continuous tone positive (the yellow printer) made from it, and a comparison of the two will show the very insignificant loss of structure occasioned by the triplicating of the image distributed through the colour-plate. The reproduction, which is the same size as the enlargement, represents a piece of a print enlarged on a scale which would give a print 24 in. square from a lantern slide. When the original from which the block was made is examined at the normal distance at which a print of such size would be viewed, namely, about 3 ft., the sharpness of the best-defined parts of the subject is more than enough for satisfactory definition; in other words, the pair of examples show the workable character of the process as regards making three-colour prints from enlargements of the continuous tone positives.

As regards paper prints from the Warner-Powrie negatives,

which have undergone this splitting process, there are now in the Exhibition of the Society of Colour Photographers several examples from the three positives, the method of obtaining which (the positives) has been described in our issue

thus formed of the correspondence of the details in the print with those in the original. In this connection we may print an article by Mr. E. Grills on the making of a set of positives and the printing therefrom in pinatype.



FIG. 1.

of September 13. These prints include a pinatype print made by Mr. E. Grills, and a three-colour carbon print on Rotary pigment films by Mr. Henry J. Comley. The negatives of both of these may be seen among the transparencies, and a judgment

can vouch for the authenticity of the negative from which Grills has worked, for it was taken by ourselves on one of the very few Warner-Powrie screen-plates available at present in this country.

#### PINATYPE PRINTS FROM THE WARNER-POWRIE SCREEN-PLATE NEGATIVE.

The introduction of the Warner-Powrie plate gives the pinatype worker a new power, as several of the stages are cut out altogether. This, on the face of it, does, and must, help one considerably in working pinatype, for it is on the quality of the diapositives that much depends, and by the use of the Warner-Powrie plate and three primary filters diapositive making becomes almost automatic. Another advantage of the Warner-Powrie plate for pinatype is that a transparent place, such as a cross, may be scratched in the film at either end of the plate, which will then appear on each diapositive and enable one to effect register of the colours easily.

The method of making the set of continuous-tone colour-sensation positives has already been described in these pages, so that I need not describe it further than to allude to my experience in working the process with the usual pinatype materials from a Warner-Powrie negative taken recently by the Editor of "The British Journal of Photography," and kindly placed at my disposal by Mr. Powrie. As has been mentioned, the angle of tilting must not be great. Four degrees is quite sufficient to cause the set of bands (in this case the red) to overlap to meet each other, and this is the reason why a thick glass should not be used, as an angle a little more acute than four degrees would have no detrimental effect when using the thin millimetre glass, but probably would, to some considerable extent, were the glass very much thicker, as the lines would then overlap from one series to the next. Of course, the angle of exposing is probably determined by the fineness

of the ruling, which at present is, I believe about 620 lines per inch, but in all probability, when Mr. Powrie introduces a new plate, as he anticipates, of even finer ruling, the glasses have to be still thinner, or maybe some other transparent substance, such as celluloid, will probably answer the purpose nearly as well.

The set of filters which I made for this process requires the same ratio of exposures for all three—red, green, and blue—respectively—using an ordinary 16 c.p. carbon filament lamp and a descent electric lamp. This is an advantage, as the first exposure determines the three.

For the making of the continuous-tone positives a chromatic plate must be used, but preferably one of the slow speed, as a fast negative plate, such as the Wratten & Wainwright chromatic, does not easily give the contrast which is needed for pinatype work. Moreover, such slow plates can be handled in a green light amply sufficient for convenient working. My own work was done in complete comfort by the aid of a candle-power lamp with a screen composed of one deeply blue film of naphthol green and one of fast green deep blue (Bayer) with a sheet of ground celluloid in between. The plates were not shielded from the light at any period, nor was there the slightest trace of fog. Dianol as the developer worked well.

There is a little to be said, too, on filters that are suitable for obtaining diapositives by this unique method. In the first place, they need not be at all expensive, as plate glass



ite unnecessary, as they have merely to be placed in front the printing frame when making the exposures; and for at matter they may be ordinary fixed-out dry plates suitably ined, and it is of this staining I wish to speak.

In the first place, it is to be quite understood that each set coloured lines on the Powrie negative (of which, of course, are three) has at the back of them a deposit of silver; record of the particular colour-sensation.

Assuming that we have the green, it is a fact that the absorption of the dyes on the Powrie plate are rather gradual—that they overlap rather considerably. Whether this is advisable or not does not for the moment matter, but it is certain that green lines transmit orange to some considerable extent. Hence it follows that were a red screen used to get a record

abled to get a clean sharp record of each coloured set of lines or bands without admixture of either of the other colours. What is true of the green is true of the others also, but when one remembers how easy it is by staining with suitable dyes to make a set of abrupt absorption filters, this is perhaps of little consequence. For instance, the red filter could be made of one plate stained with rhodamine or rose bengal with another of mandarin orange G. with a little picric acid. This would transmit the orange of the spectrum, but another film or plate stained lightly with brilliant green would absorb the undesirable orange and give a combination passing only the pure red.

Other dyes for the green and blue filters are just as easily made, although it is not my intention to dwell on them now,

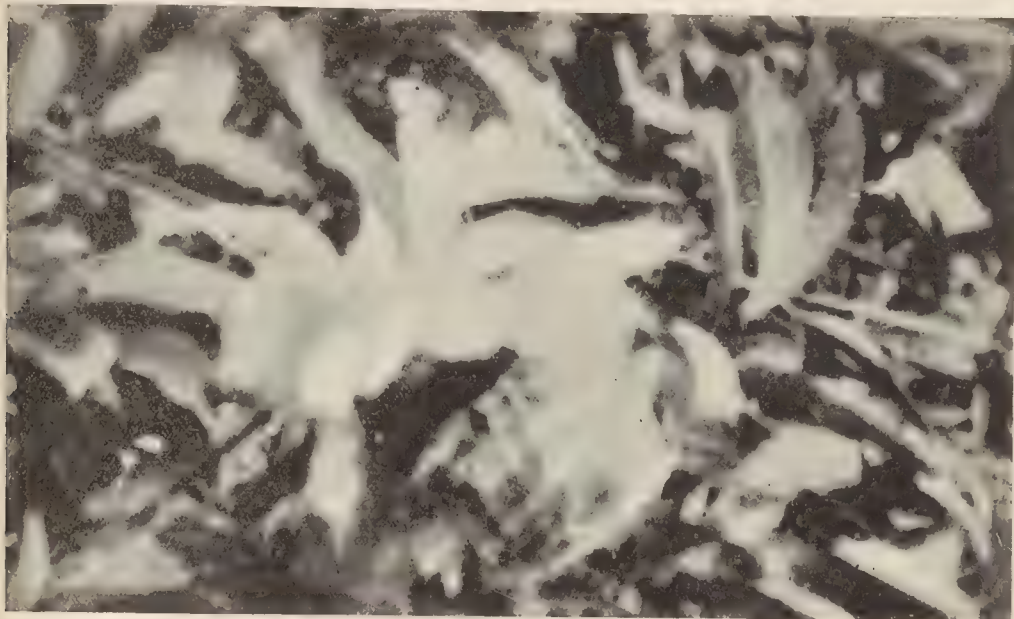


Fig. 2.

the red lines, or, rather, of the silver underlying them, this filter or screen would transmit not only red but orange and yellow also (as do the majority of tricolour filters). Under these conditions not only would the red lines be recorded, but the green ones to some considerable extent also, so that it is obviously essential that filters for this purpose should have an abrupt cut or absorption, so that only light of the sensory colours of high purity be transmitted. One is thus en-

abled to get a clean sharp record of each coloured set of lines or bands without admixture of either of the other colours. What is true of the green is true of the others also, but when one remembers how easy it is by staining with suitable dyes to make a set of abrupt absorption filters, this is perhaps of little consequence. For instance, the red filter could be made of one plate stained with rhodamine or rose bengal with another of mandarin orange G. with a little picric acid. This would transmit the orange of the spectrum, but another film or plate stained lightly with brilliant green would absorb the undesirable orange and give a combination passing only the pure red.

E. GRILLS.

**PHOTOGRAPHIC INSTRUCTION AT THE POLYTECHNIC.**—Next Tuesday, October 15, is the opening night of the classes of the Photographic School at the Regent Street Polytechnic. On that evening at eight o'clock, in the large hall of the "Poly," Mr. E. B. Knobel, R.A.S., the managing director of Ilford Limited, will preside over a meeting of past, present, and intending students of the school, before whom Mr. Howard Farmer, Principal of the school, will give an address, the nature of which is foreshadowed by particulars published in the prospectus of the school. From these we learn that by means of a so-called "Ratiometer Lens," to be supplied by Messrs. John J. Griffin and Sons, it will be possible to control the gradation values of a negative in making portrait and other negatives. We learn that the use of this instrument is to be the subject of an instruction course at the Polytechnic. In addition, the announcements will be made as to the facilities now available

for "Poly" students qualifying as press photographers, and as to new methods in three-colour and half-tone block making. These promises, which we know Mr. Farmer would not make if he were not prepared to substantiate them, ought to be sufficient to draw an interested audience to Regent Street on Tuesday, when Mr. Farmer, as a photographic Duke of Plaza Toro, will produce "examples illustrative." Of the photographic classes at the Polytechnic it is only necessary for us to refer the reader to the full prospectus and to the names of the teaching staff, among which in addition to that of the Principal will be found Mr. C. H. Hewitt, F.R.P.S., Mr. Wolfgang Arndt, Mr. A. J. Lyddon, and Mr. G. C. Laws, in whose charge are the courses of instruction in posing and lighting, negative making and printing, retouching, and working up, and in the various sub-branches of photographic practice.

## THE SOCIETY OF COLOUR PHOTOGRAPHERS.

THE fact that—during the seven complete days which, at the time of writing, the exhibition of the Society of Colour Photographers has been open—over 1,000 persons have inspected the collection at the house of “The British Journal of Photography” is some indication of the interest which the new colour processes have aroused. And it is evident, too, that this interest is not confined to those who had already practised ordinary photography, or were even ordinarily familiar with its processes. It is clear that the fascination of colour will induce many people who have never touched a camera to purchase and use one solely with the object of securing results in the colours of nature, and it may not be long before we have text-books written only for the instruction of those who know as little of P.O.P. as they do of the binomial theorem, yet have come under the spell of camera work with the screen-plate methods. To what extent this will be remains to be seen, but there are, we find, signs of it.

As regards the present exhibition, there are one or two items which we are requested to announce in respect to examples which have been added to the exhibition since the catalogue went to press. Among these are several further Autochromes from Dr. Grundlach, of the staff of Carl Zeiss. These include a remarkable portrait of Professor Ernst Haeckel, the eminent biologist, taken at his home in Jena. There are also several landscapes of scenery in the Tyrol and near Jena, which are separately indicated.

An Autochrome of a garden scene by Mr. Max Poser, of the London house of Carl Zeiss.

### THE TECHNICAL AND DAILY PRESS ON THE EXHIBITION.

“The Times” says:—“With the exception of the remarkable three-colour prints by Mr. H. J. Comley, there is little which indicates any distinct progress. But the transparent positives, shown under conditions of lighting which reflect credit on the organisers of the exhibition, will surprise the uninitiated. These transparencies are made by the autochrome or starch-grain process, by Mr. Sanger-Shepherd’s trichromatic method, or by the Warner-Powrie process, which, unlike the Lumière process, readily admits of the duplication of the colour prints on glass, by a process similar to that by which the plate is made in the first instance, and on paper by the existing three-colour methods.”

The “Daily Graphic” considers that “the exhibition affords an interesting opportunity for students to compare the results achieved by different processes. Mr. Henry J. Comley, of Stroud, Gloucester, has some particularly successful prints. His ‘Primroses’ is as nearly as possible the real thing, and with it deserves to be mentioned the ‘Evening from the Pic du Midi’ of E. D. Doncaster. The ‘German Vase,’ of Mr. Harold Hood, challenges comparison with the original standing in the room, and comes out of the test very well.”

The “Westminster Gazette” writes:—“The Sanger-Shepherd process is also well represented in the room, and so are several very similar three-plate processes by well-known experts. In comparing the old with the new processes, visitors should understand that the autochromes all represent a new and unfamiliar process, and that many of them are by workers who had never attempted colour-work until the last few weeks, when the plates first became obtainable. The true colour rendering obtained in many of the examples is, in these circumstances, sufficient proof of the ease with which the process is carried out.”

Mr. Horsley Hinton, describing the exhibition in the “Daily Telegraph” as “thoroughly representative of colour-photography,” accords “the first place to the works of Mr. Henry J. Comley, the honorary secretary of the Society of Colour Photographers, and the gentleman to whose initiative we largely owe the formation of that society; and the recognition of his premier position is due simply on the ground of the merit of his work. Mr. Comley was known as one of the most successful photographers in natural colours long

An excellent Autochrome portrait by Miss Acland, F.R.P. which, though catalogued, had been overlooked in arranging the transparencies, is now in place, and should be mentioned as a good example of restraint in applying the process. Miss Acland’s long practice in colour photography the Sanger-Shepherd process has kept her from the common mistake of indulging the appetite for colour to excess. The portrait (No. 131) may well serve as a model of what should be attempted in a portrait of a lady by the process.

We should also refer to two prints by an Australian member of the Society of Colour Photographers, Mr. G. Ooneto, Perth, Western Australia, which are very fair examples of pinatype printing from negatives obtained with Wratten and Wright’s panchromatic plates and filters.

Dr. J. H. Smith, of Zurich, has also sent two large examples of the “Uto” bleach-out process, in the shape of copies from a colour lithophane transparency.

The interest taken in the Warner-Powrie process will be accentuated by the exhibition of four prints on paper prepared from negatives on the Warner-Powrie screen-plate. In two instances the negative is shown among the transparencies (Nos. 78 and 86), and the examples show the result of printing from the continuous tone positives by the pinatype and carbon three-colour processes, that by the latter being by Mr. Henry J. Comley, who shows the three constituent impressions forming the finished print.

The vase, which is the original of No. 49, by Mr. Harold Hood, may now be seen and compared with the reproduction to the credit of the latter.

before the society was established, and since its inception I devoted myself with redoubled energy to the work he loves. So will be recognised that Mr. Comley owes his success to persistent hard work and untiring devotion, certainly not to any formula or process, for he photographs in colours by all the various methods which are known.”

The “Amateur Photographer” writes:—“A feature of the exhibition is portraiture in the studio by the three-plate method, and would seem as if we are on the point of experiencing the regular use of heliochromy by the professional portraitist. Mr. Comley’s portrait of an officer in uniform (No. 12) may be mentioned, with the flesh tints in Mr. John Moffat’s ‘Japanese Girl’ (No. 17) wonderfully rendered, and in this connection we must not forget the portrait-work comprised in the collection of transparencies the Sanger-Shepherd process. As degrees of perfection in colour rendering are very inadequately indicated by effusive language, I do not think it desirable to extend our notice, but we urge our readers to go and see how notable is the progress, and to judge for themselves whether we are not actually on the threshold of a period in which colour photography will be an every-day occupation for the amateur.”

Our contemporary “Photography,” which has recently informed its readers of its proposition to deal “with all matters of interest to the amateur colour worker,” says:—

“Focus” writes:—“The section devoted to transparencies includes examples in the new Warner-Powrie and Lumière processes, and the well-known Sanger-Shepherd method. To our mind the light behind these transparencies is much too powerful; not only is it injurious to the plates, but it is trying to the eyes. Both the Warner-Powrie



the Autochrome plates here show a pervading pinkiness which does not commend itself. The Sanger-Shepherd transparencies certainly hold their own in this display. Comparing the Warner-Powrie's and the Autochromes, we find little to choose between the two. The transparencies of continuous tone positives from the Warner-Powrie plate is an interesting exhibit showing how it is possible to produce from this plate a positive of the same character as that obtained from an ordinary negative." "M. B.," in the "Pall Mall Gazette," says:—"The work of the secretary, Mr. Henry J. Comley, is far superior in quality and value to that of any other exhibitor. Nearly all his pictures are fine indeed, and it was only their high quality that prevented them from forming the conclusion that colour photography on paper is practically impossible for the amateur worker. Mr. Comley shows

that it is possible. He cannot, I fear, show us that it is easy and inexpensive. And it is instructive to note that the best results are obtained throughout from portraits and 'still life' subjects taken indoors. I do not recollect seeing a single really satisfactory print of a landscape subject, taken direct from nature, in the whole collection. But I do not wish in any way to condemn the section as useless because the majority of the results fall far short of perfection. It has been said, with no little truth, that research which fails may be almost as useful as that which succeeds, and I feel sure that those who have 'been through the mill' of complicated colour work will have acquired a knowledge of colour and its relation to photography, which cannot fail to be of service to them in their subsequent experiments with simpler processes yet to be discovered."

## THE EXHIBITION OF THE ROYAL PHOTOGRAPHIC SOCIETY.

In concluding the notice of the Royal Photographic Society's exhibition which commenced in our issue of September 27, we review what samples of professional work are to be seen at the New Gallery. Our regret and that of a good many more that the representation of professional photography should be so slender. Without the magnificent work of Mr. Crooke it would make a sorry show indeed, yet the cause seems plain enough and the remedy simple enough.

### THE PROFESSIONAL SECTION.

Regarding the general character of this section and its future we make some suggestions to offer in the Editorial on another page. It is to be regrettable for the section to disappear, as it almost does at the present occasion, from the exhibition.

There are, however, a number of pictures in the section this year which many of our professional readers who are up in town will say the shows may learn valuable lessons. The Canadian studio, for example, shows one or two good child studies, and some ladies' portraits, in which both excellent modelling and fine drapery textures may be seen. The two large portraits of men lack strength, partly used they are rather over-retouched, and also doubtless because of the figure, as well as the head, is quite a side view. The top print somewhat heavy flesh tones, and too strong a high-light on the forehead.

The Mattype Company's display shows remarkably even quality technique. The negatives are evidently well lighted, properly exposed, and evenly retouched; but there is a rather monotonous effect about the results which forces on one the conclusion that the portraits cannot show much of the sitter's individuality. The vignettes in several cases strikes one as being rather too close; a nose ends to disappear and a neck and shoulders seem inadequate to support a head. The plain warm tinted oak in which the pictures are set is in good taste and quietly effective.

One may be learned in the matter of copying from a study of Hollyer's fine reproductions. The portraits of Charlotte Brontë and George Eliot convey a very good idea of what the originals must have been like in light and dark chalk on a toned paper. Contrast the two prints of Mrs. Siddons with the portrait of Mrs. Fry, and W. B. Richmond, and note how the character of the negative is according to the feeling of the original work. The framing of these platinotype reproductions is very effective. Plain wood cases, with merely a narrow gilt hollow near the outer edge, are added to a warm, almost dull, brown.

Not only does the wall occupied by the work of Mr. William Crooke contain some of the best work in the room, but it holds some of the finest prints in the whole exhibition. In No. 2, a "Portrait of John de Burgh," on a cream-toned paper, we have the soft definition

for the Royal to consider a revision of its arrangements another year. We dismiss, and we believe the Royal will dismiss, the financial side of the question altogether, and therefore we offer, on another page, a few notes which we trust will be perused by professional photographers themselves, as well as by the Exhibition Committee of the society.

The Trade Section this year, as will be seen from the notes which follow, contains several items of great interest.

and tones which one associates with a fine pastel portrait. This quality of definition should be carefully studied, as the average professional enlarged portrait tends to harshness of outline, particularly when the original negative has good printing strength and if a side light has been used. The rich quality of the shadows in No. 8 is worth attention, and No. 4 should be noticed on account of the strong dignified effect and the clever handling of accessories and uniform in the management of the composition. No. 3, "A Portrait of Sister Margaret," is very fine, far removed from the ordinary "pretty" type of portrait. There is genuine sweetness and much strength. The sitter has a good deal of strong character, and this is retained and well expressed in the portrait, which is a work that one might hang on one's wall and have pleasure in contemplating. The natural yet quiet arrangement in "Portrait of a Mother and Child" is worth noting. This has fine quality in the background, which, though it occupies a large proportion of the picture, does not appear either empty, on the one hand, or distracting on the other. "In Silk Attire" is one of the most charming portraits we have seen for a long time. The rendering of the dress is superb, and the portrait gives the impression of a dignified and gracious woman. The position of the highest light should be noticed, on the sleeve, and though the face is in shadow neither this light nor that on the dress is at all "jumpy." The delightful portrait of a child, neither grave nor gay, strikes one as being just what a child's portrait should be.

If we have left mention of the large group of the Edinburgh Town Council to the last it is by no means because we regard it as the least of Mr. Crooke's exhibits. We do not think the statement is likely to be controverted that this is the finest thing of its kind ever done by anyone. A close inspection of the picture, which is of large size, does not enable anyone to determine whether the portraits have been taken separately in the studio and painted into the picture of the interior of the Council Room, or whether the group has been taken in the room at one exposure. Every portrait is quite evidently a likeness, and we think it most likely that the picture is a magnificent specimen of combination printing; but in this case the management of the perspective, as regards the size of the figures according to their distance, has been arranged with consummate skill.

### TRADE EXHIBITS AT THE R.P.S.

The Fountain Court of the New Gallery is occupied by the stalls of the trades, many of whom we have been accustomed to see in their places for years past. Messrs. Wellington and Ward on the left of the entrance make an even more artistic display of their wares than they have done in previous years. On this occasion,

as may be expected, the facilities of the "Watalu" self-developing plate are a prominent feature, and visitors to the miniature salon will be able to learn particulars of a new "Watalu" plate intended for lantern and transparency work. All the Wellington products, including the well-known lines of bromide, printing-out, and self-

toning papers get a very good showing indeed under the stage management of Mr. George Walton, and no one, we imagine, will find any fault with the personal representation of the firm by Mr. A. C. Baldwin.

On the other side of the doorway the Kodak Company exhibit among many other of their later introductions a new quarter-plate reflex camera which they are issuing at the popular price of two guineas, and which in its way is a triumph of simplicity in hand camera manipulation. We may reasonably claim to know what there is to be known of reflex cameras upon the market, yet we can say that in carrying out what it claims to do the new "Premograph," as it is called, is approached by no other instrument. The camera is not a focussing instrument, but it permits of the viewing of the image on the focussing screen in full size up to the moment of exposure. The combination of shutter and mirror is most ingenious, and it is one of the exhibits at the Royal which ought to be seen. Later varieties of the Kodak daylight developing tank also attract attention at this stall, where also are exhibited specimens of dry mounting materials now being supplied by the Kodak firm.

Resuming the tour of Fountain Court we find Messrs. J. H. Dallmeyer, Ltd., offering a small though quite interesting exhibit of work with their "Adon" lens, and of specimens of the "Adon" and "Junior Adon" instruments themselves. The slim "Packard" shutters, introduced last year, may also again be seen.

#### Colour Processes—Sanger-Shepherd.

The sudden accession of interest in all matters connected with colour photography is no doubt responsible for the fact that Messrs. Sanger-Shepherd's stall attracts a more persistent and interested crowd of visitors than any other in the exhibition. Their arrangements allow Messrs. Sanger-Shepherd to show the facilities and qualities of their process in a most convincing way. Visitors can see here for themselves the brilliancy and perfection of the Sanger-Shepherd colour process for transparencies, whilst they can make themselves acquainted with the apparatus, of which this firm alone has long made a special study. Among others we see signalled a new attachment for the studio camera allowing of very rapid exchange of the three plates, each with its filter. The movement is sufficiently easy and automatic to allow for a second or two sufficing for all three exposures, and the new back should be of interest to those contemplating this very practical method of three-colour work in conjunction with a newly introduced set of filters which, being somewhat less "strong," permit of shorter exposures being given to the plates. Landscape and amateur workers in colour photography should also make a note of the Sanger-Shepherd prism one-exposure camera, an instrument so unassuming externally that it might be mistaken for an ordinary guinea magazine camera. Its internal construction, however, dispensing entirely with mirrors, and obtaining the three-colour sensation negatives on one plate by means of a very finely adjusted arrangement of prisms, makes it possible for the three-colour negatives to be obtained at one exposure in a time which in bright light in the southern latitudes may permit of the worker using the camera in the hand. The instrument is made in two sizes, the smaller using a plate, half-plate, and giving the three pictures about two inches square, whilst the other takes a plate  $8 \times \frac{3}{4}$ , and gives a picture of somewhat larger dimensions. In the domain of orthochromatic photography the graduated wedge colour screen of the Sanger-Shepherd firm is to be seen together with some very fine examples of its use in landscape work by Mr. H. G. Ponting. There would seem a likelihood that still more will be heard of the graduated colour filter in conjunction with the new Lumière plates, the rendering of the sky in which is one of the points of the process which appears to offer some difficulty, and no doubt Messrs. Sanger-Shepherd, from their special facilities in providing colour screens of all kinds will be able to provide a means of effecting the necessary local control on the plate. Of filter attachments for hand and stand cameras the convenient slide-past holder carrying a set of three yellow screens of different depths or a set of three three-colour filters are particularly worth attention, and the very neat and portable way in which they may be fitted to such standard hand cameras as "Videx," etc., should merit the notice of the more serious worker as permitting him to provide himself for colour work without greatly augmenting his outfit. The amateur colour worker who wishes to control his methods by ordinary simple means may also be referred to the

prism spectroscope made by Messrs. Sanger-Shepherd at the price of a guinea, and of considerable service in examining light filters, testing the dark-room light, etc.

Still one other exhibit calls for notice, namely, the Sanger-Shepherd photographic survey camera, which, while generally of the lines of these instruments, is an improvement on them in several important particulars, and is deserving of the attention of those interested in this application of photography.

#### Messrs. O. Sichel and Co., C. P. Goerz and Co., W. Watson and Sons.

Messrs. Sichel exhibit a large selection of their many specialities, notable among which is the mercury vapour printing and portraiture apparatus already reviewed in our columns. Other accessories of interest to the professional photographer are found in the "Edward" and "Sickle" studio cameras, the "Sickle" studio shutters, and backgrounds in several varieties, and specimens of trimming and cutting machines, and of the "Ingento" and "Idem" embossing presses. Appealing primarily to the professional photographer, Messrs. Sichel's exhibit should certainly be closely examined by our readers.

The house of C. P. Goerz exhibits a number of very striking enlargements from negatives taken from the Goerz lenses. These instruments themselves are worthy of inspection even by the casual visitor, who can see for himself the beautiful mechanical work which characterises the Goerz lenses and shutters. The photographic enlarger should convince him of their optical qualities. A new introduction is the "Tenax" camera, a highly portable and efficient hand camera which we hope to review at greater length very shortly.

The great interest taken by the professional photographer in systems of artificial lighting is one to which Messrs. W. Watson and Sons show that they are fully alive by the prominence given at their stall to the Boardman arc lamp for studio portraiture, and to the "Acme" flashlight apparatus. They show also a number of examples of their own manufactures in cameras and accessories, and of the well known series of "Holistigmat" actinolux lenses. We should not omit also to refer readers to the series of "Argus" reflex cameras, which we know have met with wide appreciation in the press and serious hand camera work.

#### "Tabloid" and "Birdland."

Messrs. Burroughs, Welcome and Co. make their usual interesting and unpretending exhibit of tabloid chemicals, and demonstrate intervals the newly introduced chromium intensifier of Mr. W. B. Piper and other "tabloid" reagents.

At the adjoining stall of Messrs. Sanders and Crowhurst the latest models of the "Birdland" camera, the "Birdland" tilting board, and the most efficient Southport enlarging easels and tables are to be seen. Some examples of the recent bird photography by Mr. Oliver G. Pike and Mr. H. Armytage Sanders should also be noticed.

#### Screen-Plate Colour Processes.

Messrs. Wratten and Wainwright, who within the last year or two have come to the front in the matters of plates and filters for colour photography have a striking exhibit in the shape of an illuminated stall showing the quality of the safe-lights and the colour and compensating filters issued by their firm. They also exhibit a complete series of examples showing the stages in the preparation of a cemented filter from the dye and gelatine to the finished screen, but the chief interest will no doubt centre upon a microscopic exhibit showing the actual screen-plates now so much to the fore as solving the problem of a simple and expeditious means of colour photography. Messrs. Wratten allow the visitor to see for himself through the microscope the Joly "taking" and "viewing" screens, the Lumière starch grain, and the Warner-Powrie line screen in addition to two other line and mosaic screens of German origin. Their exhibit enables the visitor to observe the relative mechanical perfection of these competitors for favour in screen-plate colour photography, whilst it suggests at the same time the activity which is quietly being shown by those intent upon supplying the amateur worker with these new materials.

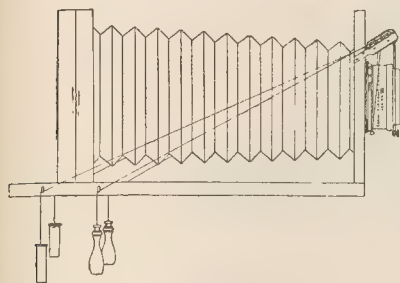
#### The Twin Cooke Lens and a New Reflex.

Messrs. Taylor, Taylor, and Hobson have an exhibit which is of great interest to the professional worker—namely, a new variety of their well-known "Cooke" lenses in which in the one instrument of eight inches focus two fully corrected anastigmats of 14 and



focus respectively are provided. The first merit of the new lies in the convenient way in which the optical adjustment of the means of securing these variations in focal length is performed. The standard flange of the Cooke factory is, of course, responsible for the convenience which the lenses possess in respect, but there are two other points which to the profes-

COOKE PORTRAIT LENS.  
SERIES VI.  
T.T. & M.L.



sional worker especially are of importance. In the first place, by having a greater or less separation to one component of the lens a certain amount of diffusion of definition may be introduced into the negative. Such a device is not, of course, a novelty in lens construction, but the point in regard to which Messrs. Taylor, Taylor, and Hobson may reasonably claim commendation is that the adjustment has been so provided with a graduated scale that the photographer may repeat the production of diffusion of certain degree as much as he likes merely by setting the pointer attached to the lens at the same place on the scale each time. Further than this there is a flexible attachment from the front to the back of the camera, both diaphragm and diffusion scale, so that the effects of both are controllable while the eyes of the operator are fixed upon the viewing screen. The new lens is certainly one of the notable introductions of the year, and the demonstration which Messrs. Taylor, Taylor, and Hobson's representative gives should be one of the inducements for the professional photographer to visit the Newbery.

To the amateur worker the new reflex camera, first shown at the exhibition of these instruments at the house of the BRITISH JOURNAL OF PHOTOGRAPHY, may be seen. Since its first introduction Messrs. Taylor, Taylor, and Hobson have further improved it, particularly as regards the stereoscopic hood, and in one or two minor respects connected with the working of the shutter. As we have already noted, it is a reflex camera built the landscape way of the type and provided with a finder when making vertical pictures which nevertheless shows the alteration of the subject on the plate as the front of the camera is raised. The extraordinarily small dimensions of the instrument for a reflex camera will attract the tourist, who could be fully satisfied with the thorough mechanical workmanship which Messrs. Taylor, Taylor, and Hobson have given to their maiden effort in camera manufacture. It is sufficient for us to say that the reflex is quite on a level with the mechanical perfection of "Cooke" lenses, and probably no higher praise could be bestowed upon the new instrument than this.

#### Platinotype and Gaslight Printing.

The stall of the Platinotype Co. is an object lesson as regards lighting and decoration, and on that account, if on no other, is deserving of study from the professional portraitist who would learn something as to giving a more impressive effect to his own premises. The demonstrations, however, of the Platinotype Co.'s new "Japine" paper, which take place daily at 4.30 and 7.30, should attract a good many, for "Japine," by its rich and lustrous quality, may be said to have had wide favour already bestowed upon it and it differs sufficiently as regards manipulation from previous productions of the Platinotype Co. to repay anyone interested in the paper for a visit to an actual demonstration.

Among the wall displays of the photographic trade, attention first centres on that of Ilford, Ltd., in the North Room, where is brought

together a magnificent collection of prints and enlargements on the Ilford gaslight papers. The variety in tone and surface of these photographs is remarkable, the results on the portrait carbon surface being especially worthy of attention. The catalogue will tell the visitor how the warmer tones have been produced, and the exhibit is thus one of the most educative of those provided by the great photographic houses.

#### Diffusion in Portraiture.

Adjoining the Ilford screen is the display of Mr. F. C. Clarkson, who shows examples of the work of the Hermagis "Eidiscopes" lens permitting of any desired degree of softness in portraiture and landscape work, but nevertheless, as shown by several examples, allowing of the most exacting sharpness being produced should such be necessary.

#### Negative and Positive Processes.

The examples of Ozobrome, Ltd., show what can be done with this attractive form of carbon printing; one or two of the results by Messrs. Ellis and Walery are interesting as indicating the use made of ozobrome in commercial carbon enlargement making.

Of Messrs. B. J. Edwards and Co.'s exhibit it is sufficient to say that it includes a number of fine examples of isochromatism in landscape, in addition to other thoroughly good technical work on the Edwards plates, among the users of which represented are Mr. Martin Duncan and Mr. Horsley Hinton.

A striking exhibit is that of the Leto Photo Materials Co., whose specimen prints of the well-known "Seltona" and "Tintona" papers strike us as specially meritorious, although as regards effective display a greater reserve in hanging and more care in classifying the prints would benefit the exhibit as a whole.

The Autotype Co. show a number of their excellent reproductions of paintings in carbon and Auto-Gravure illustrating the satisfying results which those processes will give in reproducing the work of ancient and modern masters.

A similar exhibit of special interest to the professional worker is that of the enamels on copper and coloured miniatures on ivory, a line of work which the Autotype Co. have lately taken up with increased activity.

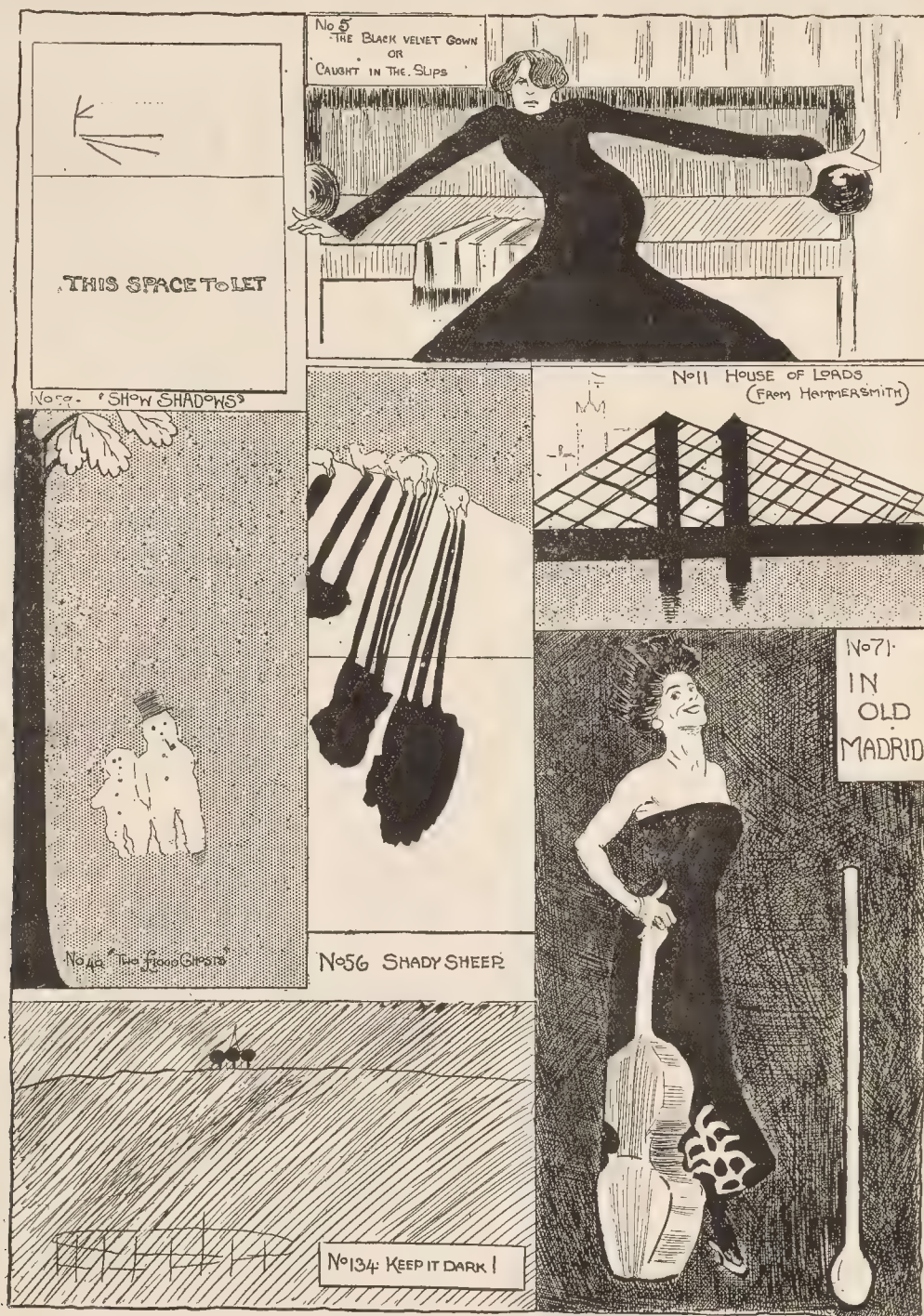
Two other exhibits in the North Room must be mentioned—namely that of George Smith, of the Sciopticon Co., which includes two frames of lantern slides of the highest technical quality produced by the Woodburytype process, and of L. Gaumont and Co., who show a most striking series of enlargements from negatives taken in the tiny "Blocknote" camera.

#### CATALOGUES AND TRADE NOTICES.

MESSRS. HARRINGTON BROTHERS' current list of fine chemicals reaches us for the current month, and is obtainable on applying to the firm at 4, Oliver's Yard, 53, City Road, E.C.

BARNET DEVELOPMENT PAPERS.—Under the title, "The Simple Art of Picture-making," Messrs. Elliott and Sons, Limited, have issued a 30-page booklet dealing with the manipulation of their bromide and gaslight papers, among which, as our readers should know, are such fine papers as "Lustra-matt," "Tiger-tongue," and "Oyster-shell." These descriptive titles do not belie the valuable qualities of the papers, and the booklet, dealing as it does with points in the manipulation of special application in the treatment of the papers, should be deserving of a careful study. It is illustrated with several useful reproductions, showing the effects to be aimed at—and avoided. Messrs. Elliott, Barnet, Herts, will send it free.

EXHIBITION AT WHITECHAPEL.—An exhibition illustrating "Animals in Art" will be open at the Whitechapel Art Gallery during October and November, admission free. Lectures relative to the subject of the exhibition will be given on certain evenings at 8 p.m., that on November 1, entitled "Art among Animals," being by the well known natural history lecturer, Mr. F. Martin Duncan, F.R.P.S. The Art Gallery is in High Street, Whitechapel, close to Aldgate Station, and should be well worth a visit from all lovers of natural history, to whom also the lectures—a list of which may be obtained on application to the secretary—should prove of special interest.



SOME GEMS OF THE PHOTOGRAPHIC SALON AS THEY APPEAR TO AN ARTIST IN BLACK-AND-WHITE



## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes.*

The following applications for Patents have been received between September 23 and 28:—

**ARTIFICIAL LIGHT APPARATUS.**—No. 21,209. Improved apparatus for the production of photographic prints by the use of artificial light. Frederick Wilfrid Scott Stokes and Charles Jennings Hillman, 149, Strand, London.

**CAMERAS.**—No. 21,387. Improvements in folding cameras. Arthur Lewis Adams and Walter George Roberts, 24, Charing Cross Road, London.

**WHIRLING MACHINES.**—No. 21,388. Improvements in whirling or centrifugal machines. Arthur Lewis Adams, 24, Charing Cross Road, London.

**GRIPPING DEVICE.**—No. 21,432. Automatic adjustable gripping device for supporting various appliances in front of photographic or other lenses of varying diameters. Walter Tylar, 41, High Street, Aston, Birmingham.

**POSING DEVICE.**—No. 21,470. Photographic posing device. Frederick William Charles Pohle and Paul Werner, 18, Southampton Buildings, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**BLEACH-OUT COLOUR PROCESS.**—No. 2,461, 1907. The invention consists in the following process of preparing bleach-out direct printing colour paper. The patentees write:—In the course of experiments for the production of bleachout sensitive surfaces we found that a regularity exists in regard to the wandering of dyes from a coating of one medium into that of another, more especially from gelatine into collodion (i.e. the nitrocellulose residue), and from this again into gelatine. The law rests on the strong tendency which acid dyes exhibit towards gelatine, whereas basic dyes possess a strong affinity towards nitro-cellulose. By acid dyes such dye stuffs are understood as contain an acid group, the residue of such a group or the ester of such a group. If a mixture of dyes in gelatine solution consisting of erythrosine, auramine, and methylene blue is coated upon a collodion base, the basic colours auramine and methylene blue wander into the collodion film and the resulting papers on examination show a green collodion film underneath a red gelatine film. If a mixture of the same dyes in collodion is coated upon a gelatine base, the erythrosine wanders into the gelatine, leaving a green collodion film upon a red gelatine film. If, instead of these colours, flavaniline (basic and flavaniline S) (acid) be employed, the former gives the same result as auramine, whereas flavaniline S wanders into the gelatine as erythrosine did. A mixture of flavaniline S, erythrosine and methylene blue in collodion coated upon a gelatine base yields an orange-coloured gelatine film upon a blue collodion film; if however in place of methylene blue an acid blue dye, e.g., naphthol blue 2 B be coated in collodion upon gelatine, a coloured gelatine film underneath a colourless collodion film is the result, or if coated in gelatine solution upon a collodion base a colourless collodion film underneath a coloured gelatine film is the result, in the latter case the dyes being already in a state of rest do not wander. If instead of three acid dyes three basic ones, e.g., safranine, auramine, and methylene blue, are employed in whichever medium they are mixed and coated coloured collodion and colourless gelatine are the result. If the basic dyes are coated in a gelatine solution upon a gelatine base underneath which is a collodion film, the basic dyes will wander through the gelatine base even should this be coloured with one or more acid dyes into the collodion film: the acid dyes behave similarly inasmuch as they will wander through a collodion layer to find their state of rest in a gelatine film.

In the preparation of bleach-out paper it was found advantageous in some cases to employ a mixture of both acid and basic dyes. It is not, however, possible to coat an emulsion containing both acid and basic dyes upon a paper support without a separation occurring. The separation was not only unavoidable but

necessary, because otherwise a reaction between the acid and basic dyes would have occurred.

It is exceeding difficult to coat with ordinary coating machinery a solution containing one or more dyes, as the slightest difference in the thickness of coating which would not be observed in the case of silver bromide paper or plates will form streaks which must be altogether avoided in the bleach-out process. To coat several layers of differently coloured dye solutions one upon another so that an evenly coloured harmonious surface results is almost impossible, the faults are increased in each successive coating so that one or other of the colours is in preponderance. This difficulty of coating a second film of colour emulsion may however be entirely overcome by the utilisation of the principle of wandering, inasmuch as the acid or basic dyes are given the opportunity to wander into a state of rest. The second coating can thus be dispensed with, as the separation of the dyes takes place automatically. The wandering is so regular that it is not possible to know from an inspection of the surface of the paper if it contains one or two coloured films, it being perfectly harmonious.

Other technical advantages pertaining in the application of the wandering principle may be mentioned. In cases where it is necessary to obtain absolutely sharp pictures it is necessary to have all the dyes contained in one layer; this might of course be obtained by the use of a coating of resin or lack, but this again would be accompanied by other technical difficulties, such as stickiness, slow drying, etc. It is much preferable to apply the principle mentioned above of the affinity shown by the dyes to certain layers of rest, and either coat the dyes in such a layer upon paper which has received a coating having no affinity to the dyes employed or to coat them in a layer having no affinity upon paper prepared with a coating for which the dyes have affinity, thus allowing them to wander to their position of rest. In the case of the employment of dyes in gelatine solution the emulsion may be coated direct upon collodion paper, whereas in the case of a mixture of basic dyes coated in gelatine solution upon collodion another gelatine coating would be required between the paper and the collodion film to prevent the dyes entering the tissue of the paper. In the case of coating acid dyes in collodion solution upon gelatine paper no such isolating layer is required, as the dyes have a greater affinity to the gelatine than to the paper; in the employment of basic dyes in collodion solution the emulsion may also be coated direct upon gelatine paper, as the dyes are already in their position of rest.

We have already referred to the process of obtaining two layers of differently coloured film; it is easy to see that by this means mixtures of basic and acid dyes can be separated at will in the simplest manner, so that the dyes may be brought or allowed to wander in the upper or lower stratum as may be most suitable for their being sensitised; the sensitisers being either added direct to the emulsion layer or allowed to be absorbed by the dyes from a sensitising bath into which the dyed films are subsequently placed, by which means the sensitiveness of the one layer may be increased by that of the other one. Instead of gelatine as matrix, other similar bodies—e.g., glue, isinglass, gum, albumen, casein, etc., may be employed, and instead of nitro-cellulose other cellulose derivatives—e.g., cellulose acetate, etc., may be used.

The following is a specific example of the production of a bleach-out film according to the present invention:—

Alcoholic solutions of erythrosine, auramine, and methylene blue are made and these added to a 3 per cent. collodion in such proportion that when a drop of the mixture is placed upon a glass plate or a piece of paper with a gelatine surface it dries to a neutral grey colour. An alcoholic solution of anethol or other suitable sensitiser or of mixtures of such is then added to the emulsion and the emulsion coated upon paper which has received a preliminary coating of gelatine. The coating of the paper may be done upon an ordinary paper coating machine, but it was found preferable to coat the dyed collodion emulsion upon a plate coating machine, the gelatinised paper having been first cut in sheets and mounted on sheets of plate glass.

When dry the paper sheets were cut round the edges and

stripped from their glass support. The erythrosin had wandered into the gelatine layer while the two basic dyes remained in the collodion layer.

The resulting paper requires sensitising with peroxyde of hydrogen, as the erythrosin is isolated from the sensitisers contained in the emulsion.

If instead of employing erythrosine a suitable basic red dye were used, a separation of the dyes would not occur, and the after sensitising of the paper would be rendered superfluous. John Henry Smith, Wolleshofen, Zurich, and Waldemar Merckens, 1, Schwarzwaldplatz, Mülhausen, Elsass, Germany.

**BLEACH-OUT COLOUR PROCESS.**—No. 7,217, 1907. The present invention is based upon the property of the basic dyes of wandering out of a layer of moist gelatine or analogous substance for which these dyes have little affinity into a layer of nitrocellulose or analogous cellulose derivative possessing a strong affinity for the basic dyes.

The simplest method of applying this invention is to copy a photographic negative upon a sensitive bichromate of gelatine film, and after developing the film with hot water to place it in a solution of basic dye. After the gelatine relief has imbibed a sufficient amount of the dye, the superfluous dye is washed off under the tap and the surface dried with blotting paper. The coloured gelatine relief is then squeezed into contact with the collodion surface intended to receive the finished print, and when sufficient dye has wandered into the collodion (which may be seen by raising a corner of the paper) the surfaces are separated. Under ordinary conditions a few minutes are sufficient for the transference of the picture. The gelatine relief may be employed over and over again, and if three bichromate positives are made from a set of three-colour negatives and transferred in their corresponding colours and in register upon the same celluloid surface a three-colour print in natural colours will be obtained similar to the pinatype process, but with much saving of time. John Henry Smith, 417, Seesträße, Zurich, Switzerland, and Waldemar Merckens, 1, Schwarzwaldplatz, Mülhausen, Elsass, Germany.

**PHOTOGRAPHIC PLATES.**—No. 7,885, 1907. The invention is a method of producing perceptible signs or marks on the sensitive side of photographic plates or films consisting in making incisions or cuts on the sensitive side along the edges of the plates or films. P. A. Newton, 6, Breams Buildings, London, E.C., for the Lumen Gesellschaft mit beschränkter Haftung, 17, Ostra-Allee, Dresden.

**CHANGING BOXES.**—No. 28,868, 1906. The specification describes a changing box for the description of which the nine drawings of the working parts are necessary. A. J. Boulton, 111-112, Hatton Garden, London, E.C., for Edouard Streiff, 37, Rue Lhomond, Paris.

**DIAPHRAGM SHUTTER.**—No. 95, 1907. This invention relates to certain improvements in the photographic shutter, for which an application for Letters Patent was filed dated February 3, 1906, No. 2,713. ("B. J.," March 8, 1907, p. 180.) The shutter is mainly designed for the use of professional and advanced amateur photographers. For the purpose of placing it also in the hands of the large number of less practised amateur photographers, and adapting it for smaller-sized cameras, kodaks, and the like, it has been found necessary to change the driving mechanism of the flies, to improve the special construction of the flies so as to render them more permanent, to enclose the operating mechanisms of the shutter, and to introduce a speed-indicating ring.

For this purpose the invention consists of a photographic shutter in which several flies are pivoted to and operated by a driving-ring in connection with stationary pins applied to the shutter case, the pins engaging slots in the flies located in the centre line of the same. The invention consists further of the construction of the flies themselves; next, of a covering-plate to prevent the ingress of dust, and of a speed indicating ring; and, lastly, of certain additional details of construction by which the operating parts of the shutter can be set and adjusted from the outside of the cover. Gustav Dietz, Lincoln Park, Washington Avenue, Yonkers, N.Y., U.S.A.

**BROMIDE PRINTER.**—No. 2,049, 1907. This invention has for its

object an apparatus which allows the rapid and uniform printing of positive photographs obtained by gelatino-bromide.

The apparatus includes a closed box containing electric lamps under a thick glass supporting the negatives, upon which the bromide paper is placed. The pressure necessary for the contact of the paper on the negatives is obtained by means of electro-magnets, which draw the cover downwards, such pressure as well as the ignition of the lamps being effected by a distributor of electric current so constructed as to be capable of causing the time of exposure to be easily varied according to the negatives to be printed and the rapidity of the paper used. Adrien Cottillon, 11bis, Rue Duchesnay, Asnières, France.

**TELEPHOTOGRAPHY.**—No. 8,727, 1907. A further patent connected with Dr. Korn's system of transmitting photographic images by electric connection. The method of telegraphically transmitting photographs and the like with the aid of synchronously running platen-rolls at the sending and receiving stations, which consists in circulating a current in a sending circuit with a sending selenium cell and compensating selenium cell, of which cells the sending one is exposed to a pencil of rays of light passing through the original and the compensating selenium cell is exposed to another pencil of rays of light under the control of a galvanometer with an interceptor, so that the current is modified by the sending selenium cell and a part of the modified current conducted from a juncture between the two cells through the galvanometer is practically freed from the influence of the inertia of the sending selenium cell, and in conducting the so corrected current from the galvanometer over the line of transmission by operating a photographing device at the receiving station in harmony with the tones of the original. Arthur Korn, 1, Hohenzollernstrasse, Munich.

Owing to pressure on our space the complete specification of View Finder No. 2,356, 1907, of the Rathenower Optische-Industrie-Anstalt, vorm Emil Busch, Rathenow, Germany, is obliged to be held over till next week.

## New Trade Names.

**SEMAPHORE.**—No. 295,758. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. John E. Williams and Co., 109a, Lower Moss Lane, Manchester manufacturers. August 23, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Autochrome Plates under Modified Treatment.

The "Amateur Photographer," in its weekly page, "Colour and the Photograph," thus continues its further instruction in the use of the Autochrome plates:—"We may briefly indicate variations in treatment likely to be of service in special cases, these variations becoming easily practicable in connection with the successive use of a rather strong chrome alum bath and formalin bath, as described last week, the use of either of these hardening baths being always preceded by washing and followed by washing, so as to avoid compensation by contamination of solutions with traces of each other. The negative produced in the first instance, or by the first development may be worth completing in many cases for reproduction or experiments on reproduction, but it is liable to be fogged, in which case as soon as the fixation is complete, a little solution of potassium ferricyanide should be added. This makes the hypo dissolve away an even layer of silver from the film, or "cut" it, as the professional terms the operation. Ordinarily 10 drops of ferricyanide potassium to each ounce of the fixing bath (ordinary plain hypo bath 1 and 5) will suffice. As the film clears it will show as a positive by reflection on the blackish screen, and at this stage the operation should be stopped. Intensification after a thorough washing and use of the E solution may then be carried out by the physical catalytic method, as prescribed by MM. Lumière, or by the mercuric chloride method. When an Autochrome positive is made, and ordinary sequence of operations is followed, the above-mentioned "hypo" and ferricyanide bath may be used at any stage, and



may be followed by either method of intensification. Further, the finished and dried Autochrome, if not varnished, may be "cut" or reduced as above, and re-intensified; proceedings which in many cases result in notable improvement.

## New Books.

"Atlas of Absorption Spectra." By H. S. Uhler and R. W. Wood. 59 pp. and 26 plates. The Carnegie Institution of Washington.

To aniline dye users there are already existing two valuable works, which give graphic representations of the absorption spectra of numerous dyes. These are by Formánek, and are in German, as is also the late H. W. Vogel's work on spectroscopic analysis, in which are included numerous valuable absorption spectra of aniline dyes. So far as we are aware, there is no English work devoted to this particular subject. We welcome all the more heartily therefore the present work, and the only regret we have is that it does not include even more than it does. This is not meant in any disparagement of the work, but it is obviously so valuable that one would naturally wish to see all the aniline dyes thus treated.

Formánek's work, to which we have alluded, is marred by the fact that the plates are drawn by hand from work with a prismatic spectroscop, to the dispersion of which one has no clue. In the plates in this work we have collotype reproductions of actual negatives, taken with a concave or diffraction grating, and to add to their value the spark spectrum of an alloy of cadmium and zinc in air is superposed, as is also a wave-length scale above each spectrum.

Every substance has been examined in three different thicknesses of solution, and therefore one has a complete guide to the absorption with increasing or decreasing strength. The text deals with the instruments used, the methods adopted, and a clear explanation of how to read the results. This is followed by a verbal description of each plate, which gives one at once a clear grasp of the picture, and it is rendered all the more valuable in that the commercial and chemical names and makers of each dye are appended, with the length of the solvent used.

The authors state that the chief object of the work is "to furnish graphical representations, on a normal scale of wave-lengths, of the absorption spectra, both in the visible and in the ultra-violet regions, of a reasonably large number of compounds. The most obvious use of which such a collection can be put is the production of colour greens for photographic work or for removing higher orders of spectra from the first order, in the case of diffraction gratings." When we state that there are no less than 160 dyes thus treated, besides some chemical compounds, such as the bichromates, permanganates, etc., it will be at once conceded that the work will become classic authority on the subject. The only possible regret we have is that the authors were limited by the sensitiveness of the plate used to 6500 in the red, but as their researches extended in the ultra-violet to close on 2000, this may be excused.

"The Romance of Modern Photography." By Charles R. Gibson. 345 pp. 7½ in. x 4½ in. (London: Seeley and Co.) 5s.

The first three chapters of this "popular" book on photography and its applications are devoted to an account of the circumstances attending the invention of a process for fixing the action of light, and remarkably clear, interesting, and accurate account it is. Mr. Gibson has evidently been at pains to acquaint himself with what has been written as the share of Niepce, Daguerre and Talbot in the "discovery" of photography, and though he quotes no authorities, it is easy to see that he has not taken for granted the accounts, usually abounding in errors, which less conscientious writers have given. Moreover, to write agreeably on the history of photography is not easy if one wishes to avoid giving a false impression of what took place between 1839 and 1841. Mr. Gibson's chapters provide as readable and reliable an account of these early days as we know—and we have read them all.

Our author, however, has soon had enough of the historical treatment of photography, and having discoursed of Daguerreotype and albotype in Chapters I. and III. he takes one Broddingnagian stride in instantaneous photography, and the cinematograph in Chapter IV. Having settled down in modern photography he next introduces colour photography in the shape of the Ives Kromsköp process, gives

us a glimpse of the Joly screen, and by this route arrives at the subtractive triple process of Sanger-Shepherd. We may not be able to commend the route, but he is nevertheless an interesting companion on the journey. Thence he arrives at the Lippmann interference process, and at last comes to speak of the bleach-out paper of Dr. Smith, which he has tried for himself.

The making of tone and half-tone printing blocks is a preliminary to other photo-mechanical processes, after which we swerve back again in Chapter X. to colour-photography in its application to printing. Thus half the volume has now been taken up, and we are "moved on" to photography and the criminal in Chapter XI., in which Mr. Gibson's historical aptitude again peeps out in the reference to a positive of Scott Archer's of four thieves (one described as a "dirty thief"), which is alluded to as the first photograph made for purposes of the identification of criminals. This leads our author to compare photographic methods with finger print methods, and to point out that the latter is but an accessory to the former.

The X rays provide Mr. Gibson's next chapter of romance, from which to radio-activity and the photographic action of the extreme of the spectrum is a natural transition. Photo-micrography affords our author an opportunity for an interesting chapter, after which some experiences in flashlight photography in a coal mine, taking a whole chapter for the telling, appears unduly spun out. A good description of Professor Korn's method of photo-telegraphy forms Chapter XVII., following which the author swerves back to elementary matters of the eye and the camera, and stereoscopic vision. Even more irrelevant to other portions of the volume is the miscellaneous Chapter XVIII., which discourses on the large photograph made a year or two ago by the Rotary Co. of telephotography, of photographs of timid and wild animals, and of "faked" photographs. The prominent fault of the book is its lack of arrangement. The author's idea of providing his literary fare appears to be that of Little Jack Horner of the nursery rhyme. He has a goodly stock of plums in his pie, and pulls out one after another without any particular reason for the order being discernible. That is the only charge that can be brought against his work, which is remarkably free from slips, and is moreover "produced" in the handsome shape which makes it fitting for a Christmas present.

## New Apparatus, &c.

The "Jupiter" Instantaneous Electric Lamp. Sold by John J. Griffin and Sons, Limited, Kingsway, London, W.C.

We briefly referred to this new lamp a month or two ago on its introduction into London from the Continent, where it has obtained a great vogue among photographers of all classes, including the very highest. Since then we have had the opportunity of seeing more of its performance in the extemporised "studio" arranged by Messrs. Griffin, who are supplying the lamp and all information regarding it to photographers in the United Kingdom.

The lamp differs from other systems of electric installation in the fact that the light is produced by a brilliant flash across a pair of arcs at an intensified voltage. The whole series of operations by which this is produced is automatically performed by the lamp mechanism, and follows on the operator pressing a pneumatic bulb at the camera. The mechanism consists of a small switch panel, upon which are mounted a pneumatically operated trigger and an electrically operated contact-maker. Upon the back of the panel is fixed a lever arm and series of contact studs similar to an ordinary motor-starting switch, the switch-arm being under the control of a strong spring. In action this device behaves as follows: The pressure of the bulb releases the trigger controlling the switch-arm, which then, under the influence of its spring, flies across the contact studs. As soon as the contact is made, the solenoid in the centre of the panel becomes "excited," and the core, which carries a short carbon rod, is forced up against a similar carbon contact, and the greater portion of the arc lamp resistance is cut out. The effect of this is to increase the voltage across the terminals of the arc lamp while the switch-arm is passing across the contact studs, and the arc therefore blazes intensely for a small fraction of a second. As soon as the switch-arm has passed the contact studs the arc circuit is resumed through the resistance.

The great brilliance of the flash is responsible for a high development of actinic light, whilst the shortness of its duration precludes the liability of a sitter to move during an exposure, for the simple reason that the exposure is so rapid. The light, however, is not of such extraordinary apparent brilliance as to disturb a sitter of whom a series of exposures are being made, and the arcs are, as will be seen from the figures, shielded by a conical frosted glass screen, and further by a silk or muslin screen placed between them and the sitter.

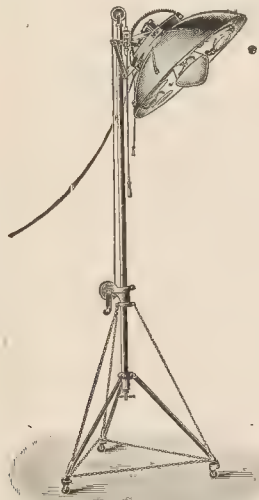


Fig. 1.

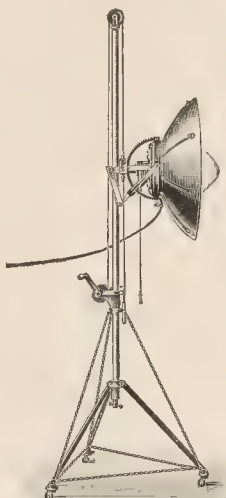


Fig. 2.

The lighting is thus greatly softened, yet the intensity of the light is such that with a plate of not the highest rapidity a lens aperture of  $f/11$  to  $f/16$  was found sufficient for a full exposure. This great power was demonstrated to us by Messrs. Griffin, who inform us of their readiness to make appointments with photographers and their assistants at the Kingsway premises.



Fig. 3.

It will be understood that the actual flash occurs at the moment of exposure. For focussing a series of incandescent burners are provided round the arcs themselves. They coincide practically with the diffused light which the arcs themselves emit, so that the effect on the focussing screen may be taken as that which is obtained on the plate.

For all classes of professional portraiture, and for that of children in particular, the lamp should prove most valuable. We reproduce

a couple of photographs taken with it to illustrate its uses for subjects which are not easily obtained with anything but a very short exposure. They are typical of hundreds which every photographer would wish to take by artificial light, and which are easily within the range of the "Jupiter" installation. Artificial lighting as our readers know, is one of the factors which in our belief is



Fig. 4.

rapidly altering the practice of professional portraiture, and, the being so, it behoves every professional worker to keep himself fully informed of the new facilities at his disposal.

Messrs. Griffin have in readiness a small budget of literature dealing with the new lamp, the information in which is to be obtained by applying to them at Kingsway, London, W.C.

## New Materials.

Photographers' Printing. Produced by H. Hood and Co., Ltd., Strand, London, W.C.

Messrs. Hood are fortunate in the relations they can establish with photographers. Being makers of blocks, as well as printers of them, they are able to prepare half-tones or zincos of the quality most suitable for a given job, and at the same time have the responsibility for their effective behaviour in the press. Given a photograph which is right in the first instance, the whole credit or the whole blame for the execution of an order rests on them, and is a responsibility which we know to be very cheerfully undertaken by the firm. Messrs. Hood, in sending us a large selection of their current work, remind us of the effective use which can be made of half-tone reproduction in photographers' stationery and note headings, but their claims upon the photographer's notice are not limited by the use of half-tones, since designs in line, wash, and engraving are branches of their business in which they turn out consistently good work. Of the large selection of recent work which they send us we should like to refer particularly to the postcards and view books, produced from first to last at the Hood works from a customer's photographs. The demand in postcards being now all for colour, the three and four-colour work



Messrs. Hood, which is done at very reasonable prices, should permit any photographer to use his own negatives in competing with the cards of the large houses. We may mention that a coloured original is not a necessity for a coloured postcard, and although Mr. Hood himself is a practised three-colour worker and an exhibitor in the collection of Society of Colour Photographers, three-colour photography, in the strict sense of the term, is not a vital preliminary to the issue of postcards in colour. More ambitious work in the way of souvenirs and advertisement brochures are also a strong specialty. Messrs. Hood, with whose aid a photographer entrusted with the preparation of the photographic illustrations for any large publicity scheme might safely undertake the supply of the complete production.

"Autotrans" Frames (for Autochrome Transparencies). Sold by Jonathan Fallowfield, 146, Charing Cross Road, London, W. The firm of Fallowfield, with its accustomed enterprise and with peculiar appropriateness, enters what is assuredly a fallow field—namely the supply of accessories for the Autochrome process. Messrs. Fallowfield respond to the first and immediate demand of the Autochrome maker by offering a suitable frame for the transparency. This takes the form of a plain oak frame which gives a border of one inch to the glass and allows for the introduction and removal of the Autochrome at a loose end, which is slipped into place and secured by a touch of gum or a small brass screw. The Autochrome is thus held in a



ove, and even if not protected by a cover glass is out of harm's way. Moreover, the frame provides a much higher degree of safety on the transparency is sent by post. The prices of these "Autotrans" frames are as follows:— $4\frac{1}{2} \times 3\frac{1}{2}$ , 4s. per dozen;  $6\frac{1}{2} \times 4\frac{3}{4}$ , 8s. per dozen;  $8\frac{1}{2} \times 6\frac{1}{2}$ , 10s. per dozen;  $9 \times 12$  c/m, 6s. per dozen;  $13 \times 18$  c/m, 9s. per dozen. With each frame are supplied two small metal hooks which can be attached to the side or end for position in a window. Messrs. Fallowfield are also making a specialty of supplying carriers for the foreign sizes of plates at the following prices:— $5 \times 4$  to  $9 \times 12$  c/m, 1s. each;  $6\frac{1}{2} \times 4\frac{3}{4}$  to  $9 \times 12$  c/m, 1s. 6d. each;  $8\frac{1}{2} \times 6\frac{1}{2}$  to  $13 \times 18$  c/m, 2s. each;  $10 \times 8$  to  $18 \times 24$  c/m, 6d. each.

"Academy" Mounting Papers and Boards. Sold by "Bartons," 114, Golden Hillock Road, Birmingham.

or variety of colour and of surface and for different substances material, the mounting papers and boards of this firm are as comprehensive a series of materials as we have seen. A set of specimens of the newly-issued colours and textures has surprised us by the choice of the disposal of the photographer. The papers are obtainable, as sheets, in sheets 20in. x 25in., of five different substances, the "thin" for pasting down or dry mounting, and the thicker makes for re-partout and cut-out mounting. In particular we would signalize "negligé" and "canvas" surfaces, and the pebbled paper, sold "craftsman"; but mention of one or two is invidious when the attention is so great. Any desirous of gaining all possible effect in mounting, and particularly in dry-mounting, may be advised to send Messrs. Bartons for samples of the papers and boards.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, OCTOBER 11.

West London Photographic Society. Annual Meeting.

MONDAY, OCTOBER 14.

Kidderminster and District Photographic Society. Annual Meeting.  
Lancaster Photographic Society. Exhibition of Lantern Slides.  
Bradford Photographic Society. "Lantern Slide Making." W. H. Reed.  
Stafford Photographic Society. "The Camera and How to Use It." F. Cliff and H. Hey.

TUESDAY, OCTOBER 15.

Leeds Photographic Society. "Round the World with a Camera." Edgar Lupton.  
Blairgowrie and District Photographic Association. "A Cycling Tour Among the Dolomites." Rev. J. Hunter.  
Redhill and District Camera Club. "Experiences of a Photographer in the Tropics." A. H. Dunning, F.R.G.S., F.R.P.S.  
Sheffield Photographic Society. "Photography of Flowers and Fruit." E. Seymour.  
Manchester Amateur Photographic Society. 1906 Affiliation Competition Slides.  
Birmingham Photographic Society. "Colour Photography." H. J. Comley.

WEDNESDAY, OCTOBER 16.

South Suburban Photographic Society. "Pictorial Composition." J. T. Ashby, F.R.P.S.  
Coventry Photographic Club. "Norway." B. B. Dickinson, M.A., F.R.G.S.  
Croydon Camera Club. Lantern Night.  
Evertown Camera Club. "Glimpses of Erin." J. M. Dallahan.  
Leeds Camera Club. "Are Orthochromatic Plates Best for Landscape Work?" J. W. Charlesworth.

THURSDAY, OCTOBER 17.

Queen's Park Amateur Photographic Association. "The Movements of a Camera." James McKissack.  
Liverpool Amateur Photographic Association. "The Evolution of an Amateur Photographer." Willis Brunt.  
Midlothian Photographic Association. "Woodland Photography." Dan Dunlop.  
Hall Photographic Society. "The Land of Carillons, Canals and Coifs." C. B. Howdill.  
North London Photographic Society. "Carbograph." Rotary Co.  
Handsworth Photographic Society. "My Experience of the New Autochrome Plates." T. Haynes Duffell.  
Richmond Camera Club. "Some Gleanings from Africa During the Visit of the British Association for the Advancement of Science in 1905." J. H. Gardiner.  
London and Provincial Photographic Association. "Hints to would-be Patenteers." W. J. Ferry.

### ROYAL PHOTOGRAPHIC SOCIETY.

ORDINARY meeting, held October 8, 1907, at the New Gallery, the president (Mr. J. C. S. Mummery) in the chair.

The medal awarded to MM. Lumière was presented to Mr. T. K. Grant: that awarded to Professors Lowell and Lampland is to be forwarded to them.

"The president delivered his annual address on "The Position of Pictorial Photography." He pointed out that the very early workers were apparently devoted to detail alone, and that David Hill was the pioneer of purely pictorial work, his results being quite up to the best results of to-day.

At the first meeting of the Royal Photographic Society a paper on "Art" was read by Sir W. J. Newton (an artist), but the progress of pictorial photography was very slow, in spite of the examples set by Hill, Newton, Rejlander, H. P. Robinson, and Mrs. Cameron. At the present day photographers were more or less divided into two important groups of specialists—the pictorial and scientific groups.

Training was essential to pictorial photography, and though very much was due to the amateur, it is really the professional, who devotes the whole of his time to practice and study, to whom we should look for the highest class of work. Art training as at present available, though perhaps suited to painters, was not exactly the best for photographers. Possibly in time a more suitable system might be devised.

In reference to colour work, the speaker observed that the recent remarkable advances in colour transparency processes rendered it probable that a suitable paper process would soon be forthcoming, in which case the pictorial possibilities of colour photography would have to be seriously considered and studied, while the photographer's training would have to be modified and extended.

No discussion is usual after the president's address, and in accordance with this custom the meeting terminated with a unanimous vote of thanks to the president, proposed by Rev. F. C. Lambert and seconded by Mr. E. T. Holding.

CROYDON CAMERA CLUB.—At the invitation of the club Mr. Ernest Webster, of Messrs. Rogers and Webster, gave a practical "talk" on the mounting and framing of photographs, interspersing his remarks

with candid and highly diverting criticisms, and observations on photographic matters generally. Without going so far as to suggest that Mr. Webster regards pictorial masterpieces as consisting of frames with something in the middle, yet, on the other hand, it cannot be said that he looks upon the setting of the gem as in any way secondary or of minor importance. There was no doubt, he said, that carbon was the process. Carbon prints with thin, deep, juicy tones required large massive frames, eminently satisfactory from all points of view, and in particular that of the frame maker. Dainty platinotype prints should be handled more delicately, and a light frame, in the nature of a grey slip, harmonised well; but it was difficult to get a permanent grey, as paint must not be used. In this connection Mr. and Mrs. Cadby had been very successful, on lines which many had tried to imitate, but unsuccessfully. Personally he did not favour these narrow slips, with the tendency for the glass to fall out of the frame; besides, they were not commercial. He was astonished to find, from examples handed up, that platinotypes could also be made of rich sepia colour. These would require much the same treatment as carbons. The bromide process was no good, absolutely no good; it failed to give fine gradation or tone. Gum had its points, and he wished it would progress; large prints were desirable. A clever young worker, named Arbuthnot, had made some excellent artistic pictures, but he had now dropped out of "gum" and into "oil." Speaking of framing in general, British oak was satisfactory, and, moreover, cheap, it being imported in large quantities, duty free, from America. Walnut was better, and more expensive. Some walnut wood was, however, not safe to use, owing to its tendency to warp. Shaped and panel frames were away from the stick-in-the-mud style, and they might be ornamented in relief. In either case they isolated the exhibit from its neighbours, and gave it prominence thereby. If a picture had a predominant note on one side it might be placed near to a top corner of the panel piece, balance being secured by the extra length of the panel in the other direction. He was glad to see that natural colour woods, stained and oiled, had apparently killed the wide deal frames painted dirt colour, so much in vogue in the past. Mr. Webster finally illustrated how frames were made, and suggested various harmonious arrangements for mounting and framing a large number of prints handed up. We understand that Mr. Webster is open to consider applications to give his chatty discourse before societies in London and neighbourhood. He certainly afforded an amusing and instructive evening at Croydon.

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—The first meeting of the autumn session of this society was held at Plough Hall, High Street, last week, Mr. A. Haddon in the chair. About eighty members and friends were present. Mr. F. J. Mortimer, F.R.P.S. (editor of the "Photographic News"), delivered a lecture on "Cash and the Camera," illustrated by a large number of lantern slides very successfully shown by Mr. P. B. Dannatt, who provided and worked the lantern for the occasion. Mr. Mortimer explained very fully "How it is done," pointing out the absurdity of sending to a particular editor pictures which have no interest for his readers, though they might be excellent material if sent to another and more suitable paper. No man would send a consignment of fish to a butcher or of meat to a fishmonger and expect to sell his wares. What the average editor wanted was photographs of events of interest to his special readers, and these of a newsy character.

**BATH PHOTOGRAPHIC SOCIETY.**—The annual meeting of this society was held last week, when it was stated that the membership at the close of the season was 95. A good programme of meetings had been arranged and carried out almost entirely by the members. It was further stated that during the year an important agreement had been entered into by the President with the Royal Literary and Scientific Institution, whereby members now had the use of the dark room and Selborne room for a term of five years. The financial statement showed a small deficit owing to extraordinary expenses having to be met during the first year; but several members present contributed special donations, and it is hoped by this means to wipe off the debt. The officers for the ensuing session were elected as follows:—President, Mr. Mowbray A. Green, A.R.I.B.A.; vice-presidents, Rev. Jas. Dunn, Dr W. H. Symons, Mr. Walter Pitt, Mr. Geo. F. Powell; Council—Dr. J. Hardyman, Dr. R. A. Bayliss, Messrs. W. H. Weeks, Walter Rossiter, Walter E. Cooline G. B. Caple, Fred Stone, and G. L. Dafnis; hon. portfolio secretary, Mr.

F. H. Gray; hon. financial secretary, Mr. J. Lewis; lanternist, Mr. F. Ging; and general secretary, Mr. W. J. Hallet, M.P.S.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting on October 3—Mr. Teape in the chair—Mr. A. E. Smith lectured upon and demonstrated "Bichromate Printing." He had, he said, noticed that a green carbon tissue always required long soaking before transfer than any other colour; it was also longer in developing. He had tried special sensitising solutions, but always went back to the plain 5 per cent. solution of bichromate as being the best. The lately exploited spirit solution in his hands was very liable to show streaks in the finished print. The negative for carbon should be denser than for P.O.P. printing if good results were wanted. Carbon, he thought, was the finest of all our printing processes, but it could not be hurried, and for beautiful effective prints he recommended warm black, and the transparency black tissues. Printing he did with an arc lamp at 12 inch in 1½ minutes. Following on with the preparation of transfer prints for litho work he demonstrated the development and making up of the print ready for transfer to the stone, showing that the ink only took to the print not acted upon by light. This he followed by demonstrating the dusting-on process, and said he used a mixture of glue, glucose glycerine, and water, with bichromate, coated and dried the plate and printed whilst the plate was hot and dry. When moist the print became sticky and the powdered colour, upon being applied with a camel-hair brush, stuck to the print where the light had not acted. This process, he said, was very useful for making reverse negatives and other purposes, as when it was finished, if coated with collodion, it could most easily be transferred to any object. He finally demonstrated an entirely new process of gum printing which largely interested every member at the meeting, and of which the Association expects to hear more in the near future. A vote of thanks, proposed by Mr. Freshwater, brought the meeting to a close.

**HULL PHOTOGRAPHIC SOCIETY** opened the winter session last week with a social function. The secretary (Mr. F. J. Webster), in conjunction with Dr. Divine, submitted quite a number of Autochrome plates with varied subjects, flowers and fruit being much in evidence; whilst the portraiture studies were extremely successful, being taken out of doors. The Doctor's kindness in bringing his microscope to carefully examine the plates before exposure and after was much appreciated. The Rev. C. O. Stewart also submitted his results, which were simply charming, and also called for much attention. The President, in a very enthusiastic manner, called special attention to the new plates, and thought it was probably the beginning of greater things in this all-absorbing branch of photography—the possibility of being able to take a subject by direct exposure. He thought that photography as an art had a distinct influence upon the amateur, and taught him first to appreciate light and shade and train the eye in a remarkable way. The amateur finds his next step must be one of the study of balance of this light and shade, and it is not long before he finds out that colour or tone plays an important part in one's results, and makes one see the colours in landscape as he never saw them before the commencement of his photographic days.

**MESSRS. B. J. EDWARDS AND Co.** write us that they have been awarded the gold medal in the photographic section of the International Sports Exhibition held from July to October at the Grand Palais des Champs Elysées, Paris.

**SOUTHEAST TWENTIETH ANNUAL PHOTOGRAPHIC EXHIBITION.**—The exhibition will be held from November 29 to December 5 inclusive, entries closing on November 20. There are two open classes, Class A for framed prints, any subject, and Class B for lantern slides, any subject, with ten silver vases, 8in. high, as awards. There will also be a class for residents in Hants and Isle of Wight only, with ten silver vases as above as awards. The judge is Mr. H. Snowden Wax. The exhibition will be held as in former years in conjunction with those of Southampton and Hove, the former opening on November 1 and the latter closing December 14. Pictures exhibited at all three exhibitions will be forwarded from Southampton to Southsea, and from Southsea to Hove free of charge. The exhibits in the Hants and Isle of Wight class will be forwarded free of charge from Southampton (which exhibition has a similar class) to Southsea. Entry forms apply to Gilbert Wood, 10, Pelham Road, Southsea.



## Commercial & Legal Intelligence.

**A MORECAMBE BANKRUPTCY.**—The difficulties of a Morecambe photographer and tobacconist, named Alfred Ernest Edward Clay Poole, 9, The Crescent, and Midland Studio, Northumberland Street, were revealed at his public examination in bankruptcy at Preston on October 4. His gross liabilities were £284 3s. 1d., of which £190 13s. 1d. is expected to rank for dividend, and the deficiency was £142 8s. 7d. Debtor alleged as the cause of failure "losses in connection with guarantees, bad trade, keen competition, and heavy expenses." He stated, in reply to the Official Receiver, that he commenced business in Morecambe as a photographer twenty-five years ago with a capital of £100, which he borrowed, and five years afterwards started a tobacconist's business. In May, 1899, debtor, with three other directors of the Morecambe Theatre Company, became guarantors to a bank. In March, 1901, he again became guarantor to the same bank. He was called upon for payment under guarantees, and in March, 1906, in order to avoid legal proceedings, he conveyed a dwelling-house, costing £500, in Morecambe, to the bank in settlement of their claim. Debtor said up to the time he was called upon to pay on the guarantee he was quite solvent. The business has been gradually losing for three or four years. Mr. Fawcett, Morecambe (for debtor): But for your unfortunate associations with the Morecambe Theatre Company you would have been quite solvent?—Yes. You parted with a house of the value of £500, and invested £140 in shares?—Yes. Your deficiency account is £142, and so but for that transaction you would have been £500 to the good?—Yes. The examination was adjourned.

**A NORTHERN BANKRUPTCY.**—The statement of the affairs of Frank Scott Russell, lately trading as a photographic dealer ("Scott, Russell and Co."), at 13, Albert Street, and 54, Martineau Street, Birmingham, Scarborough, and Sheffield, as filed by the debtor disclosed liabilities amounting to £1,432; assets, 501 shares in Scott Russell and Co., which are estimated to produce nothing. Mr. G. H. Acheson (Deputy Official Receiver) presided at the first meeting of creditors held last week. In his observations, Mr. Acheson stated that prior to October, 1901, the debtor was employed as a traveller in the foundry and fire-brick trade, and that he held other agencies, including one in the pictorial postcard trade. At that date he commenced business on his own account in Birmingham as a photographic dealer, with a capital of £20. In March, 1904, he opened a branch business at Scarborough, and in February, 1905, he opened other premises in the town. In October, 1905, he opened a wholesale warehouse in Sheffield, but in December, 1906, that warehouse was closed, a similar one having been opened in March, 1906, in Albert Street, Birmingham. Debtor, who was trading under the style of "Scott Russell and Co.," did not appear to have taken proper steps to ascertain the result of his trading, and whether the same had been carried on at a profit or loss. The unsecured liabilities included £1,336 ordinary trade debts and £85 bank overdraft. The case was a summary one, the Official Receiver being appointed trustee.

### NEW COMPANIES.

**W. D. MORRIS.**—£500 (£1). To acquire the business carried on at 246, High Road, Willesden Green, N.W., by W. D. Morris, and to carry on the business of wholesale and retail druggists, chemists, dealers in photographic, scientific, and other apparatus and materials, etc. No initial public issue. W. D. Morris is the first general manager. Qualification, 100 shares. 246, High Road, Willesden Green, N.W.

**WILLMONTS.**—Capital, £2,000 (1,000 £1 preference and 2,000 10s. ordinary). To adopt an agreement with H. de Montin for acquisition of his connection in business of photographer and photographic printer, etc. No initial public issue. Registered without articles.

**THE UNITED STEREOSCOPIC SOCIETY.**—The result of the landscape competition of this society, judged by Mr. A. Horsley Hinton (Editor of "The Amateur Photographer"), was as follows:—1st award, T. H. Pettipher; 2nd award, A. J. Snow; 3rd award, A. T. Mole; hon. mention, Messrs. F. Low, H. A. Miles, F. W. Pearson, and H. S. Targett.

## News and Notes.

**PHOTOGRAPHIC LECTURES, NEWCASTLE.**—The council of the Newcastle-upon-Tyne and Northern Counties Photographic Association announce that the headquarters of the Association are now located at the Armstrong College, Newcastle-upon-Tyne. By special arrangement with the council of the college a course of lectures on the optics and chemistry of photography will be given at the college during the ensuing two winter terms, commencing on Thursday, October 10. The first part of the course, that on the "Optics of Photography," will be delivered by Professor H. Morris-Airey, M.Sc., who will deal with the following subjects:—Experiments to demonstrate some important properties of light; the prismatic spectrum; actinic and heat rays; the single lens, why unsuitable for photographic work; development of the compound lens; the function of the diaphragm; size and intensity of the image; depth of focus and perspective; achromatically corrected lenses; distortion of images; explanation of the design of the following lenses—1, Portrait; 2, Wide-angle; 3, landscape; 4, telephoto; historical survey of the subject. This course commenced on Thursday, October 10, and will be continued each Thursday evening between 8 and 9 p.m. until December 12.

The second part of the course, that on the "Chemistry of Photography," will be delivered by Professor F. C. Garrett, D.Sc., F.C.S., who will deal with the following subjects:—

Chemical compounds and some of the changes which they undergo; chemical change and the laws which govern it; the meaning of a chemical equation; some important chemicals used in photographic work; silver and its salts, the halogens; the action of light upon compounds of the metals; the chemical action of developers and of restrainers; fixing the picture; intensifying and reducing the negative; the preparation of a print and the changes brought about by the use of toning solutions; the carbon process; bichromate printing processes. Particular attention is called to the fact that this course, which will consist of ten lectures, will commence on Tuesday, January 7, 1908, at 8 p.m., and will continue each Tuesday evening between 8 and 9 p.m. until March 10.

The fee for the full course is 10s. 6d., and those who desire to attend the lectures should enter their names at the Secretary's office at the college either by personally attending there or by letter addressed to Mr. F. H. Pruett.

The Newcastle Association may be congratulated on its enterprise in arranging these courses of lectures, which it is hoped will be attended by photographers on the Tyne.

**ARCHITECTURAL PHOTOGRAPHS.**—A short description of the Bristol cathedral organ, published in connection with the series of recitals now being given, contains, we notice, a number of very good photographs by Mr. Charles H. Horton, of Bristol, whose business has been specially in architectural and technical photography. We are glad to commend such excellence of work when we observe it.

**PHOTOGRAPHY IN COLOURS—NEW EDINBURGH SOCIETY INAUGURATED.**—With a membership of about a hundred, the Mid-Lothian Photographic Society was inaugurated in the Goid Hall, Edinburgh. Dr. Drinkwater, the president, occupied the chair, over a good assembly of members. Mr. E. L. Brown contributed an interesting paper on the Autochrome process of direct colour photography in one operation. Mr. Brown, whose lecture was illustrated by negatives of his own taking, drew attention to the fidelity of coloration. It was to be regretted at present, he said, that results had not yet been committed to paper, but only to glass. He understood, however, that there was a paper in course of preparation which would allow of prints being taken.

**THE "RAJAR" CAMERA** offered monthly by Messrs. Rajar, Ltd., of Moberley, Cheshire, for the best print on "Rajar" P.O.P., has been awarded to A. J. Hollingum, Leicester Road, Wanstead, having been judged the best print received during September. The paper on which the print was made was purchased from Mr. G. F. Horne, 32, Gracechurch Street, London, E.C.

**DEVELOPING AUTOCHROMES.**—It may interest a number of our readers to know that Messrs. Jas. H. Sinclair and Co., 3, Haymarket, W., have now opened a department for the developing and finishing

of Autochrome plates. The department will be under the guidance of Mr. James A. Sinclair, who has had very considerable experience with these plates, and every care will be taken to get the best results possible.

R.P.S.—The following lectures will be delivered at the New Gallery:—Saturday, October 12, "Some Dutch Places and People," by Arthur Marshall, A.R.I.B.A., F.R.P.S.; Monday, October 14, "Lakes and Villages in North Italy," by the Rev. H. O. Fenton; Thursday, October 17, "Adventures in Bird Land," by Oliver G. Pike, F.R.P.S.

THE SCIENTIFIC SHOP (Albert B. Porter), of 324, Dearborn Street, Chicago, writing in reference to our note of September last, says: The particular reason why the second order spectrum was taken in estimating the resolving powers of these gratings is due to the fact that grating replicas, as hitherto made, were very deficient in their definition in the second order. All of the Ives gratings, however, have, in the first order, a resolving power about five times that required to show the Nicol line between the D's, and the definition is such that a magnifying power of about 30 diameters is required to utilise their full resolving power.

PHOTOGRAPHS OF ALLIGATORS.—Mr. H. G. Ponting, examples of whose clever and pictorial photography of Eastern scenes have been seen privately in London—one or two are on view at Messrs. Sanger-Shepherd's stall at the R.P.S. Exhibition—contributes to the Paris journal, "L'illustration," an article on his adventures in photographing the alligators in India. His text is illustrated by a large reproduction of himself within a few feet of four huge alligators, with savage eyes fixed on himself and his reflex camera.

TRAILL TAYLOR MEMORIAL.—As previously announced, the tenth annual lecture will be delivered on Tuesday, October 22, 1907, at 8 p.m., at the New Gallery, 121, Regent Street, W. The lecturer will be Mr. S. D. Chalmers, M.A., who will take as his subject "Aberrations in Photographic Lenses."

DR. J. H. SMITH, of Zurich, whose direct printing "Uto" paper is well known to those interested in colour work, informs us that the increasing demand for this material is leading him to abandon the manufacture of ordinary plates and papers and to seek for collaboration in specialising in the colour processes. Dr. Smith makes an announcement in regard to the matter in our advertisement pages this week.

ROYAL PHOTOGRAPHIC SOCIETY.—The Council have decided to purchase Mr. J. C. S. Mummery's "A Winter Landscape" and Mr. Furley Lewis's portrait of Mr. Mummery for the permanent collection of the society.

MR. PIRIE MACDONALD, "Photographer of Men," has opened a new studio in the Howard Building, Fifth Avenue and 47th Street, and will continue the studio, established seven years ago in the Washington Life Building, Broadway and Liberty Street, New York. Mr. MacDonald will make sittings at either place, by appointment.

SOME ANIMATED PICTURES of the present war in Morocco have been taken by the Urban Company's expert operators with the French troops at Casa Blanca, and are now being shown in "Urbanora" at the Alhambra. Many of the scenes have been photographed within the actual zone of fire.

THE "AUTOCHROME" PROCESS.—Owing to pressure on our columns this week we are compelled to hold over the commencement of an article on the "Autochrome" plates by Mr. Arthur Payne, F.R.P.S.

## Correspondence.

### PINATYPE PORTRAITS IN THE COLOUR EXHIBITION. To the Editors.

Gentlemen,—I notice in Mr. E. J. Wall's review of the exhibition of the Society of Colour Photographers, on page 74 of the "Colour Supplement," you mention Exhibits No. 53 M as being the work of Mr. S. J. Beckett. These, I think you will find, are my work, and I shall be glad if you would correct same. Probably it might be of interest to a few of your readers to have further particulars of the process, which is Pinatype, taken during April, with an inclusive exposure in the studio of 15 seconds. The prints exhibited are bona-fide examples of the process, there being no hand work upon them.—Faithfully yours,

ERNEST A. BECKETT.

The Grove, Hackney, N.E.

October 4, 1907.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

A. Russell, 6, Wilde Street, Liverpool. Photographs entitled: "After the Storm," and "Weathering the Storm."

DISTEMPER BACKGROUND.—I have recently made—or, rather, tried to make—a distemper background, and it has turned out a miserable failure, and I should esteem it a great favour if you will tell me why. I tightly strained some unbleached calico on the frame and coated it with size. I then mixed with water some whiting and lamp-black, and then added about an equal quantity of size, boiling hot, and, after thoroughly mixing, I applied it, using a large paint brush, as quickly as I could, and before the mixture got cold. When the background was dry it was all brush marks and quite useless.—FIRST ATTEMPT.

We are not at all surprised that the result was a failure. The distemper should have been applied cold, and only sufficient size should have been used to form a thin jelly when it was cold. Instead of applying the colour with a painter's brush it should be laid on thickly with a whitewash brush. To get an even surface, when dry, requires some little knack. The colour should be laid on thickly and quickly, so as to cover the whole surface before any portion becomes dry, and in no case should the work be gone over a second time, otherwise brush marking will show. Before the background is done again it must be re-sized.

A. SIMCOR.—It is a matter you had better consult a solicitor upon. The agreement, of which you send a copy, is so vaguely worded and clumsily drawn out that we can make little of it. But so far as we can see, you will have to make good the adaptations on its expiry. There seems nothing in the agreement that will exempt you from them.

J. C. FORDLY.—The darkening of the prints by exposure at the railway station is due to their being imperfectly fixed. The whole of the silver salts were not removed from the paper, and they have darkened to the purple tint through the prolonged exposure to the strong light. The fumes from the engines have had nothing to do in the matter.

J. KINGS.—The want of definition is due to the lens not covering the size of plate. An ordinary quarter-plate R.R. must not be expected to cover a full size postcard. Some of the modern quarter-plate anastigmats will, however, do so if they are well stopped down.

COPYRIGHT.—In the spring I took a series of pictures of this neighbourhood and published them as postcards, which have had a good sale. Before publishing them I made most of them copyright. Recently another photographer here has taken identically the same views, and I am told that he actually had my picture with him at the time, so as to get his the same as mine. These he is now selling at 1d. each, while mine sell at 2d. each. Can I come upon him for infringement of my copyright, seeing that he has taken his pictures from identically the same spot as I did mine?—A. Z.

No. You have no remedy. Your copyright only covers your pictures, and not the scenes themselves. Had he copied your



photograph you would have had good cause for action. But as you took his from the scenes themselves you can do nothing.

**HYGEMAT.**—There is not an appreciable gain in  $f/5$  over  $f/6$ , and our present lens is an excellent one. If you must change, we would advise you getting one of still larger aperture, such as one of the new Tessars of  $f/4.5$ .

**GROUND.**—Can you tell me what to use to paint a background dead black? I have several old backgrounds by me, and thought should like to make one of them plain black, and have used vegetable black, mixed with hot water and plenty of size, and it put on while quite hot. This, however, dried a nasty yellow colour and patchy. The background was grey, an exterior tinted on it before. When I found it did not dry black it was given a second coat, with no better result, and then it was sized and given a third coat; but it is just the same, and very stiff and cockled up. Could you tell me what to do to it, and if not, how I ought to paint over one of the others that I have?—me, and what to use? Should I have the side with no painting done, instead of painting over that already done?—B. D. G.

It is evident that there was not sufficient pigment in the dispenser to thoroughly hide the old painting. As the background now have done has become cockled we should advise you to make fresh start with one of the others by giving it a good coating size, applied hot. Then mix the black—"drop-black" is the best convenient to use—with water, so as to have about the consistency of thin cream. Then add sufficient size to form a thin, unctuous jelly when cold. The colour must be laid on cold, using a large whitewash-brush for the purpose. It should be applied quickly, so as to get all coated before any part dries.

**QUERY.**—Will you kindly let me know what would be the best form or shape for studio, built out on brick piers, from first floor of a building, the end of which faces north? Length of 9 ft. 6 in., width of studio 9 ft. I enclose a sketch by the builder, as the easiest and inexpensive way to do it, but in it the roof is a lean-to. I do not think this will answer; but, on the other hand, 9 ft. is hardly sufficient width for a span roof. Could you advise a single span running from the side? And if so, which light would you consider best, east or west, as we can have either?—ALBERT FLINT.

Nine feet wide would be very narrow if you require the studio for professional work. If the studio were of the ridge form you could use both an east and a west light. The latter in the earlier part of the day and the other in the afternoon, so that you would never be troubled with the sun. We should advise you to carry the studio further out than the 9 ft. 6 in., if possible, otherwise when the background end is shaded by the blinds or curtains there will not be much light left to work with. The sketch has not been returned, as requested.

**STUDIO LIGHT.**—Would you kindly tell me if there is a reliable lamp on the market, suitable for full-length portraits, and so, where it could be procured?—ARTIFICIAL.

Adamson's compressed gaslight apparatus will enable you to take full-length portraits. It is supplied by Messrs. Still and Sons, of 24, Charles Street, Hatton Garden, E.C. They will not only demonstrate its working to you if you communicate with them.

**ENLARGING.**—I have lately bought an enlarging lantern, and want to enlarge, etc., from film negatives. Is there any better way of holding those negatives than putting them between two plates of glass? I have tried to get very thin plates but cannot, at any price, locally. Where can I get them? My size is up to  $7\frac{1}{2} \times 5$ .—E. GUBRINS.

There is nothing better for the purpose than two plates of thin glass. We should advise you to get thin "Patent Plate." If you cannot get it in your neighbourhood you can obtain it from Messrs. Hetley and Co., glass merchants, Soho Square.

**FACTORIES ACT.**—As I only employ an assistant and apprentice (both boys) and only do the ordinary routine of portrait photography I do not manufacture or produce goods, such as opalines, etc., I am not liable under the Factories Act. Is it necessary for me to notify the inspector and register my establishment under the Factories Act? Our hours are 9 to 7, 9 to 1 on Wednesdays, and 9 to 9 on Saturdays. Is it necessary, if we should have to work overtime, as we often do, that we are compelled

to give him notice before we do so? I have never yet had a visit from the inspector or received any notification as to my establishment, nor have I yet been in any studio that has done so; but after reading your article in the issue of September 13 I hardly know what is expected of me. A little assistance would be welcomed by—PERPLEXED.

If the two males you employ are over eighteen years of age you need not trouble yourself about the Factories Act, as it does not apply to your case.

**PAPER COATING.**—I am coating paper for a special purpose, and I succeed very well, and it answers all requirements, only it dries out matt. What I want is a glossy paper. What have I to add to the gelatine solution to make it dry out glossy and remain so? The strength of the coating solution used is 25 grains gelatine to every fluid ounce of water. Trusting you can assist me with above information, and thanking you in anticipation.—COATER.

A glossy coating can easily be obtained with the stated strength of gelatine per ounce, provided the paper itself has a glossy surface, as with Baryta surface paper. If this is not the case, then it would be necessary to increase the quantity of gelatine to about 50 grains per ounce, or even more.

**A. E. A.**—We have made inquiries, but cannot hear of anything answering to your description.

**COPYRIGHT.**—We were asked to take a photograph of a northern town ladies' band, who were playing in one of the London parks, on account of a stationer who wishes to issue postcards. The bandmaster gave facilities, and nothing was paid by them for taking the photograph. We presume we can publish the photographs without hindrance and secure the copyright.—DIOCLEDES.

Certainly you cannot. If you were paid by the stationer for taking the photographs the copyright is his.

**SULPHIDE TONING.**—I have recently taken to toning large batches of bromide prints and postcards by the sulphide toning process. (1) Can I vary the colour of the print by alteration of the ferricyanide solution, as I get a nice brown with one kind of paper, whilst on another I get a dirty yellow-brown? (2) How long should the prints be washed after bleaching? (3) How long should the prints be washed after sulphide bath? (4) Is there any book on the sulphide toning process? (5) Do you consider the prints permanent if well washed? I bleach my prints in the following:—

Potass ferricyanide .....	40 grains.
Potass bromide .....	80 grains.
Water .....	10 ounces.

Washing all stains out and darkening in:—

Sulphide of soda.....	24 grains.
Water .....	10 ounces.

After washing a little I place in an alum bath and wash again. If you could give a better formula than this I shall be greatly obliged.—H. M.

(1) Yes, the colour will vary with the proportions of the ferricyanide and bromide, and the results vary also with different bromide papers. We think your formula is not the best. We should prefer more ferricyanide in proportion to bromide, say bromide equal to one-half or one-quarter the ferricyanide. (2) About five or ten minutes, until yellow colour is gone from the whites and a little longer. (3) A quarter of an hour is sufficient. (4) "Toning Bromides," by C. W. Somerville (Dawbarn and Ward, 1s.), and "Toning Bromide Prints," by Blake-Smith (Liffe, 1s.). (5) Certainly, they are as permanent as the original bromide: that is the experience with them up to now if properly made.

**GLAZED POSTCARDS.**—Having a large quantity of the ordinary coloured postcards on hand which would sell quicker if glossy, is it possible to have them glossed? If so, kindly say where I could get them done?—POSTCARDS.

McCaw, Stevenson, and Orr, Belfast, undertake work of this kind, though whether they can do it in the case of your prints we cannot say. Better write them.

**DEVELOPING DISHES.**—Could you kindly give me the name of an enamel suitable for developing dishes?—GEO. REIDAS.

Aspinal's is the best we know of for the purpose. If the dishes are of metal two coats should be applied—the second after the first has become thoroughly dry.

**BUILDING ACTS.**—Is it possible in the London building area to erect

a portable studio—viz., a tenant's fixture in the garden—without the necessity of putting concrete and brick foundation, as is required to a permanent structure under the London Building Acts *i.e.*, similar to a portable greenhouse. If it is possible, can it be built of wood, or must it be of corrugated iron, and is it necessary to place the same on wheels? My garden is 30ft. long, and I am desirous of building a studio size 24ft. by 10ft., 8ft. at the eaves, which would be 6ft. from the house. Would I have to give notice to the district surveyor?—STUDIO.

We are rather inclined to doubt if you will be allowed to put up such a structure in the space at your disposal, as you propose. Suburban district councils have their own bye-laws as to buildings, which vary in different districts, and you had better get those applying to your district. Your best way will be to see the district surveyor of your district, and he will tell you what you may, and what you may not, do. No doubt you will have to submit plans to the council.

**COPIES NOT EQUAL TO PROOFS.**—Three weeks ago we sent an operator to photograph a cricket team. The photographs turned out very good, and we submitted proofs to the secretary, and he sends back and says they are very satisfactory, and gives us an order for twenty copies. His brother calls and fetches fifteen copies and pays for them. Next day the secretary sends them back with the complaint that they are not good, and that they look like the work of an amateur, and that he wants fresh copies.—F. B. S. AND SONS.

Apparently the copies are not so good as the proofs you submitted. Therefore, it is not surprising that they are returned for replacement. One would have thought you would have made no demur to that for the sake of the credit to your business. People when they order duplicates naturally expect them to be equal to the proofs submitted in the first instance.

**W. H. W.**—Surely you are better able to assess the value of your own work than we can be who have not seen it. We should suggest that the charges be similar to those you make for your general outdoor work, whatever that may be, making the travelling expenses an extra charge.

**WIMBLEDON.**—Permission to photograph in Hyde Park, St. James' Park, and Hampton Court may be obtained from H.M. Board of Works, H. W. Primrose, Whitehall, S.W. For Windsor Park application should be made to Captain Walter Campbell, Holly Grove, Windsor Park.

**MARYPORT.**—If you will tell us the numbers in which the articles referred to appeared we shall be able to answer your queries.

**SPOTTY PAPER.**—Can you explain cause of spots on enclosed paper? It is an albumen paper, and I should be pleased to know cause and if there is any remedy.—JOHN RIDDEL.

You do not say if you purchase the paper ready sensitised or sensitise it yourself. So far as we can form an opinion from the pieces sent, the spots appear to be due to metallic particles in the paper, or the coating on its surface which has reduced the silver. Your best remedy is to return the paper to those who supplied you with it and get them to replace it.

**CECILY.**—"A Treatise on Photogravure," by Herbert Denison. (Liffie, 4s. 6d.)

**ADDRESS WANTED.**—I shall be much obliged if you will kindly let me know the address of a firm who supplies sheets of aluminium for making carbon prints on.—B. WALTERS.

The British Aluminium Company, Queen Victoria Street, E.C. **BUSINESS.**—About ten weeks ago a young lady came into my studio and ordered four coloured miniatures, 2 in. x 1½ in. (which we sell at 3s. 6d. each). A few days later she called again and got two of them, and was very pleased with same, but she did not inquire the price. The remaining two were forwarded by post about a week after, and we did not hear anything more about them. At the end of August I sent an invoice for 14s. Three days afterwards she wrote and returned two, saying they were not satisfactory (they were, however, exactly like the first two which she had kept), and that she had made arrangements with me to have four at 1s. each. Of course this was a falsehood, and I returned them along with a letter asking for immediate payment for the full amount. This she ignored, so at the end of September I threatened her with legal proceedings in the county court. Yesterday I got a letter as follows:—"Dear

Sir,—Your note to hand; I will gladly await events.—Y etc." What would you advise me to do with her? You she has kept all the four, and now absolutely refuses to pay them.—COUNTY COURT.

It appears that the order was given with a knowledge of price, and the lady is therefore liable for the amount.

**FOG FROM ALUMINIUM.**—1. I have three D.D. slides (half-plate) aluminium draw-out shutter. These constantly fog the paper. Can anything be done to prevent? I find it is where the catches which hold the plates scratch the shutter a line appears on each plate exactly opposite each catch. 2. Is any plain salted paper (sensitised) on the market now, or tised matt albumen? In looking over some old portrait I like them far better than those made on P.O.P.—WEEDE.

1. Aluminium when bright is very prone to fog the paper but not when its surface is dull or oxidised. The remedy your case is to bend the catches slightly so that they do not touch and scratch the metal. 2. So far as we are aware, there is none at the present time. Matt albumen paper may be had from most of the large dealers.

**ENLARGING.**—1. Is there any disadvantage in using a half-plate enlarging lantern, with 8½ condenser, for quarter-plate negatives? 2. Can a half-plate Aldis lens, f/6, 7½ in. equivalent focus, but about 6½ in. back focus, be used with half-plate enlarging lantern, 8½ in. condenser? I have seen it stated that a lens should be used which has a focal length equal to or rather less than the diameter of the condenser.—T. W.

1. If negative is placed close to condenser light is lost, and it is moved forward to a position where the diameter of the cone of light is only about 6 in. this defect is remedied. 2. This adjustment there should be no disadvantage. Enlarging from half-plate close to condenser then the focus is rather short, but still we have little doubt you can obtain good results if you adjust the light carefully. If enlarging from a quarter-plate placed in advance of condenser, as described in 1, the lens should be quite suitable. By adjusting space between condenser and negative, and also that between light condenser, you can get the best results from lenses of very focal lengths.

**INTENSIFYING AND REDUCING.**—1. When intensifying with bichloride of potash as a bleacher and hydroquinone-soda as a blancher an orange-coloured stain appears generally near edges of the negative. I send specimen. Will you say what is the cause? The stain only appears in some negatives, not in all, in the same position. 2. When reducing with ammonium persulphate some parts of the negative (generally the dark parts) assume a brown tint. Is this? STAIN.

1. This is probably the ordinary hydroquinone stain, produced either by applying developer before bleached image is printed, or by developing in too strong a light. If you use hydroquinone, wash well and develop in artificial light very diffused daylight. Amidol is much better, as it gives greater intensification and is less liable to stain. 2. This is due to developer stain in the image, which stain may be removed by dissolving away the silver. It may also be due to fixing after reduction. You can use sulphite or hypo for

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## The British Journal of Photography

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## SUMMARY.

Exhibition of the Society of Colour Photographers closes at tomorrow week, Saturday, October 26.

Exhibition of examples of photographic portraiture by artificial pens at the house of the "B.J." on Friday, November 1.

Autochrome Portraits.—Some suggestions as to the display and practical utility of the Autochrome plate to the professional photographer appear on pages 782, 784, and 791.

Arthur Payne, F.R.P.S., gives the results of his experience making of stereoscopic "Autochromes." (P. 784.)

Martin Duncan, next Thursday, is to lecture at the Blenheim on "The Application of 'Autochrome' plates in Natural History," with lantern illustrations. (P. 798.)

A remarkable "experiments" in the Warner-Powrie process have been described. (P. 783.)

E. König sends us a formula for the home-preparation of orthochromatic plates requiring no light filter. (P. 786.)

A valuable hints on professional photographers' advertising communicated to the Professional Photographers' Association week by Mr. Edgar Scamell. (P. 787.)

Suggestions for the Christmas season appear, among other topics, "Wayside Notes." (P. 790.)

New cameras, a new view finder, and a camera case imitating a hand-bag, appear among patents of the week. (P. 792.)

There is every reason to anticipate a record meeting of the Photographic Convention next year at Brussels. (P. 782.)

Portraits from Likenesses.—The views of Mr. O. W. Beck on the question of an idealised portrait are contained in the first portion of recent paper. (P. 788.)

Snowden Ward on photographic picture making, and Mr. E. Scamell on flower photography, are reported under societies. (P. 791.)

"The advantage of being another's man's wife." (P. 800.)

## EX CATHEDRA.

### Autochromes and the Fixing-Bath.

Professor Namias has recently referred to a cause of weakening of the autochrome image in the fixing-bath, which, it may be remembered, was the subject of a word of caution from Mr. E. J. Wall in an article which appeared in the "Colour Supplement" of August 2. He points out that on the immersion of the plate after intensification in the permanganate solution H a deposit of brown peroxide of manganese may form on the film, and will lead, on the plate passing into the fixing bath, to loss of density of the silver image in these portions. The remedy, as Professor Namias points out, is to remove the deposit by means of a weak bath of oxalic acid before placing the plate in the hypo. The preventive, we would add, is to remove the intensifier from the film by washing before transferring the autochrome to the permanganate. Still another bath in the making of the autochrome transparency is to be avoided if possible.

\* \* \*

### Art and Colour Photography.

A very popular subject of discussion just now is the question whether the autochrome process, or any other colour process, will be of any use for pictorial purposes. Many profess strong convictions on one side or the other, though it should be fairly obvious that the question cannot possibly be answered yet. It has taken a good many years to find out the pictorial possibilities of photography in monochrome, and it will take a good many more to ascertain those of photography in colour. We have, however, frequently been asked a very curious question by photographers who have proved their ability in monochrome work. It is this: Can I control values, etc., in a colour print by any process in the same way that I can in a monochrome print? Such a question indicates that the querist does not quite understand why he does exercise control in monochrome work, nor why such control is so often necessary. As a matter of fact, however, it is mainly the absence of colour that renders methods of control necessary as regards values. There are no colour contrasts in a monochrome print, and to make up for them various compromises have to be effected. In fact, a monochrome photograph or painting is a compromise throughout, and can never be anything else. The exact imitation of nature, which has for long been the bugbear of the pictorialist, can never be effected in monochrome; a perfect colour process will, however, render it possible, and when that process is forthcoming it will be time to see what can be done with it. As Mr. Mummery suggested in his presidential address to the R.P.S., the invention of a perfect colour process on paper will force photographers to consider and study its pictorial possibilities, while the photographer's training will have to be modified. Judging from some

colour discords we have seen in the shape of autochromes the training question will be a very serious one, for it is evident that many photographers have a very small knowledge of colour.

### Autochrome Portraits.

The question has been raised as to what is to be done with autochrome portraits. However good the result may be, it cannot be hung on a wall or put in an album, and nobody wishes to see it used as a window decoration. Possibly the best solution of the difficulty is to take a tip from the old daguerreotypists. A really good portrait mounted in a well-designed case, specially suited for a transparency, would probably be greatly appreciated. It would be worth some little expenditure on the case, which might be somewhat on the lines of the daguerreotype case, but arranged to open both back and front. The back might have a hinged flap lined with white to serve as a reflector, while the front might be arranged to serve as a light screen or shield to cut off as much extraneous light as possible. We are certainly inclined to think that autochrome portraits, handsomely mounted in some such way as that suggested, would speedily become popular.

### The Pictorial Professional.

Mr. Mummery, in his presidential address, aptly suggested that in pictorial work professional photographers who devote the whole of their time to the practice and study of photography should lead the way. Though much is owing to the amateur yet it is the professional who should be the acknowledged leader in all matters photographic. In other professions the amateur is practically nowhere. The amateur architect is an absurdity, the amateur painter or sculptor negligible, and the amateur musician a nuisance, more or less. There are exceptions, but they only serve to prove the rule, for in the fine arts the cleverest amateur is far behind the skilled professional in knowledge, in skill, and in opportunities of practice. If things were all just as they should be in the photographic world the same rule should apply, but unfortunately it does not; at any rate not as fully as it should apply. At the present day we may, perhaps, say with truth that professionals do hold the lead in the matter of portraiture. Or rather that a few of them do. There are clever amateur portraitists who do very good work, better than the bulk of the professionals, but still the best professional work holds the lead. This was not always the case, perhaps, but the fact that it is so now shows that matters are improving to some extent. Pictorial work, however, as apart from portraiture, seems to be almost entirely in the

hands of amateurs, and this is not exactly a healthy situation. It must mean one of two things. Either the professionals are neglecting a branch of their profession that pictorial photography is not of much real importance in spite of all the fuss that is made about it. Which is the correct explanation? In the painting world there is of room for both professional portrait painters and professional landscape painters. Why should there not be the photographic world room for professional photographers and professional landscape photographers? The pictorial variety, of course, not the simple makers. We are afraid the true explanation is this—that outside the ranks of the elect and select the pictorial result is only looked upon as an apology for a picture, interesting sometimes, but not worth consideration. The professional pictorialist does not exist because the public does not want him. And, times, the public is very rational in its demands.

### The Exhibition of Colour Photographs.

Four examples of Lippmann interference colour photographs have now been sent to the exhibition of the Society of Colour Photographers, at 24, Wellington Street, London. The interest of the exhibit is greatly added to the fact that the results are seen to the best possible advantage in the special observing apparatus made by Zeiss and designed by Dr. Hans Lehmann, of Jena. The apparatus will be found described in the patent specification abstracted on page 414 of our issue for May 31. Reference should be made to this specification for description, but, briefly stated, the essential feature is that by the aid of mirrors the photograph is illuminated very nearly from the direction in which it is viewed so that the viewing lens is placed close to or in contact with the photograph so that it virtually takes the place of the prismatic cover glass commonly used.

### The Brussels Convention.

The arrangements for this meeting have already so far advanced that at the conference held in the Palais du Mont des Arts, Brussels on Monday, the 7th inst., the entire programme was practically outlined. Sir Cecil Hertslet (President) presided, and among those present were Mr. W. Vanderkinders (Secretary), Capt. A. Van Bever, M. Chas. Puttemans (Vice-Presidents), Messrs. V. Potter and W. H. Smith (Member of Council P.C.) and Mr. F. A. Bridge; and there is no doubt that the programme to be submitted to the Council on the 10th inst. is carried out, the 1908 meeting will be a record every way.

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

### SCREEN-PLATE THREE-COLOUR PROCESSES

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of

particulars the arrangement of the volume for 1908 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1908 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

### IMPORTANT NOTICE.

Our publishers ask us to inform agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.



**Latest Warner-Powrie!!**

A contemporary has published an article dealing with some experiments with the Warner-Powrie plates which appears sufficiently remarkable to merit comment. The author takes the attitude of the practical man as opposed to the theorists without practical experience who have hitherto been publishing information and experiments on those plates. It is, therefore, exhilarating to learn he finds, to commence with, that, in use, the plates are five times as fast as the Autochrome plates. The Warner-Powrie line screen and the compensator together give a forty times screen, so that if we take the Lumière at 1 Watkins, which we have been assured is too low, the sensitiveness of the emulsion with which the Warner-Powrie plate is coated must be 1,200 Watkins, an amazing result. We believe that the plates which have hitherto been prepared have an emulsion speed of about 10 Watkins, giving a Watkins speed of 6, which, though considerably greater than that of the Lumière plate, only corresponds to the results of these experiments. The practical nature of the author, we should imagine, has no objection to theory, and especially to elementary mathematics, which causes him to state that the lines on the Warner-Powrie plate are 500 to the inch; in the plates at present available the lines are 620 to the inch, a somewhat considerable difference. Mr. Powrie has never made a line screen. The writer has printed the plates by simply putting them at one foot from burning magnesium without angling, and states that the results are satisfactory, but unless one could actually see those results and are them with results obtained by the correct shifting of the printing frames, one must be pardoned for being sceptical. We have found that if really good results are to be obtained, and the colours not degraded whites, it is absolutely necessary that the theoretical conditions should be accurately fulfilled, and indeed, that the blue lines are narrow is quite sufficient to cause an appreciable degradation of the tones produced by the angling method; it would seem that in future as it would be desirable to make the blue line as wide as possible the same width as the green and red lines without subdivision. The author, in continuing to state that Autochrome positives can be printed on an Autochrome complementary negative in the same way. Naturally they can, but all the colours are added with white. This can easily be seen on viewing the picture, and on examination under the microscope. The cause is plain, namely, that, owing to the irregular and direct diffusion, in a patch of pure red, for instance, and green grains will be found transparent where they should be completely opaque, thus greatly degrading the picture. Even our writer has noticed that the reds were subdued, though he ascribes it without the truest reason to an excess of ultra-violet in the magnesium flame. He also states that he has been fairly successful in the production of prints from Autochromes on paper without mirrors, a statement which is at variance with that published in our columns by Dr. Smith, the author of the Uto paper. Another experiment published in the production of continuous tone negatives on Autochrome plates, in the same way as the Warner-Powrie continuous tone negatives are printed, but using a red light-source without angling. Naturally, diffused rays of the starch grain can be obtained, and it is possible that this method might be practicable, though in view of the irregularity of distribution, and the varying degrees of the differently coloured starch grains, one would like some more careful experiments than this remarkable writer seems capable of.

**Photographing the Rising Sun.**

In this month's "Knowledge" there is an interesting photograph of the rising sun showing the manner in which refraction diminishes its apparent vertical diameter and converts the disc into an oval. Unfortunately, the rising sun is a very unfamiliar object. We believe there are people who have never seen it, and probably never will do so except as the result of some very untoward accident or prolonged function. Nevertheless, a set of photographs of the rising sun, taken in rapid succession, would be well worth securing, for the effects are not only very striking but sometimes very surprising. We are, perhaps, inviting innuendos as to preceding events, but on one occasion we saw what appeared to be two suns rising together—two suns joined like the upper and lower portions of a "cottage" loaf. The lower portion shrunk rapidly while the upper one swelled, the effect being as if the lower sun was drawn into and absorbed by the other. No camera was handy, but the scene was distinctly one to be photographed, not merely on account of the curious phenomenon, but on that of the magnificent play of light and shadow over the sea of mountain tops that extends eastward from Snowdon. Unfortunately one cannot be sure of one's sunrise. Mist so often obscures it that a clear view is rather rare, hence a photographer who wishes to record it must not only get up early but be prepared to do so again and again. In fact, we heard of one man who visited Snowdon every September for seven years just for the purpose of seeing the sun rise, and never saw it! He made one of his attempts the day before the one on which we were successful! Then also the photographer must be prepared for smart work and very rapid plate changing. Sunrise is a very brief performance. The sun literally jumps up out of the horizon, and one must have an accurately rated watch to consult, or the whole effect may be missed.

\* \* \*

**A Patent for Composite Negatives.**

In our "Patent News" column we recently published the specification of a patent for the production of "Backgrounds in Negatives," the patent being in the name of a resident in Vienna. The description of the invention reads thus: "This invention relates to improvements in the method of obtaining a composite negative whereby a suitable foreground or background or both can be combined with a central figure or figures, and consists in photographing the principal object and the chosen background and foreground on separate plates or films, and in cutting out or removing portions of each negative film so obtained in order to build up a single composite negative. For this purpose it is necessary to employ plates or supports, the films of which can be readily removed or handled in order to transfer the cut-out portions to the final support." Then follows details as to how the work is to be done. Many of our readers, after they have read them, will no doubt wonder as to where this new (?) invention differs from the old methods of doing the same thing. Exactly similar methods are often used by wet-plate workers, and the formation of just such a composite negative was demonstrated at the R.P.S. last session. No doubt the examiners at the Patent Office have examined this specification, and find it has not been the subject of any prior patent, and hence it will probably be passed, and the patent sealed. This serves to illustrate what we said in the recent article on "The New Patents and Designs Act," namely, that would-be photographic patentees should make investigations for themselves as to what had been done before, and not rely entirely on the Patent Office investigations. One thing is a mystery in reading this specification and others of similar type—and that is the method by which the patentee

expects to reap a profit from his invention: only, so it seems to us, in granting licences to work the process. But when the details are fully described, as they must be in all specifications, any one can work to them, and then how is the inventor to know if the results are produced by the patented method or not? This is a question that does not seem to occur to many who take out patents similar to the above.

#### AUTOCHROME PLATES AND THE PROFESSIONAL PHOTOGRAPHER.

THE different processes of producing photographs in colours by the three-colour methods have been prominently before the photographic world for some few years past. But, except in the photo-mechanical processes, little has been done with them by professional photographers. It is true that some few—very few—have made a slight feature of them, but, unfortunately, with very little commercial success. Now that we have the autochrome plates of Lumière and Co. on the market one may well speculate as to whether this process will be employed by professionals. In conversation with several lately they all expressed the opinion that it was not likely that it would be taken up by them in the near future, as the price of the plates would be prohibitive. But, after all, is the process so very costly as compared with the three-colour method of working? With that, three distinct negatives have to be taken, each suited to the other. Then to get the picture three prints have to be made one from each negative, and if either of the negatives turns out to be faulty another has to be made. Even if all the negatives are faultless, a faulty

print from any one of them must be re-made. All means considerable cost in time, labour, and material, whereas with the autochrome plates the picture is obtained at once in the camera. Recurring to the question of the present price of half-plate autochromes is thirty shillings a dozen. On referring to some very old prices in our possession we find daguerreotype plates quoted at the half-plate size, at from twenty-five to thirty shillings per dozen, that is, practically at the price of the Lumière autochrome plates. This was the price for the plates, which the photographer had to clean, polish, sensitise for himself, which operation required considerable skill and experience on the part of the worker to get good results. The autochrome plates, on the other hand, are supplied ready for exposure in the camera, and require no exceptional skill in the manipulation. In spite of the price of the plates many daguerreotypists made large fortunes. We have had it urged that the autochrome plates are not suited for portraiture as they are too slow. They are slow, it is true, as compared with ordinary gelatine plates, but they are about the same rapidity as wet collodion plates and much faster than those used in the old daguerreotype process. Neither of these processes was at one time, too slow for portraiture. Other objections have been heard raised against these new plates are that pictures can only be viewed by transmitted light, and cannot be printed from like ordinary every-day negatives. The same objections applied to daguerreotypes; they could only be seen at certain angles of light, and could only be repeated by copying in the camera. So it will be seen that the Lumière process is, in some respects, very analogous to the old daguerreotype process as regards its limitations.

## STEREOSCOPIC PHOTOGRAPHY WITH AUTOCHROME PLATES.

Two letters which I have recently received from correspondents in the neighbourhood of London have given me cause to consider the reason why the colour examples exhibited in London seem to differ from those obtained in the neighbourhood of Newcastle-on-Tyne. That there is some difference is beyond question, for both my friends have an advanced knowledge of photography to say the least of their ability, and one of them assures me that the results obtained upon Autochrome plates are very wonderful, but not suitable for use in the lantern because of their lack of transparency, while my other correspondent states that the few stereoscopic slides he has seen produced by this process are far from satisfactory. I think that this apparently common fault must be due to the slides being made too dense by unnecessary intensification. In no other way can I account for the discrepancy in our experiences, for in my hands the process has produced excellent lantern slides which look really satisfactory when exhibited upon the screen, and the stereoscopic slides that I have made have met with approval, and, in fact, considerable approbation, from those who have examined them. This was not idle flattery, because many of our local amateurs have ordered supplies of these plates with the object of obtaining similar results.

It has been my good fortune to examine many examples of this process by various workers, and I am satisfied that the most practical and useful method of using these plates is in the stereoscopic camera. There are several reasons for this opinion. In the first place it is impossible to control the photographic and colour rendering of the plate except by spoiling the result with over- or under-exposure, and in a very slight degree by

varying the amount of intensification which the plate receives. Then these transparencies must be examined in a proper viewing apparatus, unless they are used in the lantern, and what is more, is it suitable than a stereoscope? It is also possible, and, in fact, very easy, to use one of the pictures upon a stereoscopic transparency as a lantern slide if a suitable carrier be used, such as a slide mount, or it can easily be built up from sheets of cardboard. Therefore I consider it distinctly advantageous to make use of the stereoscopic camera to obtain photographs which not only reproduce the natural colour of the subject, but also show it in relief. The results obtained are unique, and make one quite dissatisfied with the monotony of an ordinary photograph.

#### Some Results.

Perhaps it may be as well if I describe some of the results which I have obtained, though I wish to disclaim any particular merit upon my part, for all the credit belongs to the manufacturers. One of my first exposures was made upon a half-plate autochrome in the interior of a greenhouse, and, of course, is full of gorgeous colouring, but what I considered to be the most beautiful part of the picture was the exquisite rendering of the wet stone floor, the old bricks, the hot-water pipes and woodwork. The texture of the floor was especially good, and the difference between the one or two dry patches of stone and the remaining wet portion was marvellous both in colour and in texture. A later example was a photograph of a bridge spanning a river, the banks of which are covered with trees; this photograph was taken upon a very dull day, the necessary exposure being fifteen minutes at  $f/22$ , and a wonderfully true result was obtained, for the picture when viewed in the stereoscope ex-



reproduces the scene, all the atmosphere and colouring is in evidence, while the transparency and texture of the water is rendered in a manner seldom, if ever, seen in an ordinary monochrome stereoscopic transparency. Another view taken in "an time garden" on a dull, misty day confirms the wonderful rendering of atmosphere which is obtained on these plates.

### The Rendering of Atmosphere.

It has always been the opinion of those who followed the process of colour photography that, though the results obtained by the tricolour three-plate process were very beautiful when objects more or less in one plane were photographed, it was practically impossible to produce a good landscape photograph giving a considerable stretch of country, and more especially in the presence of moisture separated the planes. On this point the Autochrome process distinctly scores, for it does reproduce a landscape with the same amount of atmosphere as was present when the view was taken. In fact, it is impossible to obtain, say, a sunlight effect upon a dull day, or vice versa, for the plate reproduces the picture exactly as it is seen upon the viewing screen, so long as the amount of contrast is within the range of the plate.

### The Process is So Simple.

Provided that the instructions are carefully adhered to, there is no reason why an excellent result should not be secured by one possessing a fair knowledge of photographic manipulation. I have carefully followed the instructions which have been published in the "British Journal," "Photography," and other publications, and I can honestly say that I have not met with any difficulties, not even in frilling, of which more anon. Before I intend to assume that the reader is conversant with working details of the process, which will be found in the numbers of this paper\*, and also with the ordinary stereoscopic photography, so that in this article I will only treat of the use of Autochrome plates. The Autochrome process possesses the advantages that one plate is used in an ordinary camera with a light-filter placed in front of the lens, as is usual in monochromatic photography. There is therefore no difficulty of registration, and the troublesome standing and balsaming of three films, used in the superimposed film processes, is avoided. The fact that only one picture is obtained with each exposure is to me an advantage, as it does away with the social question of providing our friends with prints. The speed of the process is also not to be despised, as a photograph may be taken in one hour, reckoning the time from the commencement of exposure to when the plate is set to dry. I can manipulate these plates in a green safe-light, to which I refer later on. It is a light which has not fogged the plates in my hands, and yet permits of the retention of sight in all degrees.

When about to cut some plates I carefully dust the cutting-board so as to remove any small splinters of glass that might scratch the film, and then lay a sheet of clean blotting-paper over the board. Removing a plate from the box, it is laid film-uppermost upon the cutting-board with one end in contact with the strip of wood, the cardboard cutting-shape is then carefully placed upon the plate with one edge also in contact with the strip of wood, and the edge of a penknife blade is run across the plate so as to divide the film. The plate is then turned round, being careful not to reverse the ends, and the glass is cut with the means of the diamond, using the wooden cutting-shape as a guide. The plate and blotting-paper are removed from the cutting-board in contact, and the glass is broken apart, the presence of the paper preventing the fingers marking the film. After the top side of the plate has been cleaned, it is placed in the dark box with the glass towards the shutter of the slide, a piece of

the black cardboard that is supplied with the plates is placed upon the film, and the slide is closed.

Probably this is the best place to mention that when the plate is divided in the middle, after it has been developed and dried it is still necessary to cut through the film before cutting the glass; and if two fine scratches are made upon the film at each outer side of the plate, and through the centre line, they will be found useful in transposing the prints when mounting the transparency.

### The Exposure.

The whole secret of obtaining successful results lies in the exposure; it must be exact, much more so than when using ordinary dry plates, for, unfortunately, Autochrome plates appear to be greatly deficient in "latitude." In fact, I find it difficult to obtain a really successful result when the subject possesses a wide range of contrast. It is easy to obtain white and black, but difficult to obtain subtle half-tones in light grey and at the same time obtain a good rendering of dark colours. One of the most difficult subjects I have met with was an orchid possessing several pinky-white petals and a centre of dark crimson. The first attempt was badly over-exposed, and the texture and half-tone on the whiter petals were entirely absent; upon repeating the experiment with a quarter of the exposure I found that this white texture and half-tone was still lost through over-exposure, but the darker centre of the flower appeared to suffer from under-exposure. This is caused by the fact that the high-lights "burn" right through the film, and are consequently lost when the negative is converted into a positive. It is a phenomenon that I have noticed many times, but is not strikingly apparent in a subject possessing a small proportion of high-lights. In an ideal result the plate should receive such an exposure that when it is normally developed only the highest lights should have penetrated right through the film. It seems to be that, contrary to the usual practice, it is necessary to expose for the high-lights and allow the shadows to take care of themselves. At this early stage there is not sufficient experience available to allow definite rules for exposure being formulated, but I may say that in landscape work I assume that the plate has a speed of 3 according to Watkins' meter, and this has given me successful results—better results, in fact, than when the exposure has been calculated according to a plate speed of Watkins 2. For indoor work, such as portraiture and still-life studies in the studio, I have obtained successful results when the plate has received an exposure of eight tints upon Watkins' meter with the lens working at  $f/22$ . I mean by this that the length of the exposure is the time that the paper takes to darken to the standard tint multiplied by eight, when the meter is held near the object and facing the source of light. I may mention that the meter must also be held facing the light in landscape photography, and not held in the shadow of the body. As I have already said, it is necessary to expose for the brighter portions of the subject and allow the shadows to take their chance. Under-exposure of the shadows appears to be preferable to gross over-exposure of the high-lights. I am unable at present to account for the discrepancy in the exposures when the plate is exposed in or out of doors.

### Halation.

The absence of halation in the results is not the least pleasurable quality that these plates possess. The photograph of the greenhouse to which I have already referred was taken in such a manner that it is possible to see the objects outside the greenhouse, and, though a prolonged exposure was given, there is absolutely no trace of halation upon the sash-bars of the windows. I have also observed the absence of halation when examining the several landscapes that stand to my credit—or discredit.

ARTHUR PAYNE, F.R.P.S.

(To be continued.)

\* "B.J.," July 5, August 2, September 6 and 20, and October 4.

## NON-SCREEN ORTHOCHROMATIC AND PANCHROMATIC PLATES BY BATHING.

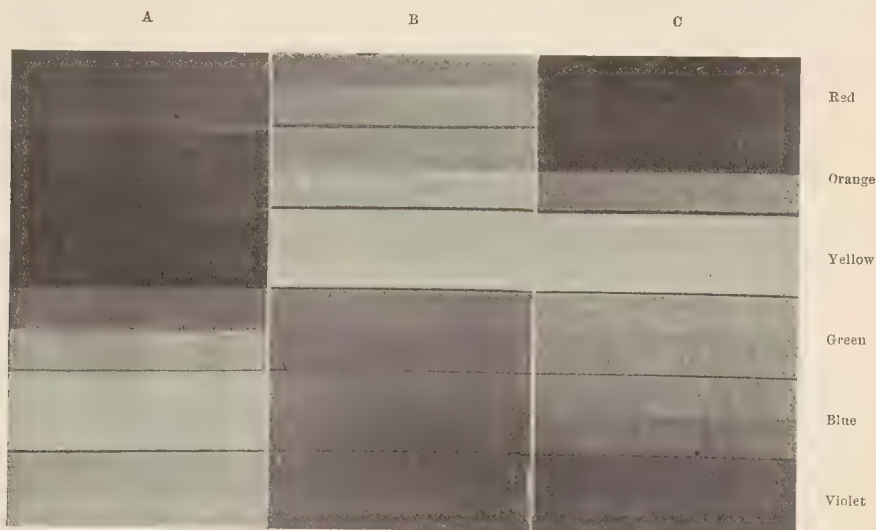
[The following communication from Dr. König, of the Hoescht firm of Meister Lucius and Brüning, should be read with interest as supplying a ready means of preparing a highly orthochromatic plate by bathing those of the ordinary type. The procedure may frequently be of service when a screen for some special lens is not at hand.—Eds. "B.J."]

It is well known that in all orthochromatic and panchromatic plates the blue-sensitiveness peculiar to silver bromide is always much greater than that for the less refrangible rays produced by the colour-sensitiser, so that it is necessary to use a yellow filter during exposure to reduce the action of the blue rays. Since the use of the yellow screen is always somewhat inconvenient, many manufacturers have, during the last few years, placed on the market orthochromatic plates which contain the screening yellow dye in the film, and have thus enabled the user to dispense with the yellow screen during exposure. These plates

In this solution, which will keep indefinitely, the plates should be bathed for two or three minutes and dried without washing. The bath may be used over and over again, and only needs refreshing from time to time. The plates are always clean, free from streaks or spots, and will keep for three months unchanged.

I should not omit to mention it is not every plate that can be sensitised with erythrosin, and, unfortunately, I am not in a position to name any English plates that are suitable, though doubtless many are.

In developing some of the yellow dye remains in the developer.



Exposure of a colour chart taken without filter. The green is composed of blue and yellow, and appears very bright, in consequence of the blue in the plate used.  
A. Ordinary plate. B. Panchromatic plate with rapid filter yellow (pinacyanol and erythrosin). C. Orthochromatic plate, erythrosin only as sensitiser.

are not always satisfactory, and I have therefore endeavoured to find a method of making such plates by bathing ordinary plates. The results can be seen from the accompanying illustration.

There are not many yellow dyes which are suitable for this purpose, as there are several conditions to be fulfilled. The dye must be easily soluble in water, it must stain the gelatine, but must be easily washed out; it must not react with the sensitiser, nor be prejudicial to the keeping powers of the film. All these conditions are perfectly fulfilled by "filter yellow K," which is already well known in England.

To make the sensitiser, 5 gms. of filter yellow K and 0.1 gms. of erythrosin should be dissolved in 600 ccs. of distilled water, and 300 ccs. of alcohol added. Methylated spirit may be used.

Dr. HANS HARTING, who for some years past has occupied the post of optical and scientific director of the old-established optical firm of Voigtländer and Sohn, of Brunswick, has accepted a position in the Imperial German Patent Office. The honour is one which will, we hope, console the firm of Voigtländer for the loss of their distinguished director. During the time that he has been at Brun-

swick, Dr. Harting has advanced the interests of his firm by introducing the new types of lenses such as the Heliar and Dynar, both of which have attained the highest reputation among modern optical instruments for photography. For the past five years Dr. Harting has acted as "privatdozent" for scientific photography in the Brunswick technical high school.

whilst some in the fixing-bath. After a short washing the plate is quite free from stain. Neither the developer nor the fixing-bath is spoiled by the yellow dye. My attempts to make a panchromatic plate with pinachrome and "filter yellow K" were not satisfactory. The sensitiveness with pinachrome is strongly reduced by the yellow. On the other hand, I succeeded in making a bath with pinacyanol, panchromatising by adding to 300 ccs. of the above-named solution 2 ccs. of a 1:1,000 pinacyanol solution. Plates thus prepared show an extraordinary action in the yellow, orange, and red, only the green sensitiveness left something to be desired.

The sensitiveness of the plates, sensitised with erythrosin, to daylight is about 0.4 times less than the sensitiveness of unbatched plates.

Dr. E. König



# ADVERTISING IN PROFESSIONAL PHOTOGRAPHY.

A Paper read before the Professional Photographers' Association by Edgar Scamell.

PRESIDENT AND GENTLEMEN,—

Upon starting a business, the first thing a photographer has to do is to consider the position and appearance of the premises which he is to carry it on, and their accessibility to the greatest number of possible customers. Prominence of position in itself a most valuable advertisement, a fact which is taken advantage of by such varying classes as church authorities, stores, and publicans, all of whom choose, if possible, a conspicuous corner site in a busy quarter, entirely for the value the advertisement, despite the fact that, at least in the case of the church, this position must in some ways be most undesirable; for instance, the noise of the passing traffic, which is such that one church I know of hangs out a large notice during winter time: "Please drive quietly."

Now, one question a man taking a corner or prominent site has to consider is whether the increased rental will bring a correspondingly large return in business, or whether the saving rent in less prominent premises could be made by other means of advertising to yield a better return. In considering premises, even two photographers, A and B, who turn out work of equal quality, other circumstances being equal, he who has the biggest show will secure the most orders. Thus, if A has a good shop-front but a poor reception-room, etc., and B has only a bow-way entrance but a fine reception-room, etc., of the two shop-fronts will secure the more customers.

The word "advertising" usually suggests "printing ink." The question is how to reach the largest number with the smallest outlay. Newspaper advertising is of no use if entered on in a hap-hazard way. Newspaper advertising is an art in itself. Naturally, of course, one will choose the paper with the greatest local circulation. If the advertisement is to appear in an issue of the paper a change of wording should be frequently made. An advertisement appealing to the devotees of cricket and tennis should not run into the football season, or a reminder of enlargements make acceptable Christmas presents appear throughout January and February. On signing a contract for a man's advertising in a local paper a set of twelve suitable words might be written out with instructions to change the wording with each month. Probably the best newspaper advertisement is to secure insertion of little paragraphs amongst the body news. An insidious advertisement can often be arranged if one happens to know the right man on the staff of the paper and make it worth his while. A paragraph of this nature:—"At the opening meet of the Broomfield hounds Mr. A. Darkslyde made a very successful series of pictures of the field, including a portrait of the new Master, Lord Bremmer, mounted on his famous grey. The pictures are on view at the studio in Westgate Street."—is worth much more than the same space in the advertising columns. A friendly reporter at a wedding or other event will often, if suggested to him, note in his report the fact that Mr. A. Darkslyde was professionally present: and the advertisement is good, legitimate, and, as a rule, inexpensive. Judge by the advertisements of large commercial firms, it pays better to have one large space occasionally than a small one regularly. Drapers, for instance, take a whole page for a sale or something special, and only then. In newspaper advertising a difficulty is to trace a direct result. Those selling goods through the post often adopt the plan of intimating that orders are to be addressed "Department A, B, or C," as the case may be, each letter indicating the newspaper in which the advertisement appeared; but this system can hardly be applied to the photographic business.

Having once advertised, the photographer will be visited by agents and conditions of canvassers for advertisements. Pro-

motors of bazaars will offer pages of their handbook; the editor of the church magazine with its limited circulation; the local estate agent who wants to print a list of properties to let—with someone else to pay for the printing—and many others will call and waste time; and they are only to be encouraged when the photographer can clearly see that it is a matter of policy to entertain their offer on account of the orders he will indirectly receive, regardless of the actual advertisement, which usually is nil. One of the most efficient ways of employing printer's ink is for the photographer to run an advertisement of his own in the form of a good booklet delivered by post to carefully selected addresses. This will take up a considerable amount of time, but the result is generally satisfactory if the matter is well managed. The booklet appeals directly to the reader. It conveys precisely the information the photographer wishes to convey, and, being complete in itself, it avoids the possibility of being overlooked by being swamped in a multitude of other advertisements. The trouble is the proper distribution, but, this properly done, nearly every copy reaches the actual person for whom it was intended. If the booklet is artistic and attractive, there is a distinct possibility of its avoiding sudden death in the waste-paper basket, and if it is kept there is a probability of others besides the recipient seeing it.

Each picture sent out by a photographer is an advertisement in itself, and it must be remembered failures are more likely to be talked about than successes. It is taking a low estimate to say that it takes three good pictures to counteract the harmful influence of one bad one.

There are about half a dozen well-known photographers in London who are content with nothing more than a brass plate on the front door, but the majority show specimens in some way or other. Our good friend the Editor of the "British Journal" at frequent intervals tries to impress upon photographers the necessity of keeping show-cases fresh and clean and filled with seasonable pictures. In his opinion and my own constant change is one of the best advertisements. A small show changed frequently will give a better return than a large one changed, say, once a year. An American photographer reduced this to the extreme point by showing only one picture on his door-post, but that one was changed every morning. The same principle applies to show-cases at railway stations. A superintendent of advertisements on one of the railways with about fifty railway stations under his inspection cited, as an example of the carelessness of advertisers, a photographer who had a show-case on an important station. The show-case had remained for months with a broken glass and the prints ragged and weather-stained. Thus the photographer was paying rent for a directly detrimental advertisement of his work and business methods. If this photographer's system had included changing the contents of the show-case once a month, say, such a state of things would have been impossible. Advertisement contractors have no compunction about shifting a show-case from a conspicuous position into any obscure corner, and have been known to take a case down and stow it away entirely. A periodical visit for the purpose of changing the specimens would keep a check upon such doings. The object of a show-case or a window display, or whatever it may be, is to attract attention and create interest. If it does so it brings customers. If, on the other hand, the passers-by can find nothing to interest them it serves no purpose that a sign-board would not answer as well, if not better.

Advertisement is not necessarily of a direct nature. The doctor or dentist who desires to establish a practice joins the local debating societies, tennis and golf clubs, gets on to the committee of the flower show, and manages to be personally

in evidence at as many social functions as possible; and, similarly, solicitors, surveyors, architects, and other professional men take means to bring themselves into contact with their fellow-townsmen who are able to do business with them and put business in their way. The portrait painter must of necessity mix a good deal in society if he wishes to succeed.

It is well to study the methods of advertising adopted in other professions, and to consider whether these methods can be applied with advantage to photography. The best advertisement for a professional man is the man himself, and those who wish to adopt this method of advertisement must avoid that aloofness that is so frequently the characteristic of the professional photographer, must mix with their neighbours and fellow-townsmen, must interest themselves in local matters and take part in the social functions of the town, and, in becoming known personally, their businesses will also become known; but while doing this missionary work, do not forget that the work at home must be going on with regularity both in quality and promptitude.

In reference to advertising the man himself, one of our members from the country once called on me at the time of our borough council elections. Now, just opposite my premises there was a hoarding displaying many election posters. Our member greeted me with: "How are you? Why isn't your name up opposite?" I said I didn't take any interest in such matters. "That doesn't matter," said he; "you ought to come out as a candidate every time. You don't even want to be elected, but people will say when they see a fresh name up: 'Oh! who's Darkslyde, who's put up against Smith for the Broadway Ward?' The reply will be: 'Oh, he's the photographer in the High Street; don't you know his place?' etc., etc." A very good advertisement, although an indirect one, and to be obtained at quite a reasonable cost. A business man who rose from small beginnings to the position of mayor of his town told me that during the process he and his customers gradually changed places. In the beginning they dictated their orders and wants to him, and he had to carry out their wishes; but in the end they came asking his advice as a man of experience, and he dictated what they ought to have.

Directory canvassers are often sharks of whom we ought to beware, but a small advertisement in the right directory may not be money badly spent.

We have now considered the "How and Where" to advertise;

let us turn to the "When." Canvassers will tell us that we are slack is the right time to advertise, and the more general the depression so much the greater need. This is only partially correct. In a London suburb what would be the good of making a big advertising effort during August and September, everybody is away? We can see that the large users of positions on the hoardings study this point. Firms selling soups, beef extracts, with the approach of winter, are now occupying the spaces vacated by the summer advertisements of the li juice and lemonade makers.

Consider whether you wish to do a business with a small turnover and a large percentage of profit, or a large turnover with a small percentage of profit. In the latter case it is necessary to be in touch and reach of a very large number of people. Is your town or neighbourhood large enough not to be worked dry in the course of a year or so? My own ideal would be to occupy centrally situated premises of moderate dimensions, with space for a moderate show frequently changed.

In seeking for work to be done, I should endeavour to get into practice most of the schemes I have here touched upon, feeling convinced that the majority, if carried out in the right way, could be made to pay, according to the neighbourhood selected.

Remember that customers cannot come to you if they have never heard of you. Most people's memories are short, and customers who have been to you once will want reminding of your continued existence. What would become of Pears' soap if the advertisements were discontinued? Beware of all advertisements where you are given so many copies and have to trouble of distribution yourself. The distribution is always a serious question, and must be well done. A good business man who is only a moderately good photographer will make more money than a first-rate photographer who is only a moderately good business man. To the photographer in a small way would add: Don't do too much dark-room and routine work yourself; your assistants can be taught to do that, and your time can be better employed. I will conclude by quoting from a little booklet, a copy of which I believe each of us has recently received:—

"In advertising, nothing is cheap that doesn't make money, and nothing is dear that does." But would add to it an appendix that in advertising let us all consider our dignity and dignity of our profession.

EDGAR SCAMELL

## PORTRAITS FROM LIKENESSES.

[The following paper, read before the recent American Association of Photographers, is by Mr. Otto Walter Beck, whose book, "Pictorial Principles of Portrait Photography," reviewed in our pages last week, is now obtainable in this country.—Eds. "B.J."]

ALTHOUGH perhaps unaware of it, workers in photography are gradually being drawn closer to the great educational system of our country. The union will be effected as soon as the principles that underlie pictorial art are more generally understood.

At what point have we arrived in relation to this? In photography we have found out what is the difference between the copying process and that which really constitutes pictorial photo-portraiture, while in the schools the pictorial principle is being disengaged from principles that govern decoration. We believe that a service has been rendered to photography by the formulation of art principles that clearly state the differences between the subjects mentioned. We now know what art in photography is, and can work at its problems, thinking clearly and logically. We are on the right path. The public will be educated to an appreciation of art by our work, and its influence will reach far into the systems of the schools, public and private, at home and abroad. There exists at present no system that so

effectively reveals the secrets of pictorial construction as the evolution of our photography has evolved, and no mental training can exceed in value that offered by the analysis of a photograph having pictorial balance. It is well suited to the capacity of our scientifically inclined American in the studio or the college.

Does not a new light come to us when, looking ahead, we see art in photography working smoothly as a system in the great educational machinery of the world?

We are facing an incoming tide of new ideas. I say to men who advocate good, straight photography, go on with it; it is as sound and safe as photography, but he who places his sole reliance upon straight photography will remain upon a level with the copyists in painting. It is my conviction that good, straight photography will always be the base, but that treatment of the plate is necessary. To bring mind and soul into the work must create. But you will say, "We do all that is possible under the skylight; we are careful in selecting the pose, the



take great pains with the lighting, and finally we choose the most suitable among the backgrounds—either the plain, graded, or ornamental effect." And I ask in turn, "Is that enough?" For we test whether the truth of the camera is a picture truth. Assuming an everyday experience, someone enters our studio for the purpose of having his portrait made. While conversing with our eyes seek his gaze, and in his eyes we read his thought, form acquaintance with his disposition, his character. Through the eye's communication we form the friendship that is to be perpetuated in our portrait of him, for the portrait must always express that kindness, neatness, and approachableness that affect us as pleasing in life. We also observe his mobile features and the peculiarities of his figure, and our mind reads with emphasis the characteristics to which we were impressionable. As for the rest, we have less distinct memories. When we represent this man graphically it is natural that what most impressed us shall be recorded with due prominence; that minor observations shall be treated with breadth; that is, with an absence or control of disturbing detail. After that we call to our aid our art-training, to make sure that the background and further treatment shall help the impression we have succeeded in recording. In fact, this treatment of the background is the poet's touch, giving to our portrait those qualities that enhance the beauty, invigorate the personality, and make the whole representation satisfactory to our most fastidious tastes.

What does straight photography do with this same subject? The camera fails to reproduce the person as he appeared to us. It records a maze of detail, all over facts, as passionlessly and unintelligently as does a mirror. Because of this we have no assured start, no emotional outflow. Instead, the mind reads soberly the disjointed records.

Notice in a good picture how you are not allowed to escape; how skillfully the artist has made you look back, always back, that he wants you to see. On the other hand, a straight photograph leaks in all directions; its strength is not garnered. This being true, then behind picture-making there must be laws that we are to observe quite as carefully as we obey laws in chemistry. But in straight photography there is the belief that we have but to follow the formulae for posing, lighting, and even backgrounds to make a portrait. Let us see whether we can not change our views in regard to them. I will analyse the first: In the pose you seek to bring about naturalness. What is your whole aim, is it not? Unless, indeed, you elect to make the fantastic, or seek what you call "style," which is artificial, and a great strain upon sincere art. But I must point out to you that although naturalness is good to observe, its rendering depends upon something more than photographing a natural pose. It depends upon a treatment of the abstract obtained in the appearance, to render the natural, to portray character, to infuse "mood," and insure all those finer qualities that the portrait must have. This is the most important principle that underlies portrait work. If we can once gain this insight of view our progress towards mastery in art will be rapid. Those writers who have recently criticised our art-educational work could not penetrate to this great truth they would not try to stem a tide that is irresistible, for art-education will surely place opinion by fundamental truth.

I ask you to observe this pose of a man clothed in dark, and standing against a dark ground. What kind of a picture shall we make of him? Shall it be a poster, a snapshot, or a portrait? Looking at the poster, we so treat the representation that the line and the mass of the body become the notes of importance, the head being of no more interest than any other section, whether body or background. In making a poster we follow certain laws that are absolutely and completely at variance with portraiture. In the poster we aim to destroy the sense of "body" and of personality, in order that other factors may lead.

If we want the snapshot we focus on the man somewhere, and there is presented to us in the print a monotonous recounting of detail, with no interest above the superficial.

To attain to portraiture our camera must be used with particular intelligence. We must first conceive the portrait in the pose, and secondly, we must develop the picture in conformity with this conception. Boots do not enter much into our notice, nor do details of dress or texture of cloth, when we are intent upon the personality of an individual, but the snapshot does take notice of them, and even with your best efforts to avoid it, good straight photography records them too prominently. We therefore have to learn how to repress the unimportant, that we may give prominence to the sitter's striking features, whether mental or physical.

Being luminous, the flesh is a chief pictorial factor. Therefore the face and hands are to be especially considered, and we must make the utmost use of them, giving them prominence and subduing all else. Our eyes must be made to glide over all minor matter to the point having the portrait interest.

To illustrate, this man assumes a pose standing squarely facing us, his hands being dropped to his sides. The art laws dictate that we shall so represent him that our eye will especially note his face. In this pose, however, the geometric placing of hands, head, and feet makes the face only incidental and brings into strong evidence the centre line of his coat, with buttons. Therefore, the portrait is impossible with this arrangement, unless we are resourceful enough to make the background help us out of the difficulty.

When we change the pose, permitting one hand still to hang at the side while the other holds a scroll against the chest, we force the observer to follow these light spots in their order, the gaze resting finally upon the face, where it will be held. In this pose we have a good portrait opportunity, but there is a possibility that we shall lose it in the further treatment. I will speak of this presently.

Suppose we attempt to lay into this man's portrait a loftiness that we felt to be inherent in his character. How often you have met this problem. Have you been able to solve it? Is it not true that when confronted with the task of making a portrait of the unusual man, the man prominent in one of the callings of life, you have exhausted your ingenuity in using the pose, lighting, and the ready-made backgrounds in your effort to make him different from the weaker type of man? What would you not give to be able to bring out the life, the dignity, the power of such a man? Yet how simple are the laws that lead to an expression of these coveted qualities. We have but to guide the observer's eye to the floor line. I do this by placing a large white piece of paper behind and at one side of his feet. This white spot is an accent, drawing the observer's gaze to itself, and from this point the eye climbs the figure to the first hand, across to the second, and then sways to the last and final point of interest, the face. Does the man not seem taller, possessed of increased dignity and firmness? Yet the pose has not been changed, nor shall we alter it now, while producing an effect differing greatly from this one. Our aim shall now be to make the man appear shorter in stature. I place the paper previously used at his feet, behind and to one side of his head. Immediately your eyes seek his face, because it is powerfully reinforced in accent. You see the face so intently that it appears to come forward, and the man's expression assumes an eagerness and intimacy. He is now the "hail fellow well met," who meets you more than half-way, who does not stand on formality. This, of course, is the quality that is often desirable in portraits, but it is disastrous to introduce it when our minds are intent upon the embodiment of some essentially different trait.

But we feel that we can hardly give a complete expression of "intimacy" by the use of the full-length portrait. Have you

not noticed that while your eye was drawn to the face you overlooked the lower part of the body? Because of this, the man's standing is not firm; he seems physically weaker. If you want to remove such defects make a half-length picture, and thereby get rid of the disturbing section. In the half-length

you can give as much weight to the "intimate" qualities as like; in fact, you may give full sway to your powers and into this more limited space such concentration, such technical handling as will ensure a most brilliant result.

(To be continued.)

## WAYSIDE NOTES.

I HAVE not had the pleasure of meeting Miss E. E. Barrett, the writer of the article on "Reception-room Routine" in "B.J." for September 6, but I feel no hesitation in saying that the photographer whose reception-room she is managing is a successful one. Her description of her day's work shows that she is capable, competent, a veritable model for every young lady who has just completed her apprenticeship and who is making her first essay as a fully fledged receptionist. But, you may say, her qualifications, be they what they may, do not necessarily imply that her employer is successful. My reply is that the best part of a photographer's business is done in the reception-room. If the operator in the studio is not "making good" with his negatives, if sitters are disappointed with their proofs, then that photographer will not long be able to pay Miss Barrett the salary she is worth; and, depend upon it, one who so evidently knows how to sell photographs will know quite well how to value her own qualifications.

A noticeable feature in Miss Barrett's description is the enthusiasm she feels in her work. She says her daily round is an exceedingly interesting one. Many another would term it worrying, tiresome. Strangely enough, the article appears facing the advertisement of a firm of trade enlargers who quote Goethe's dictum that it is liking what we have to do that makes life blessed, and who say that they are never so happy as when they are bettering their work. On the face of it, this statement appears absurd; but when one looks around, one sees that the majority of the successful workers in any vocation are those who really enjoy their work.

Writ large on the cover of a book on a railway bookstall I have just noticed the title "Get on or get out." I do not know what the book is about, but it might well apply to the choice of one's occupation. A man with any force of character who finds that he has started in the world in the wrong business generally manages to exchange it for a more congenial one. George Alexander and Rufus Isaacs both began in the City; Thomas Hardy, the Wessex novelist, was an architect; W. W. Jacobs, the humorist, was a Civil Service clerk in the Savings Bank Department.

The name of Furley Lewis is, of course, known to nearly every reader of the "B.J."; not so many, however, will know that his photographs are always distinguished by an embossed device—that of the fleur-de-lis. Talking with a photographer lately, I was asked where he could obtain a stamp of "the Prince of Wales's feathers arrangement," as he thought that it improved the appearance of the mount. I explained to him that I did not think that Mr. Lewis could have any legal property in the symbol, but inasmuch as, without any great verbal contortion, it was a very fair pun on his name, it was therefore not one that would have any particular value when used by anyone else. Walter Crane, the artist (a photograph of whom by Furley Lewis is in the present Salon), uses as his device a representation of the bird whose name he bears; and there are many photographers who could originate similar devices derived from their own names.

There have not been many days this summer when the has been in any degree oppressive, but there have been times when the suggestion of coolness that is always afforded by plants and flowers would have been welcome. Yet in a few reception-rooms does one ever see any relief of this nature. Either the growing plants in suitable tubs or pots, or else cut flowers in clear glass holders, form an agreeable contrast to the endless arrays of photographs generally seen. Of course they must not be the artificial variety—the rose tree, etc.—the photographic goods dealer. They are abominations to only add to the dry, frowsy appearance that all too easily is apt to pervade the reception-room.

Christmas, to the average man, is some distance from us, he who is gifted with the admirable quality of foresight already laying his plans. The majority of us get all our work we want in the fortnight or so immediately preceding the holiday; the great desideratum is to start the busy period earlier. Now, the public will always delay as long as ever possibly can—hence even they who have intended to be photographed for Christmas give their sitting just about ten days before they actually want to send out the photographs. The Suffolk saying runs, "They drive it to the last moment." Seeing that this is so, it behoves the photographer to come in as far as possible.

The first thing to do is to prepare a list of all the customers with the card index system as used by Mr. Pirie Macdonald. The list is always in readiness. A letter is then drafted to the effect that doubtless they will be wanting some photographs for Christmas, and that in order to give one's customary care and attention to the work it is desirable that the additional copies may be ordered, or the new sitting given, as early as is convenient. If the names are few, these letters may be written by the receptionist in her leisure moments; if there are many to be done in this way, they should be given to a printer to print them in imitation typewriter style. Whichever way they are done, be sure that they have the character of personal letters—not circulars. A good printer can now supply facsimile typewritten letters which only an expert can distinguish from originals.

If no reply be obtained a "follow-up" letter should be sent a week later; it can be made interesting by the suggestion of the desirability of miniatures or enlarged photographs for Christmas presents. In larger towns a tasteful folder may be substituted; it must be really good, though, because the photographer who is conducting an artistic business is on a different plane to "the butcher, the baker, the candlestick-maker," and should, therefore, when he does use advertising matter, see that it adequately represents his own artistic standards.

The approaching season is the best one in the year in which to run a special line. An admirable article appeared in the "B.J." some weeks back, describing the methods whereby Mr. Corke obtains his negatives of "fireside" effects by means of ordinary daylight. Two or three such photographs—a chi-



making toast, a girl reading, and so on—in, say, 12 by 10 size, properly stained and suitably framed, would prove very attractive, and should get many orders. It is on lines like these that the really skilful man can show that his is altogether a different business to that of the shilling-a-dozen concern.

\* \* \*

I know a man near Manchester who has a good-priced picture that he calls the "Marcus Stone." He has painted a background and has had made for him a stone seat, both in the style so well known to the middle classes by the many reproductions of the pictures of Marcus Stone. A great deal of the success of this picture depends on the ability to obtain a sitter sufficiently tall and graceful to carry out the idea of the A.R.A.'s pictures, as a specimen; if squat and dumpy females wish to be photographed in the same style—and nineteen people out of twenty seem to fancy that they would look best in a pose altogether unsuited to them—it is rather hard on Mr. Stone. He has, though, some little consolation in the proverbial "sincerest flattery." Another idea, one that is more easily carried out, and one, also, that is more likely to be popular, is that of the snow scene. A background, preferably with continuous foreground, of an exterior representing a scene with a heavy fall of snow, is within the capabilities of most background painters. A little toboggan for the juvenile sitters is a useful accessory. On the negative it is an easy matter to work in the appearance of falling snow. The man who has enterprise enough to run this idea, and also that of Mr. Corke's delight pictures, ought to make a good thing of them.

\* \* \*

The much-talked-of Autochrome plate of M.M. Lumière being by this time obtainable everywhere, here is an idea for getting some cheap publicity. Obtain a packet of the plates, carefully read the instructions, and make some transparencies of some well-known scene in your town. Choose one, of course, that shows some fairly vivid colouring in it. Then call on the editor of your local newspaper, show him what a notable advance has been made in colour photography, and tell him that you are showing the transparencies in your window. The chances are that he will accept it as a good news item—by which you profit accordingly.

\* \* \*

Thus reads the "Foreword" to the Salon catalogue: "TO OUR CRITICS.—Some critics will persist in thinking, and saying, that some methods of art are right and others are wrong. It seems only too easy for the partisan critic to be blind to the merits of a thing well done in a way of which he disapproves, and blind also to the defects of a thing ill done in the way of which he approves."

\* \* \*

Now, I don't care the proverbial tinker's cuss how a thing comes to me, so long as when it does arrive it pleases. What worried me at the Salon after reading the above waspy little foreword was to discover its application to No. 40, "Under the Chestnuts," and No. 59, "Snow Shadows." On a chair in the middle of the room—economical folk those Links; the thinking in which the furniture comes to the room they use for decorating their walls!—I espied some slips of paper. I made a rush for them, quite expecting that they were errata slips for pasting in the catalogue, and that on one there would be a note, "No. 40.—As Artemus Ward says, 'This is a goak.'" The man who knows Mr. Marshall's work can think of no other explanation. But no; they were not errata slips. They were little advertisements of four fourpenny handbooks for beginners. Other unkind, wasn't it?

\* \* \*

An awfully pretty girl was leading round the room a literary-looking old man, who was doing his very best not to look bored. He *did* seem interested in the furniture packing, thought; and then they came to something that evidently

attracted her immensely. "Oh, father, doesn't this look like a pastel; and, of course, it's only a photograph." His reply seemed directed more to the packing than the lady. From what I could hear, it seemed to run:—

"But the Devil whoops, as he whooped of old:

'It's clever, but is it art?'"

It was either that, or:—

"When the Devil mutters behind the leaves:

'It's pretty, but is it art?'"

THE MAN ON THE ROAD.

## Exhibitions.

### THE BRISTOL PHOTOGRAPHIC CLUB'S EXHIBITION.

THIS, the second annual exhibition of the club, was held in the fine suite of rooms of the Bristol Fine Arts Academy. The club had been fortunate in getting the guidance and active assistance of Mr. A. L. Coburn in the hanging and decoration of their exhibition, and at his instance the walls were first covered with brown paper of suitable tone and then agreeably panelled out by the free use of broad tape, dyed to a dark brown, the result being entirely satisfactory.

This year the entered works had been subjected to a rigorous selection, only about one-half of those entered being hung, with the result that a high average of artistic merit was reached, and the good works were not spoilt by overcrowding.

The technical section, which was kept apart from the pictorial, also reached a high standard. In the Invitation Section Mr. Coburn had five characteristically daring pictures, taken in the neighbourhood of Bristol, which attracted much interest and comment. Mr. S. G. Kimber's views of church interiors are wonderful in their rendering of sunlight and shadow. Mr. Percy Lewis is worthily represented by three Italian scenes, full of atmosphere. Mr. E. Seymour showed eight examples of fruit and flowers, in which the rendering of texture was very fine; while F. Hollyer had two strong portraits.

In the Open Pictorial Class Mr. Evershed's eight prints in oil show much feeling for colour and texture, combined with a lively appreciation of pictorial effect, giving the same impression as a delicate water-colour drawing. Mr. Basil Schön was represented by "Dingy London" and "Where Once an Ancient City Stood," both noteworthy for atmosphere and composition. Herr R. Dührkoop's ten portraits are forcible, and at the same time delicate in the handling of the lights and shadows; but, good as they were, they hardly came up to his work shown last year.

Mr. H. M. Haines' "At the Piano" is very poetical in composition, while a flower study by Jos. Bell, in Leto pigment, is good.

Mr. G. Hale manages to infuse much personality into his two gum prints, entitled "A Hertford Lane" and "A Landscape," but one or two minor false lights have been worked in. Mr. Oscar Hardee's "Portrait Group" is one of the features of the exhibition. It represents two heads (mother and son), the modelling of which is splendid, as is also the rendering of the relative tone and texture of drapery, faces, and hair.

Mr. Harry Lindoe's "The Deserted Mill" was a perfectly charming little oil print of a landscape at eventide.

H. R. Harford exhibits a number of prints which well deserved careful consideration, and E. H. Hazell has several child studies, evincing a fine insight into child life.

In the Members' Section the inspiring influence of a local exhibition is very apparent, a decided advance being visible, much really good work being shown.

"Winter," by George Easonsmith, is a delightful little print in platinotype, while four gum prints by E. G. Watts displays great technical skill, combined with artistic perception, the skies being particularly well rendered.

W. Brush, W. H. Hawker, W. W. Smith, H. C. Leat, F. N. Nield, W. A. Rowland, and E. Beaven also deserve special mention.

In the Technical Section Dr. G. H. Rodman has a remarkable radiograph of molluscal shells, showing their internal structure by means of the X-rays.

Mr. Henry J. Comley, secretary of the Society of Colour Photo-

graphers, was represented by four still life prints in natural colours, which were well composed and skilfully executed.

"Chaffinches," by Geo. A. Booth, was a triumph, from both a technical and pictorial point of view.

In the Autochrome Section Mr. R. Child Bayley shows six excellent examples of the wonderful capabilities of the process, while Morris B. Fowler contributed six, and Geo. Easonsmith four examples, both of these latter being members of the club.

#### FORTHCOMING EXHIBITIONS.

- September 13 to October 26.—Photographic Salon. Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.
- September 19 to October 26.—Royal Photographic Society. Sec., J. McIntosh, New Gallery, 121, Regent Street, London, W.
- September 30 to October 25.—Society of Colour Photographers. Sec., Henry J. Comley, Surrey House, Stroud, Glos.
- October 16 to 19.—Rotherham Photographic Society. Entries close October 7. Sec., H. C. Hemingway, Tooker Road, Rotherham.
- October 17 to 26.—Edinburgh and Midlothian Industrial Exhibition (Photographic Section). Sec., A. T. Hutchinson, 15, Leith Street, Edinburgh.
- October 30 and 31.—Watford Camera Club. Sec., W. R. Gunton, 139, High Street, Watford, Herts.
- November 5 to 27.—West of England Industrial Exhibition (Photographic Section). Entries close October 5. Sec., A. D. Breeze, Great Western Chambers, 41, Union Street, Plymouth.
- November 6 to 8.—Bedford Camera Club. Entries close October 31. Sec., P. C. Penny, 64, Harpur Street, Bedford.
- November 6 to 9.—Hackney Photographic Society. Sec., Walter Selfe, 70, Paragon Road, Hackney, London, N.E.
- November 12 to 16.—Rugby Photographic Society. Entries close October 29. Sec., R. H. Myers, 13, Bridget Street, Rugby.
- November 19 to 23.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- November 25 to 28.—Lancaster Photographic Society. Entries close November 16. Sec., Walter Gunson, Manesty, Scotforth Road, Lancaster.
- November 28 to December 4.—Southsea Photographic Society. Sec., Gilbert Wood, 10, Pelham Road, Southsea.
- December 5 to 7.—St. George Co-operative Society Camera Club. Entries close November 25. Sec., George Anderson, 77, Brae-side Street, Glasgow.
- December 5-7.—North London Photographic Society. Entries close November 30. Sec., C. H. Madden, 12, Dagmar Road, Stroud Green, London, N.
- December 11 to 14.—Hove Camera Club. Sec., Stanley Read, 12, Old Steine, Brighton.
- December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telier, 138, Glasgow Road, Wishaw, N.B.
- 1908.
- February 20 to 22.—South Manchester Photographic Society. Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.

A SCIENTIFIC EXHIBITION.—A novel and interesting exhibition is to be held at the Royal Horticultural Hall, Vincent Square, Westminster, London, S.W., from October 22 to 26 inclusive. The event is being organised in connection with "The Model Engineer," and will include a splendid collection of engineering models of all kinds—electrical, optical and scientific instruments, technical education apparatus, and lathes, tools and workshop appliances. Many of the models will be shown at work. Scientific lectures and demonstrations will be given each day, the subjects including colour-photography, sound waves, wireless telegraphy, gyroscopes, X-rays, radium, electric wedding, and other interesting items. High-class music and refreshments will be provided. The price of admission will be one shilling.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received between September 30 to October 5.

**FILING CABINETS.**—No. 21,655. Improvements in cabinets for storing or filing microscopic slides, photographic plates, and the like. Percy Merwood Fowler, 27, Chancery Lane, London.

**CAMERAS.**—No. 21,669. Improvements in or connected with photographic cameras. Major William Carter and Edwin John Fletcher, Birkbeck Bank Chambers, Southampton Building, London.

**COLOUR PHOTOGRAPHY.**—No. 21,685. Improvements in colour photography and apparatus therefor. Edmund Basil Wedmore, 16, Clifton Road, Rugby.

**FILM SPOOLS, ETC.**—No. 21,692. Improvements in photographic film spools, film packs, film envelopes, or the like, and in light-excluding wrappers for the same. John Edward Thornton, 16, Wellington Road, Heaton Norris, Stockport.

**EXPOSURE DEVICE.**—No. 21,745. Mechanical device for simplifying and expediting the exposure of photographic paper and the like. Michael Edward Abbott, 29, Cleveland Mansions, Chapel Street, Brixton, London.

**PRINTING.**—No. 21,769. Improved printing method. Joseph Southam, Enderlie, Selborne Road, Worcester.

**COLOUR PLATES.**—No. 21,768. Improved method of making colour sensitive plates or screens for photographic purposes. Arthur Lewis Adams and William Watson, 24, Charing Cross Road, London.

**CELLULOID.**—No. 21,880. Improvements in the manufacture of celluloid or the like. Self-Developing Plate Company, Ltd., and Thomas Bolas, 7, Southampton Buildings, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**SELF-DEVELOPING PLATES.**—No. 21,189. 1906. The invention relates to films arranged in a pack with tabs, as described in Patent Specification Nos. 11,033, 1906, and 11,346, 1906. It is now proposed to provide such films with chemicals in dry state for developing or fixing, these materials being applied direct to the film, to the separate backing paper, or to some part of the manipulating tab. John Edward Thornton, Altrincham, Cheshire.

**CAMERA CASINGS.**—No. 24,962. 1906. This invention relates to portable casings for photographic cameras. It comprises a U-shaped body of any desired shape, similar to a lady's bag. This body is provided inside with guides obtained by giving the interior a suitable shape or by securing ledges on the outside of the body. The photographic apparatus held by the guides is introduced into the casing from the top, and is held in its position by means of a spring provided with a projection. To one side the body is hinged or jointed a plate, provided on its outside with ornamentalations, the plate being held closed by means of a pivoted spring catch. The opposite open side of the body, filled by the casing, or outer side of the camera introduced, in such manner that the folding bottom of the camera lies against this open side of the body.

The method of using this device is as follows:—After opening the back hinged wall is raised and the light screen for the opaque disc secured to the apparatus also raised. The bottom of the camera is released, the object glass holder corresponding pulled out, and the camera is then in the position for focussing the picture and taking a photograph without it being necessary to remove the camera from the casing.

If the casing is to be used as a lady's bag, which is possible after the photographic camera has been removed, the front opening of the body which had been closed by the photographic camera introduced into it, is closed by a plate covered in the same way as the body. The hollow space thus produced and accessible from the top can then be used for carrying various articles, like an ordinary lady's bag. A. J. Boulton, for Certo Fabrik Photo



graphischer Apparate und Bedarfsartikel Gesellschaft Mit Beschränkter Haftung, of Grossschachwitz, Dresden, Germany. KITE CAMERA.—No. 6,783. 1907. The invention is to enable sharp photographic pictures to be obtained by means of photographic

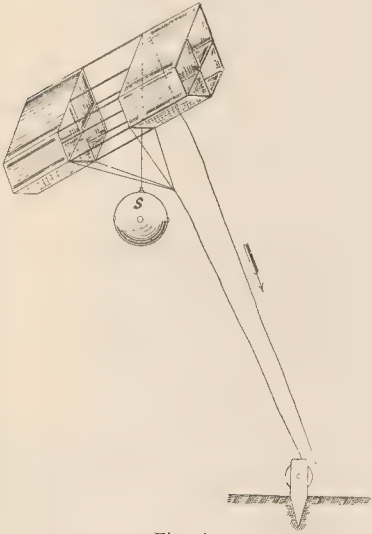


Fig. 1.

apparatus carried by a kite, etc. A limited falling motion of the apparatus is utilised, the apparatus being disconnected from

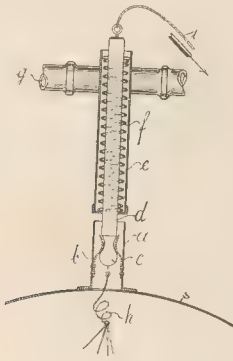


Fig. 2.

the carrier by mechanical means controlled by the operator, and the exposure made during the fall, whereupon the latter is

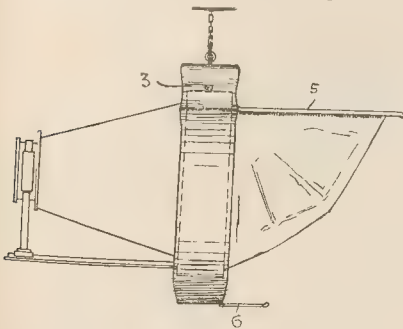


Fig. 3.

checked. The sharpness of the pictures obtained by exposure made during the vertical drop of the photographic apparatus is not interfered with by the movement of the kite.

Apparatus suitable for carrying out this method in connection with kite photography is illustrated in Figs. 1 and 2 of the annexed drawing. In the construction of apparatus shown in Fig. 2 a rod extends into a tube *e*, in which it is supported by a helical spring *f*. The tube *e* is connected to the frame *g* of the kite, and to the lower end of the rod *d* is attached a cord *h*, suitably connected to the shutters of four photographic cameras not illustrated, arranged in the spherical case. A cord *i*, one end of which is retained on the ground when the kite ascends, the other end being attached to the top of the rod *d*, enables the latter to be jerked upwards to release it from the springs *b*, whereupon the casing with the camera drops until the cord *h* is tensioned, the shutters of the camera being by this means operated to make exposures. Robert Bachstein, 17, Dürerplatz; Dresden—A; and Balduin Emil Enge, 22, Kronprinzstrasse, Oberlössnitz, near Dresden.

VIEW FINDERS.—No. 2,356, 1907. The construction of the new view finder is based upon the spherical concave reflector as illustrated in Fig. 1. Such a reflector produces a very bright image which has, however, the defects of being distorted and reversed. This defect of reversal of the image is compensated for according to this invention by using a reflector having a particular arrange-

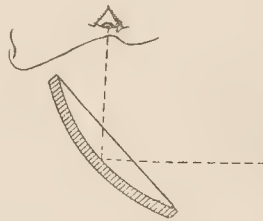


Fig. 1.

ment of curvatures instead of a spherical curve. In the new view finder or reflector the principal curves are oppositely described.

Referring to the drawings, and particularly to Fig. 2, *a*

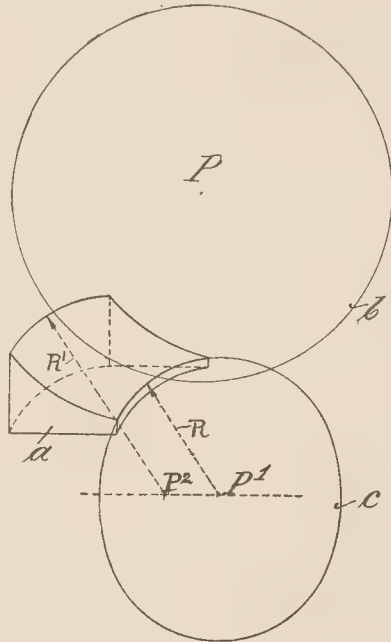


Fig. 2.

denotes the body of the reflector, the reflecting surface of which is a surface of double curvature. This surface is produced by the movement of a segment of the circle *b* struck from the centre

$p$  around an axis  $P^1 P^2$ , the circle described by one end of such segment around the centre  $P^1$  being marked  $c$ .

Assuming that the curvatures represented by the circle  $b$  and hereinafter called "meridional-curves" are concave, the oppositely directed curves which will be hereinafter called "equatorial-curves" are convex. The equatorial segmental curves all have their centres upon the line passing through the centre  $P^1$ , for instance the curve of smallest radius forms part of the circle  $c$ , and the curve of largest radius is struck from the centre  $P^2$ .

The surface thus obtained is a regular saddle-surface if the principal curves are calculated to be about equal in their absolute values but to be of opposite character. A reflector of

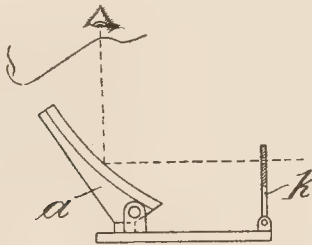


Fig. 3.

such a kind has been found just as the above-mentioned spherical reflector to produce images distorted and contracted in their upper parts. Those parts of the reflector therefore producing the upper part of the image are of a lesser equatorial curvature, that is to say, the radius of curvature  $R^1$  extends beyond or is longer than the radius  $R$ , as is seen in Fig. 2. In this manner the distortion may be almost entirely corrected. A reflector in which the principal normal curves form parts of circles and which can therefore be easily made in practice, will be sufficient for most cases. For completely removing the distortion, the exact form of a suitable surface (saddle surface) can be easily determined in a graphic and analytic way, the principal curves normal being of opposite character.

Figure 3 shows a view finder made as hereinbefore described. The finder  $a$  is provided with a sight  $k$ , and on the reflecting face of the body  $a$  a cross or mark is made to the proper point-

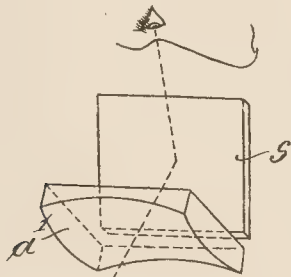


Fig. 4.

ing or sighting of the camera. It is preferable to arrange the finder in such a manner that one or both of its parts can be folded flat in the same way as the known Newton view finder, thus at the same time protecting the sight  $k$ . All these embodiments of the invention, however, do not interfere with the principle thereof, the characteristic feature of which is a surface having curves oppositely described.

Naturally it is possible to make a lens, as shown in Fig. 4, one surface of which is the hereinbefore described saddle surface and which produces in connection with a plane reflector at about an angle of 45 degrees and arranged behind the lens, a view of the kind obtained in the previously described view finder. This form (Fig. 4) is also a modification based on the above mentioned principle, but is not, however, so satisfactory. In

conclusion it may be remarked that the finder does not produce a real image; the image reflected in the finder consists of two parts, namely a real image produced by the meridional concave curves and a virtual image produced by the equatorial convex curves. Therefore the focal lines produced by the meridional sections can be collected on a ground glass screen or the like. Rathenower Optische-Industrie-Anstalt, vorm Emile Busch, Rathenow, Germany.

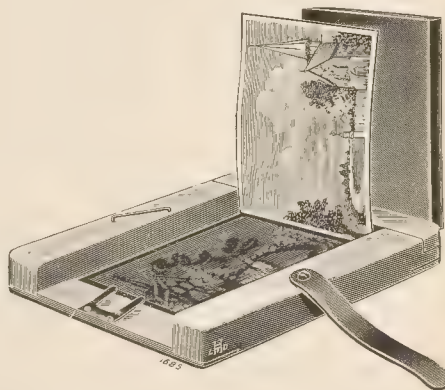
### New Trade Names.

IMPERIAL N.F.—No. 295,494. Plates included in this class prepared for photographic purposes. The Imperial Dry Plate Company Ltd., Ashford Road, Cricklewood, London, N.W., manufacturers of photographic materials. August 13, 1907.

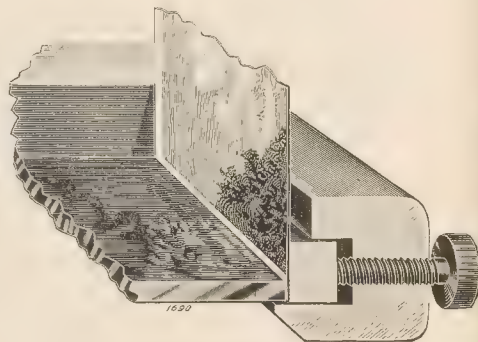
### New Apparatus, &c.

Full View Printing Frames. Made by Houghtons, Ltd., 88 and 90 High Holborn, London, W.C.

A new idea in printing frames is embodied in this introduction by Messrs. Houghtons. The negative is inserted in a rabbet in one end of the frame and beneath a weak spring at the other. The paper is clamped tightly in register with the negative by a screw adjustment.



one end of the negative, so that the whole of the print can be examined, saving only the narrow strip ( $\frac{1}{8}$  inch), by which the paper is tightly clipped. The back of the frame is therefore made with a hinge, and the frames can thus be made at a price which is greater than that of the ordinary pattern—namely, 6d. each,



quarter-plate size, 11d. in half-plate, and 1s. 10d. in whole-plate. One advantage that might be mentioned is that the negative being clamped in the frame cannot accidentally fall out and get scratched or broken.



The Ensign Lens. Supplied by Houghtons, Ltd., 88 and 89, High Holborn, London, W.C.

Messrs. Houghtons announce a special offer of the newly introduced "Ensign" anastigmat lens, either with or without the well-known "Koilos" shutter. Up to the end of the present month they are prepared to supply two series of these lenses, working at respectively  $f/5.8$  and  $f/7.7$ . A  $4\frac{1}{2}$ in. lens of the former series costs in aluminium mount and iris diaphragm £2 12s. 6d.; whilst complete with the "Koilos" shutter its price is £4 12s. 6d. The lens, it should be mentioned, is separable into two components of  $7\frac{1}{2}$ in. and  $8\frac{3}{4}$ in., the other two numbers, Series I., being similarly divisible into lenses of about  $1\frac{1}{2}$  and nearly double the focal length of the complete objec-



ve. The Series II., at the lesser aperture of  $f/7.7$ , costs, in the case of the  $4\frac{1}{2}$ in. lens, in aluminium mount, £1 17s. 6d. A "Sanderson" camera, offering, as our readers know, a very great rise of front, gave a convenient opportunity of testing the behaviour of these lenses in actual practice, and we were thus able to see for ourselves the very great covering power and good definition afforded, even when the lens is used to cover a plate much larger than that for which it is listed. Messrs. Houghtons make their offer through the photographic dealers throughout the country, from whom circulars more fully describing the new "Ensign" anastigmat and the "Koilos" shutter may be obtained.

"SOHO" REFLEX CAMERAS.—Messrs. Marion and Co. have added the series of "Soho" reflex cameras one of stereoscopic size, taking plate of  $5\frac{1}{2}$ in. to  $3\frac{1}{2}$ in. They fit with special removable screens and divisions, permitting the use of two paired lenses. The stereo vision is so constructed as to work with the movement of the mirror, while it can be removed in a moment when desired. The price of the new reflex, with three double backs, stereoscopic screens, and divisions, is £14 10s., including the mounting of two paired lenses, but not the lenses themselves. With 2 Cooke Series III.,  $f/5.5$ , paired  $4\frac{1}{2}$ in. focus, the cost is £22; with 2 Zeiss-Tessar,  $f/6.3$ , paired  $4\frac{1}{2}$ in. focus, £23 18s.; with 2 Goerz-Dagor,  $f/6.8$ , paired 5in. lenses, £25; and with 2 Ross homocentrics,  $f/6.3$ , paired 4in. focus, £28.

AUTOCHROME PLATES.—Messrs. A. E. Staley and Co. announce that they are prepared to supply Autochrome plates in the English sizes their usual customers.

"FOR THIS RELIEF, MUCH THANKS."—At the time of writing, a large portion of the large edition of "Colour Photography with the Lumière Autochrome Plates" has reached the hands of individual readers. The appearance of the publication, so we have learned from many quarters, has been welcomed by those wishing for a concise, reliable instruction in the process. Not only so, it has proved a boon to those desiring to escape from the ubiquitous questioner clamour for information as to the why and wherefore of the process. The photographic dealers and professional photographers have found it an admirable means of saving themselves the trouble of lengthy explanations. The small sum of 2d. cannot be an obstacle to the purchase of a brochure which explains the mechanism of the Lumière process, and gives all the directions necessary for its practice. The firm of Messrs. Houghtons, Ltd., we would repeat, is the sole wholesale source of supply, and orders for the publication could be addressed to them at 88-89, High Holborn, London, W.C., or at 70-78, York Street, Glasgow.

## New Materials.

"Ivory Matt" Bromide Paper. Made by Thomas Illingworth and Co., Ltd., Willesden Junction, London, N.W.

In this new brand of their bromide paper, Messrs. Illingworth have produced a printing medium worthy of the attention particularly of professional photographers. The paper has a delicately matt surface, and it supplies prints of fine purity in the whites. Its great range of gradation in conjunction with these two qualities fits it for the great majority of subjects, but it is especially suitable for producing the smaller sizes of portraits which have a handsome appearance on both the untreated and sulphide-toned paper. The amidol or metol-hydroquinone developer is specially suitable for the new paper, and if the instructions are followed, "Ivory Matt" certainly gives results of the first degree of excellence.

Christmas Mounts. Made by Bartons', 114, Golden Hillock Road, Birmingham.

We have seen many selections of mounts and folders intended for the reception of photographs to be ultimately posted as Christmas greetings, but we can honestly say that, despite the undoubted care bestowed upon their production and the money paid for colour printing, none of them have ever approached the effect obtained by these productions of Messrs. Bartons' in an infinitely simpler way. The mounts consist of the fine textured papers which Messrs. Bartons' have supplied of late for the purposes of photographers with an eye to the tasteful presentment of their works, and contain only a simple design printed in a pale ink and enclosing only the simple words, "Christmas Greetings." The average Christmas card, photographic or otherwise, commonly sins in being too effusive, and the simplicity of Messrs. Bartons' designs is in nice accordance with the brevity of the wording, and the whole effect we think of a photograph, particularly if the latter is dry-mounted to its support, will be as fine as is obtainable in a shape intended to pass through the post as a Christmas souvenir. We have no particulars of the prices of the mounts, but they are obtainable on application to Messrs. Bartons', at 114, Golden Hillock Road, Birmingham, where also we imagine our professional readers may be able to obtain samples of the different styles. We should strongly recommend them to do so.

The Pictorialist's Outfit. Supplied by John J. Griffin and Sons, Ltd., Kingsway, London, W.C.

It is remarkable that the idea which has been embodied in this outfit by Messrs. Griffin should never have occurred to any other of the many firms catering for that creature of modern growth—the pictorial photographer. However, that is not to say that it is Messrs. Griffin who have been behind in the matter, for their introduction follows closely on their entrance into the business of catering particularly for photographers of this class. In the little outfit which they offer they include a bottle of matt varnish, of retouching medium and of local reducer, which appears to be of the "Baskett" type containing a spirituous liquid with a fair proportion of abrading matter in suspension. They also provide two fine spotting brushes, an HB and BB pencil, and a sheet of papier-minerale, together with a convenient palette and spotting colours of three tints. It may be questioned whether the methods of control are quite as much in favour as they were two or three years ago; indeed, Messrs. Griffin, as much as anybody else, have tolled the death knell of these methods by their commercial introduction of the oil process, which provides all the control—much more than can be obtained by these means—with far less trouble. Still the outfit is bound to be of service to many whose desire to improve a negative is based only on technical reasons, and is not associated with any particular pictorial aspiration. The materials supplied in the set before us can be heartily recommended to such as these. The price of the set is 2s. 9d.

WATFORD CAMERA CLUB.—The fifth annual exhibition of the above club will be held in the Corn Exchange, Watford, on October 30 and 31, entries closing October 24. Mr. A. Horsley Hinton will judge the exhibits, and silver and bronze medals will be placed at his disposal for award. Two special awards also are offered—namely, a silver plaque in the champion class, open to all, and a special gold medal given by the president for the best exhibit in the members' classes. Entry forms are now ready and may be obtained on application to W. R. Gunton, 139, High Street, Watford.

## CATALOGUES AND TRADE NOTICES.

THE LUMIERE Co., 89, Great Russell Street, London, W.C., have issued a new edition of their formulae for development, including those for the new "Autochrome" plates. The instructions for the use of the latter are also given, together with a useful series of hints on failures and remedies. The booklet will be sent post free to any applicant.

MESSRS. MARION AND Co.'s list, as a comprehensive catalogue of photographic apparatus, merits a prominent reference on the re-appearance of a new edition. In the present instance, Messrs. Marion have contrived to further reduce the number of pages without sacrificing the usefulness of the list for the purposes of the photographer who is concerned only with providing the best tools for his work. The amateur will not find here particulars of every accessory which human ingenuity has devised avowedly for his assistance, but he will find, very well arranged and amply illustrated, an excellent selection of standard apparatus and materials. A convenient volume, which is issued to the trade only, lists many fine art publications, water-colour drawings, and frames and stationery, which is an important part of Messrs. Marion's business. The two lists should certainly be at the elbow of the professional photographer, who, we believe, may obtain either of them on application to Messrs. Marion and Co., Ltd., 22 and 23, Soho Square, London, W.

A USEFUL 16-page pamphlet reaches us from Messrs. Ross, Ltd., 111, New Bond Street, in the shape of particulars of the fitting of the firm's well-known "Homocentric" anastigmat lens to popular types of hand cameras. The list gives the size of lens most suitable for the various Kodak and Premo cameras, with the prices of the complete instruments thus fitted.

MESSRS. PERKEN, SON, AND Co., LTD., 99, Hatton Garden, send us two very timely lists of theirs which we can emphatically suggest should be in the hands of photographers equipping themselves for the winter season's work. The catalogue of enlarging apparatus using artificial light specifies the various instruments and accessories in which Messrs. Perken have embodied years of experience. The practical value of these pieces of apparatus is too widely recognised to require further commendation from us. The list of projection lanterns and lamps, jets, and attachments is not the largest, but it is all the more useful on account of its inclusion of only the most reliable articles for the lanternist. Both catalogues are sent free by Messrs. Perken.

ILFORD PLATES.—The latest edition of the Ilford plate handbook is worth procuring if only for the beautiful example of decorative photography which adorns its first page and is an example of the camera applied to draw attention to the notable Ilford manufactures. The book specifies the particular characteristics of the Ilford plates, supplies a useful table of exposures, and advises on the proper illumination of the dark-room. Moreover, it offers a reasonable and assimilable chapter of instruction in the development of a plate with pyro-soda, explains what to do in cases of incorrect exposure, and gives one or two developing formulae, hydroquinone, metol, amidol, metol-pyro, and metol-hydroquinone, which should be noted by those who fight shy of pyro. Notes on intensification, reduction, and other expedients for improvement conclude a most useful and precisely worded book of instruction, a book which every plate user may consult with profit, and may recommend to a beginner in doubt. The book may be had gratis from photographic dealers everywhere, or for one penny stamp, direct from Ilford, post free.

THE LINKED RING AT HOME.—That most enjoyable function of the exhibition season, when the members of the Linked Ring are at home to their friends, took place at the exhibition at 5A, Pall Mall East, on Tuesday last. A large number of guests, representative of the most varied interests in photography, assembled in the home of the Photographic Salon, and were unanimous in praise of the Linked Ring's hospitality. One cannot ask for more than to meet one's friends and to spend an hour with intervals of genuine entertainment, and the Linked Ring's infallible tact in stage managing their evening provided every opportunity for chatting awhile with old friends and listening with them to such accomplished entertainers as Mr. Arthur Helmore, whose burlesques of actors and mock sermon are some of the things which will bear repetition at many another Salon "At Home."

## Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, OCTOBER 18.

Aberdeen Photographic Association. "Chemical Theory and Photographic Practice." Robert Glegg, B.Sc., F.I.C.

MONDAY, OCTOBER 21.

Manchester Photographic Society. "Among the Dutchmen with a Camera." J. Fergusson.  
 Stafford Photographic Society. "A Simple Method of Development for Beginners." Henry Cliff.  
 Bradford Photographic Society. "'Wellington' Iso. Plates and S.C.P." Harry Wade.  
 South London Photographic Society. "Animal Sculptures in Church Architecture." Geo. C. Druce. Monthly Competition—(Prints).  
 Slough Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."

TUESDAY, OCTOBER 22.

Redhill and District Camera Club. "Theory and Practice of Time Development." W. F. Slater, F.R.P.S.  
 Birmingham Photographic Society. Annual Meeting.  
 Manchester Amateur Photographic Society. "'Wellington' Iso. Plates." Harry Wade.  
 Leeds Photographic Society. "The Platinotype Process." The Platinotype Company.  
 Keighley and District Photographic Association. "A Visit to the Fjords of Norway." J. Skirrow.  
 Wimbledon and District Camera Club. "Crossed Swords Pigment Paper." F. Hart.  
 Hove Camera Club. "Rotary 'Carbograph' Paper."

WEDNESDAY, OCTOBER 23.

Everton Camera Club. "Intensification and Reduction." Messrs. Stonehouse and Others.  
 Coventry Photographic Club. "The Carbon Process." H. J. Goodwin.  
 Croxson Camera Club. Lantern Night.  
 Leeds Camera Club. "Exposure and Development." J. Fred Seaman.  
 Edmonton and District Photographic Society. "Rotary 'Carbograph' Paper."  
 North Middlesex Photographic Society. Fifteen Minutes' Lecture Competition.  
 Central Technical College Photographic Society. "The Leading Principles of Velox Manipulation." A. W. Green.  
 South Suburban Photographic Society. "Figure Work." E. T. Holding.

THURSDAY, OCTOBER 24.

Liverpool Amateur Photographic Association. "Flower and Fruit Photography." Edward Seymour.  
 Hull Photographic Society. "Beverley Minster." Rev. W. E. Wigfall.  
 North London Photographic Society. "Steps Towards Picture Making in Photography." H. Snowden Ward.  
 Handsworth Photographic Society. "Aston Hall and the Holte Family." E. Timings.  
 Richmond Camera Club. "Röntgen Rays." Dr. Rodman.  
 London and Provincial Photographic Association. Annual Supper.  
 Longton and District Photographic Society. "The 'Wellington' Iso. Plates." H. Wade.  
 Woolwich Photographic Society. "Rotary 'Carbograph' Paper."

## THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

## COMMITTEE MEETING.

A MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, 11th inst. Present: Messrs. F. A. Bridge, Alfred Ellis, S. H. Fry, H. J. Hull, A. Mackie, H. S. Mendelssohn, D. Prodder, Lang Sim, R. Fellows Willson, H. A. Chapman, J.P. (Swansea), P. Lankester (Tunbridge Wells), and T. C. Turner (Hull). In the absence of the President, Mr. S. H. Fry occupied the chair.

The Hon. Secretary reported that the September number of the "Circular" had been posted to members since the last committee meeting, and that the invitation to contribute to the P.P.A. Exhibition to be held at the office of the "B.J." in February next had been sent out, and were being well responded to. He also said that he had visited Mr. Jacolette on the previous day, and regretted to find that his progress towards recovery was not as rapid as they would all wish. He was instructed to convey to Mr. Jacolette the regret at his enforced absence, and best wishes for his speedy return to health.

The remainder of the meeting was occupied in the discussion of applications for advice, etc., made by various members of a nature that cannot be reported.

## MEMBERS' MEETING.

At the members' meeting which followed the chair was occupied by Mr. Alfred Ellis. A paper was read by Mr. Edgar Scammon on "Advertising in Professional Photography: Does it Pay?" and an interesting discussion ensued.



## LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

At the meeting held on October 10, 1907, Mr. H. C. Rapson in the chair, Mr. Seymour lectured upon flower photography. In his work Mr. Seymour used a 12-10 camera, and focussed the nearest part of the subject, stopping down until all was sharp—as he thought it should be in flower work. The subject was pinned to the background, and if any leaf was required where it could not be pinned, a touch of glue did the trick. In some cases twenty to thirty pins were used, varying from those  $\frac{1}{4}$  in. long to the longest blanket in Pansies he always wired to make them take the position desired.

The lighting was governed by white art muslin, which was stretched over the source of light, and the backgrounds were of grey, brown, dark green, or white cardboard. The subject was pinned to it in order to obtain the shadows essential to a successful result. The background and subject were turned to an angle from towards the light as seemed desired.

The darker the flower the darker the background, and with delicate subjects the lighter backgrounds should be used. Do not, said Mr. Seymour, spare the knife: trim off all unnecessary leaves. The lecturer stated that he used ortho plates, but very seldom a green. Time development he had read about, and thought pretty, but it failed him in practice.

His method was to give very full exposure, even to over-exposure; and he then developed with a strong pyro developer without soda, and weak in alkali. Immediately the highest light attained density, he plunged the plate into the fixing-bath. If the result was too flat, he built up afterwards by intensification, in this way obtaining each value in its proper gradation. His exposures for soft. were 20 sec. at  $f/16$  in the strong light; to brighten the greens he damped them with water just prior to exposure.

In addition to the many prints that were on the table, Mr. Seymour showed some 120 slides, some of which were exceedingly fine; but one could not help thinking that very many would have been vastly improved by the judicious use of a light-filter, the greens being in many cases too dark.

Mr. Haddon did not think that the best results were obtained by the use of strong pyro, and he thought that the developer should be the reverse, viz., weak in pyro, for the finest results. Nor did he see the need to pin the subject to the background. He suggested that a sheet of glass with the background at a little distance would be an improvement. Mr. Seymour said that in some cases he did hate his developer, but in nearly all cases he over-exposed, hence a strong solution.

**CROYDON CAMERA CLUB.**—Mr. A. W. Green, representing Messrs. J. Griffin and Sons, gave a demonstration last week of the Rawlins printing process, every step necessary to successfully work it being clearly and ably pointed out. The process being now well known, it will be sufficient to summarise one or two points dealt with by the lecturer, and not included in the instructions for working the process issued by Messrs. Griffin. In the first place, Mr. Green laid stress on the desirability of employing a suitable gelatinised paper for operating upon. That worked out by Mr. Rawlins was the outcome of many experiments, and liberties could be taken with it, which might lead to disaster with other substrated supports. Single-transfer papers, for instance, sometimes recommended, did not permit of the pigment being cleaned off in case of error, and a fresh start made. There was also the ever-present danger with other substrata, of the gelatine pitting under the action of the brush, with a resulting spotting of the prints. The usual artists' pigments, the lecturer said, were not ground fine enough, nor were they of sufficient consistency; they, moreover, were slow driers. The Rawlins' special oil-pigments overcame these objections. The fitch brushes recommended must have natural bristles, and for this reason were more expensive than brushes with "beared" hairs, which split in use and would not then work satisfactorily. Hog-hair brushes might, however, be employed for broad effects were sought. Mr. Green, in the course of his remarks, slowly built up some capital oil-prints, at the same time illustrating various methods of controlling results.

In the earlier part of the evening Dr. Mees introduced yet another plate. This, he genially observed, would probably not be the

faintest use to his hearers, though it had undoubted theoretical interest, which he might dilate upon later in the session. The new-comer possessed red and blue sensitiveness, but was quite blind to the green. He proposed that the following experiment should be carried out by those willing to undertake it. He had with him several boxes of plates in sets of three. One in each set contained ordinary plates; these were, of course, "wrong" one end of the spectrum. The next box in the set contained the "theoretically interesting" plates, and a light-filter cutting out the blue, with which they were to be used; consequently, compared with the ordinary plates, they would be "wrong" the other end of the spectrum. The third box contained Wratten's "panchromatics," and an adjusted "correct luminosity" filter. Comparative identical exposures were to be made on the three plates, and the results shown on a subsequent occasion. Several members undertook to carry out the experiment, which should prove an instructive one. At the conclusion of Dr. Mees' remarks a member rose and suggested that Messrs. Wratten might usefully carry the matter a step further, by issuing a plate totally insensitive to the visible and invisible rays of the spectrum. Apart from certain practical disadvantages, that bugbear of the modern photographer, viz., the erroneous translation of colour-values, would be rendered impossible, and in addition all operations could be carried out in broad daylight, in itself no small an advantage. This week a lantern-night is announced, with a free distribution of samples on a grand scale, which should ensure a record attendance.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—On Wednesday, October 9, Mr. F. Martin-Duncan, F.R.P.S., delivered a most interesting lecture on "Denizens of the Deep." A most enjoyable evening was spent, and those interested in the subject may like to know that a book of Mr. Martin-Duncan's is shortly to be published, bearing the same title as his lecture—viz., "Denizens of the Deep."

**SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.**—Over fifty members and friends were present at Plough Hall, High Street, Lewisham, on Wednesday evening, to listen to a stimulating lecture by Mr. H. Snowden Ward, editor of the "Photographic Monthly," and a well-known judge at exhibitions. Mr. T. K. Grant was in the chair. Mr. Ward's subject was "Points for Picture Makers," and in delightfully informal, humorous style he gave what he described as a "chat," suggesting rather than prescribing the forms and arrangements which go to the making of a successful picture. The old symbolists, he said, held that the perpendicular line represented virility, energy, strength, movement; the horizontal line, quiescence, calm, repose. So if a pictorialist wanted to make the most of a scene suggesting action, motion, strength, it was advisable to use the upright picture, employing the horizontal form where it was desired to suggest repose. The pointed church spire and the squat, square church tower were graphically used to illustrate this point. Discussing and illustrating the various arrangements of line and mass in a picture, some obviously pictorial and some the reverse, he suggested that for some reason, which he left it to his hearers to explain, a picture is more effective and more likely to be accepted at the exhibition if the principal object of interest is placed on the right of the canvas than if it happens to be placed on the left. Further, he suggested that a point near the top right-hand corner was the "strongest" point in the picture at which to place the principal object, much stronger even than the top left-hand corner, as might be seen by reversing the arrangement. The reason of that, too, he left his audience to decide. From these interesting considerations he passed to the question of relative tones, and, alluding to the difficulty of getting by photography the correct tone for objects of a reddish tinge, illustrated his point by slides of two pictures by Miss Kate Smith, whose tone rendering was usually perfect, but who in the first of these represented the brown sails of a yacht in full sunlight by a tone that was almost black, and in the second similarly falsified the tone of a chestnut horse. On the other hand, he showed slides of photographs by the same clever artist, in which the tones were magnificent, and strong sunlight was luminously represented without the usual accompaniment (in photographs) of pitch black shadows. After a brief discussion a hearty vote of thanks to the lecturer concluded the proceedings.

## News and Notes.

**AUTOCHROME PLATES IN NATURE STUDY.**—Mr. Martin Duncan should be assured of a large audience when, on Thursday next, October 24, he gives the first of the weekly lectures at the Blenheim Club, taking for his subject "The Application of Autochrome Plates in Natural History." Mr. Duncan will exhibit a series of autochrome slides on the screen, including a number of living subjects. He may justly claim to be the first to apply the plates to scientific work.

**FIRE AT A STUDIO.**—A fire broke out last week in the studio of Mr. G. A. Coulson, photographer, of Lower High Street, West Bromwich. The studio and its contents, including a number of valuable cameras, were completely destroyed. The damage is heavy, and is only partially covered by insurance. The cause of the outbreak is unknown.

**DRESDEN PHOTOGRAPHIC EXHIBITION, 1909.**—A competition has been arranged in connection with this proposed exhibition. The committee, being anxious to obtain an artistic poster, are offering prizes to the amount of £125 (first prize £50) for competition amongst both painters and photographers. It is anticipated that the value of the prizes will ensure a quantity of work by first-class artists in both professions being entered. Particulars may be obtained, gratis, from the offices of the exhibition, Neumarkt 1, Dresden-A.

**PHOTOGRAPHIC SURVEY AND RECORD OF SURREY.**—Photographic and other societies in the county of Surrey will doubtless be interested to learn that a lecture entitled "The Camera as a Historian—County Record Work," which is illustrated with lantern slides, has been prepared for circulation by the council of the above association. Arrangements have already been made for delivery of the lecture at meetings of several societies affiliated to the Survey, but as there are still a few vacant dates the secretary would be glad to hear from any society in the county who would care to secure it. Those interested in the matter should apply as soon as possible to Mr. Frank F. Wood, 11, Milton Road, Wallington, who will supply all particulars.

**HOVE CAMERA CLUB.**—This is the last of the three "Southern" exhibitions, and will be held at the Town Hall, Hove, December 11 to 14, entries closing December 3. Pictures are sent free of charge between Southampton, Southsea and Hove, and there are reduced rates for entries at all three exhibitions for which a special entry form is provided. Mr. R. Child Bayley will judge the Hove exhibits, and a French plaque, entitled "Salut au Soleil," will be placed at his disposal for award in the open classes. Entry forms are now ready and may be obtained from the Hon. Sec., Mr. Stanley Read, 12, Old Steine, Brighton.

**FORTHCOMING.**—Among the publishers' autumn announcements we see that of a volume "Photography," by A. Watkins, to be issued by Messrs. Archibald Constable and Co., Ltd. "Photo-Chemistry," by S. E. Sheppard (Longmans), is presumably the volume of which Dr. Sheppard is joint author with Dr. C. E. K. Mees.

**SOUTHAMPTON CAMERA CLUB.**—The prospectus and year-book for the season 1907-8 provides evidence of Mr. S. G. Kimber's persistent energy. Among the lecturers at Southampton are Messrs. E. Seymour (Floral Photography), G. E. H. Rawlins (the oil process), C. H. Hewitt (Architecture), C. B. Howdill (Series), and Henry J. Comley (Colour-Photography on three-colour carbon and "Autochrome" plates).

"**PHOTOGRAPHISCHE INDUSTRIE**," our Dresden contemporary, which, while being the organ of the photographic trade in Germany, devotes itself unremittingly to the scientific side of photography, has now secured for the occupancy of its editorial chair Herr K. W. Wolf-Czapke, for many years on the staff of the "Prager Tagblatt," and a recognised authority on the Continent on colour-photography. We anticipate finding in our contemporary in the future a due share of space allotted to the coming innovations in colour work.

**R.P.S.**—The following lectures will be delivered at the New Gallery:—Saturday, October 19: "My Experiences in the Jamaica Earthquake," by Vaughan Cornish, D.Sc., F.G.S., F.C.S., F.R.G.S.; M.J.S. Monday, October 21: "Two Benedictine Ministers," by E. Harvey Piper, Hon. M.S.A. Thursday, October 24, "Bird Hunting in the Balkans," by R. B. Lodge.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—The above association hold its annual supper on October 24, 1907, at the Hotel Boulogne, 27, Gerrard Street, Shaftesbury Avenue, W., when any friends and visitors will be heartily welcomed. The hon. sec., Mr. E. R. Human, will gladly answer the inquiries of any who would like to be present.

**MESSRS. STALEY** notify us that owing to the increased cost of glass etc., the prices of the "Euryplan" lenses have been slightly raised. A circular of the revised prices may be obtained on application to Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C.

**PHOTOGRAPHIC LANTERN LECTURES.**—Many a society secretary or any one who has to provide lecture entertainments for the public will be grateful to us for drawing attention to the prospectus of lectures by Mr. A. H. Blake, M.A., of whose photographic qualifications there is no need for us to write: the exhibitions and the reproductions of Mr. Blake's always original work speak for themselves. Mr. Blake's charm and mastery as a lecturer may not, however, be equally well known even to admirers of his photographs, and for that reason we may refer to the six photographically illustrated lectures which he is prepared to deliver. "Walks with a camera in London" will probably delight photographers as much as the others, but Mr. Blake's delicious humour, his fine sense of presenting old things in new ways, and his eye for the picturesque in familiar subjects, make him a most welcome lecturer to any cultivated audience. Particulars of Mr. Blake's engagements are obtainable from him at the Blenheim Club, St. James's Square, London, S.W.

"ON THE HILLS OF HEALTH" is the title of a booklet forming No. 1 of "Out of the Fog" series; which Messrs. Simpkin, Marshall, Hamilton, Kent, and Co., Ltd., are issuing with a special view to the requirements of those who are desirous of spending their week-ends in some spot within easy reach of the metropolis over which the fog-demon has no control, at any rate, for the present. The little book deals, in narrative form, with the more picturesque spots in and around Caterham Valley, and is well worth the small outlay of 6d., for which it can be obtained from the above firm, at 4, Stationers' Hall Court, London, E.C.

## Commercial & Legal Intelligence.

**CHARGE AGAINST A CANVASSER.**—Charles Hodge, at one time a Penarth chimney sweep, but of late years trading as the Phoenix Photographing Company, 5, Tewkesbury Street, Cardiff, was charged at Penarth last week with larceny by means of a trick. The allegation was that defendant went round canvassing for orders for enlargements, in some cases getting as much as 10s. or 15s. by instalments, and the enlargements never came to hand. A large number of witnesses were called, and gave evidence bearing out this statement. Mr. Stephens, for the prisoner, said he would reserve his defence, but he would give a satisfactory answer to all the charges. Prisoner was remanded till the Quarter Sessions next week at Swansea.

**RAILWAY CARRIAGE PHOTOGRAPHS.**—At the Lewes County Court last week Benn and Cronin, photographers, London and Southwick, sued Harcourt Smith, Uckfield, and Edgar Smith, Hailsham, each for £3 for advertisement views displayed in the panels of railway carriages. The question in dispute in both cases was the wording of the contract note. Plaintiffs alleged there was no stipulation that the views should be displayed in compartments of a certain class, and they could not dictate to the railway company. Harcourt Smith did not consider the exhibition value of the views was as great in one class as in another, from his business point of view, and in consequence he refused to pay the account. He did not consider the value of the advertisements in second-class equal to third-class. Edgar Smith said he was promised by the firm's representative that the views should appear in the trains running between Tunbridge Wells and Eastbourne—about thirty miles run. Instead, they were only placed in a local train running between Hailsham and Polegate. Plaintiffs brought a witness to prove that the views were seen in a railway carriage at Eridge the previous week. His Honour, in giving judgment for plaintiffs for £2 and costs in each case, pointed out that no particular class or trains was stipulated in the contracts.



## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

W. Broadhead, 12, The Market Place, Lynnhford Road, Farnborough, Hants. Photograph of a Group taken to Commemorate the Marquis of Granby's Coming of Age.

Stereoscopic Post Card Co., Ltd., Essex House, Stratford, London, E. Two photographs of the Kirkcaldy Trades Bazaar.

Harrison, The Studio, Skipton Road, Barnoldswick. Photograph of the Bazaar and Communion. Decorated for Harvest Festival at the Baptist Church, Barnoldswick.

Wallace, Eskbank Road, Dalkeith. Photograph of Pierre, Lanolade. G. Webber, 1, Brock Street, Lancaster. Photograph of the late T. F. Fenwick, Esq.

Harv. 32, Briardale Road, Seacombe, Cheshire. Photograph of the R.M.S. "Lusitania."

H. B. Munslow, 96, Cambridge Street, Norwich, Norfolk. Photograph of the Interior of the Roman Catholic Church, Bournemouth. Photograph of Log Rolling on the Wensum.

Filkinson, 1, Royal Arcade, Norwich. Three Photographs of the Norwich City Football Club, one with Directors and Staff for Season 1907-8.

Turner, Railway Inn, Stafford Street, Hanley, Staffs. Photograph of the Hanley and District Military Band.

Watkins, 18, Swan Street, Brechin. Drawing of Old Arms of the Long Defunct Family of the House of Edzell. Edzell, Forfarshire (1558).

Ward, Stoneyhurst, Southbourne Road, Pokesdown, Bournemouth. Photograph entitled "Pokesdown Beach."

F. T.—On developing, the "Watkins Manual" (Watkins Meter Co., Hereford, 1s.); on studio work, "Lighting in Photographic Studios," by P. C. Duchochois, 1s.

F. CORN.—We cannot refer you to a better formula than the following:—Pale gum resin, 200 grs.; gum dammar, 90 grs.; gum mastic, 20 grs.; oil of juniper, 1 drachm; oil of turpentine, 2 to 4 ozs. This is the formula recommended by Mr. Arthur Whiting in his book "Retouching."

ARTIFICIAL LIGHT.—I am in a house where there is no gas, and will feel obliged if you will kindly tell me (1) whether there is an apparatus for producing artificial light to enable me to give exposures in ferrotype work. (2) Is there such a thing as reflector that can be placed inside the camera for viewing things right way up?—TINTYPE.

(1) The "Ideal" lamp of Messrs. Houghtons should do what you require. (2) Except in conjunction with a focussing screen on the top, or in the side of the camera—a reflex camera, in fact, there is not. A mirror is sold, however, to fix outside the back of an ordinary camera, and permits of the image being viewed in the natural position. Messrs. Houghtons, we believe, are the makers.

YOUNG SILVER.—Is there any chemical obtainable with which I can throw down the silver in a fixing bath (for plates only) that does not cause a smell? If so, how much would I require to "throw down" the silver in a tank holding three gallons? Also how long would it take before I could run off the surplus bath? I have used "sulphuretted potash" for obtaining residues before, but the smell has been objected to.—W. S. G.

You can try zinc dust, which is a powerful reducer of the silver, but is not a great improvement over the sulphide in freedom from odour. Use a handful in the quantity you name; an excess will do no harm. Sulphide, however, is the best material.

FLUORIDE.—(2) Can you suggest a good wide-angle lens for flashlight work, one that will cover well at a large aperture, and not give much distortion, for 12 x 10 and 15 x 12 work?—J. S. C.

(1) Maloni's Patents Co., Ltd., Ayer, N.B.; Houghtons Ltd., 3-89, High Holborn, London, W.C.; the Tress Co., 42, Oxford Street, London, W. The Schroeder lamp and particulars of it are obtainable from Messrs. Fallowfield, 146, Charing Cross Road,

London, W. (2) We cannot. If you require a wide angle you must be content with a moderate aperture. The distortion depends on the standpoint of the camera.

ANGLE OF VIEW.—The print we send has both ends, it would seem, out of focus. The stop was  $f/16$ . (1) Should you think a shorter focus lens, say a wide angle, would suit this class of photography better. (2) What is the largest aperture, should you say, that could be used for taking a line of men, same as print, so that every man can be defined clearly? This is important to us because in winter instantaneous work is necessary.—SECTION.

(1) Certainly not, unless you are confined for space, which, we take it, is rarely the case. We advise you to use a lens of focus at least the length of the plate. This, at  $f/6$  or  $f/8$ , should cover sharply from side to side. (2) As just explained, it depends on the focal length of your lens. A good 12-in. anastigmat will cover a 12 x 10 plate from corner to corner.

WARNER-POWRIE PLATES.—Can you kindly inform me when the Warner-Powrie plate will be obtainable on sale, and where?—E. Y. E. N.

We are not yet in a position to say. We shall keep our readers au courant with the process as information reaches us.

T. H. PEMBERTON.—From the Lumière Company, 89, Great Russell Street, W.C. See our advertisement pages.

AMATEUR.—On receipt of name and address we will answer your query as to a cracked negative.

ELECTRIC.—(1) If a few ordinary incandescent burners are in the neighbourhood of the mercury-vapour tubes, the unpleasant effect of the light is neutralised. (2) One enclosed arc or two mercury tubes.

A QUESTION OF ACCOUNT.—Some two or three months ago, according to instructions, I cycled out about five miles to photograph three bulls. The customer wished me to expose two plates on each, which meant that I used six 10 x 8 plates. It was not an easy task, but I got what I consider to be a good picture of each bull. I submitted proofs in the course of a few days, but received no answer, and after waiting a week or so I wrote to the effect that, having received no answer, I feared, lest they had gone astray; would Mr. ——— kindly reply in answer to my inquiry. This, however, failed to get the reply, so after a short time I again wrote to say that I trusted no misunderstanding had arisen, and any order would be promptly attended to. This again failed, so will you kindly tell me if I can demand payment for same and plates used, and would you consider 12s. 6d. too much to charge? I have no doubt he will resent paying, but surely I shall be in the right by sending in bill.—READER.

You seem to have acted in a very unbusinesslike way in the matter by letting it rest for so long. Your best way now will be to render an account for the pictures supplied, at your usual prices, and demand payment, and if that is not forthcoming sue for the amount in the County Court.

MULTIPLE PORTRAITS.—Will you kindly help me with regard to how to proceed to obtain a negative of a person in two or three different positions on one and the same plate?—J. B. RUNDLE.

The usual method of obtaining two or more portraits of the same person on one plate is to have a repeating back to the camera. A very convenient form of this is the "Multisecto," sold by Messrs. Fallowfield, Charing Cross Road, with which you can obtain a dozen or more positions on the same plate. The apparatus was described in the "Journal" for May 31 last.

R. HUNT.—The only thing we can suggest is that you advertise in the "Journal" for the appointment you desire, and stating what you consider your qualifications. We should, however, advise you not to throw up your position to take up photography in the present state of the labour market without due consideration. Do you read the advertisement column, headed "Situations Wanted," and see the wages asked by really experienced men?

STUDIO QUERY.—I am just about to put up a new studio, and should be very much obliged if you could give me an opinion of the following design:—Studio, 30ft. long by 15ft. wide; glass, starting 5ft. from floor, on north side, and extending at an angle of 65 degrees to 14ft. high; six blinds; walls covered light green diaper paper; small dressing-room at entrance end, 10ft. by 8ft.; dark-room for changing plates, 10ft. by 6ft., at other end. Any

suggestions respecting above would be very gratefully received.—STUART B. THOMAS.

The design seems, on the whole, very good, but in place of the blinds 1 and 6 we would suggest that the studio there be made permanently opaque, as light there will never be required. The other blinds will do very well as proposed. The glass need not be carried up to the full height of the 14ft. unless you prefer it. The covering for the walls will be very suitable, and the general arrangements are good.

THOMAS ASHMORE.—A suitable preparation for collotype plates is a mixture of "four ails," 200 parts; syrupy silicate of soda, 10 parts. This is well stirred, allowed to stand for some time, and then filtered through muslin. A gelatino-bromide plate may require a special substratum, the formulae for which are trade secrets.

R. T. ELLIOTT.—Obviously the people to pay you are the people who gave you the order—with the lady's permission. There is probably no copyright now subsisting in the photograph, so that the threats to proceed against you are not worth consideration.

COPYRIGHT.—Can you inform me what steps to take to copyright a postcard which will be sold in Montreal and Quebec?—S. E.

If registered here the copyright should be sustainable in Canada, but the copyright law there is somewhat lax, and we doubt if the protection is worth very much.

INQUIRER.—(1) The pigment films of the Rotary Photographic Company, the three-colour Autotype tissues of the Autotype Company, the Sanger-Shepherd stripping films, and imbibition process; the Uto bleach-out paper. Particulars of all these have appeared in our columns of late. (2) We know of none.

COPYRIGHT.—I shall be glad if you will kindly answer me the following questions, though your valuable columns. (1) How do I proceed to copyright a photograph? (2) If such photograph has been reproduced previous to the copyright have I any claim? (3) Can I stop all sales of reproduction except those issued by me after such copyright if done now?—ANXIOUS.

(1) Fill up the necessary form (from Stationers' Hall, E.C.) and send it, with two prints, and a fee of 1s. (2) No. (3) Yes.

E. FENSKE.—Apply to Sanger-Shepherd and Co., Gray's Inn Passage, Holborn, W.C.

BACKGROUNDS.—I am enclosing a small sample of background, and will be pleased if you could let me know, through the "B.J.P.," what oils or other mediums are used to paint with to get a texture that has no tack (same as sample enclosed), and what would make it glossy as if it was varnished, if wanted? Any kind of hints on painting this kind of background I will be pleased to know, or are there any books published that would tell me?—MANCHESTER.

On pp. 82 of the issue for February 1 and 155 of that for March 1 directions are given for making backgrounds, though not the same as the sample sent. Those who make such as that do not publish their methods of manufacture—it is somewhat a trade secret. However, if that is the kind you desire you will, no doubt, find it more economical to purchase them than to attempt to make them yourself, seeing that they are sold at so low a price. No doubt these backgrounds might be made glossy, if such a thing was wanted, by varnishing them with ordinary wainscot varnish. No books on the subject are published.

PALATINE.—The usual fee is 10s. 6d. for a reproduction up to 6 by 4 inches, or more if the reproduction is larger and the subject of uncommon interest.

THE ADVANTAGE OF BEING 'ANOTHER MAN'S WIFE.—Kindly give your advice upon the following:—If a gentleman brings a lady (not his wife) to be photographed and pays for the sitting, the lady being quite willing for same, can the husband of the lady forbid us supplying any more copies of his wife's photograph to the gentleman who paid for the sitting?—AJAX.

Under copyright law the husband cannot restrain you from supplying copies to the order of his wife's gentleman friend. But it is conceivable that the distribution of the photographs in this way may be an offence under the law of libel. We should advise you to consider the local circumstances of the parties in proceeding further in the matter.

NIGHT PHOTOGRAPHY.—Will you kindly tell me if you can photograph

buildings by night? There is a new chemical works close to house, and I have been asked to photograph it when it is light at night. Will you kindly let me know how it could be done?—ANXIUS.

We can best refer you to the article on night photography by Robert S. Dykes which appeared in the "B.J." for August. You will find in it the very instruction necessary in your case. ELECTRIC.—It would seem that you are using too much reflected light. We could say better from prints, but we should advise you to dispense with some of your reflecting surfaces.

A. G. BOLWELL.—Barton's, 114, Golden Hillock Road, Birmingham. DEAD BLACK, ETC.—I want to make a dead black for wood. I there is a formula on p. 997 of last year's "Almanac," which include Nigrosine V.V.S. I have tried to get it at several chemists and other shops round about here, but no one seems to know what it is. I also looked in "Lloyd's Encyclopedia," but failed to find it in there, so (1) will you say where it can be obtained? Also I want to make some dark slides, and would be glad if you can tell me (2) how to polish mahogany wood (which has not been polished before); or if it would take up too much space in the "Journal," (3) can you tell me where I can get such information from?—ASSINUE.

(1) Any chemist can obtain it if he likes to take the trouble. Write for it to Griffin's, Kingsway, or some other firm that supplies chemicals, such as Townson and Mercer, or Baird Tatlock. (2 and 3) We do not advise you to attempt making dark slides unless you are well equipped with workshop appliances. French polishing requires a good deal of practice, and Dawbarn and Ward, we believe, publish a small handbook on the subject.

PATENTING.—Should I patent a sensitive solution for photography (soluble in spirit)? Should I start a business in which to work the same without patent or with patent? Would you recommend me to employ as patent agents for me?—AMBER.

How can we possibly advise you from such shadowy details? It is against our rule to express an opinion of the status of a patent and of professional gentlemen.

THE THOMAS YOUNG ORATION OF THE OPTICAL SOCIETY.—The above oration has been established for the purpose of providing an annual lecture on some subject connected with physical, geometrical, or physiological optics, and thus to further the development of those branches of science with which the name of Thomas Young is intimately associated. The orator is elected annually by the Council of the Optical Society from persons eminent in the branches of science or technology. The oration is delivered in English, in the autumn of each year at the rooms of the Society or at some other suitable lecture hall in London, and is published in the "Transactions" of the Society. Professor M. H. E. Tscherning, Director of the Ophthalmological Laboratory of the Sorbonne, Paris, has accepted the invitation of the Council to deliver the oration in the Optical Society's lecture hall, 20, Hanover Square, London, W., on Thursday, October 17, at 8.30 p.m., and has chosen for its title: "The Development of the Science of Physiological Optics During the Nineteenth Century."

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## The British Journal of Photography

The Oldest Photographic Journal in the World.

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## SUMMARY.

An exhibition of examples of photographic portraiture by artificial light opens at the house of the "B.J." on Friday, November 1.

The exhibition of the Society of Colour Photographers at the house of the "B.J." closes to-morrow (Saturday), at 12.50.

Mr. Arthur Payne gives a formula for a green safe-light, which has been found suitable for handling the Autochrome plates. Mr. Payne lays stress on one important point in avoiding frilling. (P. 803.)

Sir William Abney on the Autochrome process. (P. 804.)

The Society of Colour Photographers. The secretary's report of the past year appears on page 813. The society proposes to hold an exhibition towards the middle of next year.

The Warner-Powrie process. Some equitable criticism of the Warner patent specification has appeared in a German journal. (P. 812.)

The Lumière and Warner-Powrie processes figure in the programme of the Royal Photographic Society. (P. 801.)

In the discussion of Mr. Edgar Scamell's recent paper before the P.A. the value of booklet distribution among customers was strongly emphasised by several photographers. (P. 805.)

One of a series of useful hints on portraiture, in this week's "Amateur Photographer," is quoted on page 816.

Some sound advice from an American professional appears on page 811.

Odourless substitutes for sulphide in sulphide toning have been worked out by Mr. Harry E. Smith. (P. 808.)

Mr. Douglas Carnegie records his experience with a new and delicate method of focussing. (P. 811.)

Mr. Martin Duncan contributes an article on the "Elements of Multi-colour Illumination in Photo-micro Work." (P. 810.)

## EX CATHEDRA.

### The Society of Colour Photographers.

The members of the Society of Colour Photographers should have good reason to be satisfied with their first appearance on the stage of colour photography. Although in a private way among its own members the Society has been steadily at work for the past year, little has been heard of it until the collection which has been brought together at the offices of the "B.J." showed what had been done. As seen from the secretary's report which we publish on another page, the membership has reached quite a creditable total during the year, and there is every evidence that the Society is sufficiently free from the faults of extreme youth to take a serious view of its special subject. In proof whereof may be cited its decision to hold a second exhibition of colour photography in 1908, but in the earlier part of the year (May-June). The exhibition will thus fall at the latter part of the London season, and will still give colour workers a long enough time in which to prepare fresh prints.

\* \* \*

### The "B. J." Colour Supplement.

Colour matters of one kind or another—Autochrome, Warner-Powrie, and others—have compelled us of late to depart from our expressed intention of confining these subjects to the monthly supplement to "The British Journal of Photography." We do not suppose that one reader of the "B.J." or the "Colour Supplement" has objected to the articles on recent developments in trichromy overflowing their suggested boundaries. Yet perhaps we may anticipate the remonstrances of one or two who may remind us of our promise to make the "Colour Supplement" a reference publication of current progress in colour photography. We will do so by adding to the index of the "Colour Supplement" a set of references to articles, etc., which have appeared in the "B.J." in the course of the year. This will be additional to the general annual index to the "British Journal," which, with the "Supplement" index, will be presented with the last issue for the present year. Meanwhile, we would like to say that among other items to appear in the November "Colour Supplement" are two articles:—

"Duplicates of Autochromes by Contact-Printing and Copying." By C. Welborne Piper.

"Actinometers in Exposing Autochromes." By Alfred Watkins.

both of which deal with topics of more than ordinary interest to users of the new Lumière plates.

\* \* \*

### Colour Photography at Russell Square.

One early fixture at the Royal Photographic Society should be certain of a large and interested audience, namely, the demonstration on November 5 of the Lumière Autochrome plates by Mr. T. K. Grant, the

British representative of MM. Lumière. It is doubtful if all who assemble on that date will meet a week later, when an ordinary meeting of the Society is to be devoted to "a discussion of the best methods of advancing the study of photography in colours." It is announced that the suggestions offered at this meeting will be considered by the Council of the R.P.S., though one would have supposed that the Council as a body is better qualified to originate, and act upon, the measures which seem desirable than is a meeting drawn from the members as a whole. Usually the value of suggestions emanating from a meeting which has gone into committee is in inverse proportion to the numbers present. However, we are pleased to see that the Royal is determined to keep in line with advances in colour processes, in further proof whereof it has invited Mr. Powrie to lecture on the Warner-Powrie process on December 3.

\* \* \*

### The New Photographic Society.

In the "Year-book" just issued by the Northumberland and Durham Federation a suggestion is made which may have an influence on photographic societies up and down the country, and may do something to re-vitalise the great numbers which are in a moribund condition. The scheme as announced is evidently advanced with a knowledge of the conditions of many a photographic society, though the outlines still leave us in some doubt as to its precise character. We read that it is an error to suppose members of photographic societies have any wish to hear papers, formal discussions, and lectures of any description; therefore, in the newly suggested society all these are to be sternly prohibited. So also are technics. Only the artistic side of pictorial photography is to be allowed to enter, yet the monthly meetings of the Coterie (as it is to be called) are to take the form of informal soirées, with full liberty to the members to smoke and do what they please, so long as they conduct themselves properly. Meet, smoke, and yet never a word of "shop"! We confess we disbelieve the possibility of any such organisation lasting for ten minutes. We read further that a crusade against the demoralising influence of medals, plaques, etc., is to be a feature in the constitution of the "Coterie," the members of which will pledge themselves to abstain from competing for awards in pictorial photography. There is to be no committee, and no official except the secretary; but when required the whole of the members will act as a committee. The subscription is to be quite nominal; one shilling a year, if possible, but in no case more than five shillings. There is, we think, a good deal of truth in the idea that members of societies

in general have no liking for lectures, and that attend mainly for the sake of associating with kind spirits. Yet how Mr. Arthur Payne, who is mentioned as one of the moving spirits in this new project, expects to hold it to the letter of its suggested constitution we cannot understand. "Art, all Art, and nothing but Art"! can see Mr. Payne powerless to resist putting a friend the way of using an orthochromatic screen properly rendering some other of many services to his photographic brethren; and, as Mr. Payne is the honorary secretary of the suggested society, we hope and believe that the innovation will commence a career of unconditional success by at once violating its own eclecticism making its informal meetings the opportunity for personal chats on any photographic topic which may arise. Photographic societies may watch the experiment with some interest.

\* \* \*

### Cloud and Weather Photography.

In a small book on "Observing and Forecasting the Weather," by Dr. Horner, F.R.Met.Soc., the reader is advised to make use of the camera for recording various types of cloud formation, lightning flashes, damage caused by hail, and the size of extra large hailstones. It is curious that so few photographers seem to take any interest in the photography of clouds, excepting when they use a cloud negative for the purpose of turning a "bald-headed landscape" into an alleged picture. Clouds by themselves are a very interesting study, and are often of an extremely decorative character. The few photographers who have specialised in the photography of "cloudscapes" generally produce a collection of prints that are not only of scientific value, but also of very great beauty and artistic interest. Those who only make the photographs for scientific purposes often spoil the effect by exaggerating the contrasts, but, if this fault is avoided, the results are well worth looking at for quite other than scientific reasons. Of course, for scientific record work, ordinary monochrome photographs are necessary, as reproductions may be desired, but colour records also have their uses, and we have little doubt that a collection of fine cloud studies on Autochrome plates would be a collection well worth seeing. Perhaps some enthusiast will like to carry up this idea. Going back to the scientific aspect, there are several other subjects worth recording besides the clouds considered in the book mentioned above. The effects of windstorms and of local whirlwinds is often very curious. Even in London instances have occurred of clumps of large trees being torn up by the roots while surrounding trees were undamaged. Such an occurrence is well worth

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

### SCREEN-PLATE THREE-COLOUR PROCESSES

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of

particulars the arrangement of the volume for 1908 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1908 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

### IMPORTANT NOTICE.

Our publishers ask us to inform agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.



late or two if the exposures are made before anyone interfered with the debris. Then again, photographic records of floods (which are not very infrequent) and their effects would be of considerable value, especially to those concerned in preventing the recurrence of these inconvenient phenomena.

### PORTRAIT LENSES AND CABINET LENSES.

During the past few months we have had to reply in the answers column to queries from correspondents with reference to old portrait lenses that they have come into possession of. In all cases the instruments have been described as "cabinet" or "carte" lenses, according to their size. From their description, and the probable date of their construction, it is pretty clear that, as a rule, they were not made for either of these pictures, but are of the form of portrait lenses. Before the introduction of the "carte de visite," and later on of the "cabinet," most of the portraits taken were in the sitting position, for which purpose a lens with a very flat field was not required. A certain degree of roundness of field was no detriment; indeed, with some poses it was a decided advantage. When the "carte" picture came in, and full length figures were the order of the day, quarter-plate or half-plate lenses were used for them; but it was found that with them the head feet, and the centre of the figure could not be got into sharp focus at the same time, unless the lens was considerably stopped down. This, of course, entailed a prolonged exposure which could be ill afforded in the wet col-

lodian days. Opticians, of which the late Mr. J. Dallmeyer was the first, put upon the market lenses specially constructed, with a much flatter field than their predecessors, so that all parts of the standing figure could be obtained in approximately good focus. These were termed "carte" lenses. Some years afterwards full length cabinet pictures came into fashion, and the ordinary whole plate lenses were employed for them. But special lenses, possessing the properties of the "carte" lenses, were soon put upon the market. These lenses, like the special "carte" instruments were fitted with Waterhouse diaphragms, which the older forms were not. Hence, it may be taken for granted that when an old portrait lens is met with which is not fitted with central stops, it was not made for either "carte" or "cabinet" portraits, and that it has a tolerably round field. Sometimes one meets with a lens, the name of the maker of which is affixed on the mount beside the opening for the stops. This indicates that the lens was not originally fitted with stops, and that they have been added since. The portion of the mount has been cut out to admit the stops, and the piece bearing the maker's name has been screwed on the side. In such a case it may be fairly assumed that the lens was not specially made for either "carte" or "cabinet" pictures. From what has been said, it must not for a moment be assumed that these old instruments are not good ones, for many of them are really excellent, though they may have a somewhat rounder field than those of more modern manufacture. Roundness of field can be remedied by stopping down, and that the present rapid gelatine plates permit without a very undue exposure being necessary.

## STEREOSCOPIC PHOTOGRAPHY WITH AUTO-CHROME PLATES.

In last week's issue of the "B.J." Mr. Arthur Payne explained the precautions which he had found successful in cutting Autochrome plates to the stereoscopic size and in exposing them. He has noticed the discrepancy of exposures in and out of doors. In this article Mr. Payne gives the formula of a green safe-light which he has found satisfactory in handling the plates, and advises the use of one dish throughout the process as a factor in avoiding frilling.—Eps. "B.J."]

### The Dark-room Light.

Before proceeding to comment upon the manipulation of these plates, I think it advisable to mention that, as a panchromatic emulsion is used, it is essential that great care should be taken to avoid light fog. Many workers advocate the use of a dark light, whatever that may mean, but most photographers are aware that for all practical purposes the work might as well be done in the dark as by means of such a light, which only serves to make the darkness visible. From the first I have used a green safe-light, and have found it to be trustworthy. For various reasons, into which I cannot enter here, such a light is preferable to any other, and I think that it will be sufficient if I state the formula for the fluid I use in my liquid dark-room, only cautioning the reader that it is necessary to work with this light at the lowest possible point consistent with being able to see.

### Green Safe-Light Solution.

Acid green .....	2 parts.
Naphthol green .....	2 parts.
Tartrazine .....	15 parts.
Water (dist.) .....	300 parts.

Use this solution with twenty-five parts of water, and use in a cell 1 inch thick, with the addition of a sheet of ground

### Frilling.

which has been written about this exasperating trouble, but I honestly say that I have not met with it in my own prac-

tice except on one occasion, when I had become careless through familiarity. It is always wise, however, to exercise precaution, and I find the best safeguard to adopt is to paint a narrow strip of the film, about  $\frac{1}{8}$  inch wide, around the edges of the plate with the gum damar varnish that is used to varnish the plates. This varnish may be applied conveniently by means of a little piece of sponge, which is clipped in a slit cut in the cork of the bottle, and the varnish should be allowed to coat the glass edges of the plate as well as the film. It dries rapidly, and development may be proceeded with almost at once.

### Notes on Manipulation.

The plates seem to be prone to produce air-bells, and therefore every care should be taken when applying the developer to avoid their formation. The use of a soft camel-hair brush to remove them from the film will occur to many minds.

This air-bell trouble is, however, met with during all the operations, for if the plate is drained between the various washings and allowed to stand for about a minute before the next solution is applied, they are almost certain to make their appearance. I therefore adopt the precaution of keeping the plate as much as possible under the surface of the solutions, or water, and only pouring off the water just prior to applying the next solution. If, in spite of this precaution, air-bells should appear, they may be removed by carefully flowing water over the surface of the plate, or by means of a soft and clean camel-hair brush.

I find the best method of handling the plates is to use a rather large porcelain developing dish. The same dish is used throughout the whole process, and the plate is removed for examination as seldom as possible. The solutions are flowed over the plate from glass measures, and the wash water is carefully applied by means of a soft flowing stream from an indiarubber hose pipe. The dish must be rocked during the whole of the time that the solutions are acting upon the plate, but only slowly and lightly, so as not to cause a heavy wash of fluid against the edge of the plate, for this is one of the most common causes of frilling.

If a fungoid growth appears in the pyro and citric acid intensifying solution, the solution must be filtered (cotton-wool will answer) before it is mixed with the silver solution and applied to the plate.

I have adopted Mr. McIntosh's method of removing the superfluous water from the plates before they are dried by means of centrifugal force obtained from the use of a process "whirler." It has much to recommend it in practice, and largely prevents the appearance of green stains caused by the water penetrating into the dyed film.

#### Mounting the Plates.

After the plate is dried and, if thought necessary, varnished, it is cut through the middle so that the two halves of the plate may be transposed. A piece of clear glass measuring  $6\frac{1}{2}$  by  $3\frac{1}{4}$  inches is obtained, and, after the rough edges have been removed by drawing the edge of another piece of glass along them, the glass is cleaned. Strips of black needle paper are then fastened with paste upon the glass so as to form a suitable mask, and, as the inner edges of the  $5$  by  $3\frac{1}{4}$  inch plate will be about  $\frac{1}{2}$  inch apart at the centre, the width and position of these paper strips may be easily measured if the two halves of the transparency are laid film uppermost upon a sheet of paper so that the distance between any two points in the two prints is  $2\frac{3}{4}$  inches. The cover glass with the paper mask is set to one side until it is quite dry, and then carefully cleaned, and the two halves of the stereoscopic transparency are mounted in their proper position by means of lantern slide binding strips.

I prefer to use a clear cover glass instead of one made of ground glass, so that the slides may also be used in the optical lantern.

#### Future Developments.

It is hardly possible for such a beautiful process to remain in its present state, for there is ample room for improvement and commercial competition will ensure a progressive movement.

The direction of these improvements, both in the colour screen and also in the emulsion, are not difficult to forecast. As regards the former, we must strive for a more transparent screen with an absence of the black filling which is necessary in a dyed starch grain screen, such as is used in the Autochrome plate. This improvement appears to have been attained in the Warner-Powrie process, where a lined screen is used instead of a mosaic, for the black filling is not necessary when the lines are in juxtaposition, and I understand that the screen itself is more transparent than the starch grain screen, though the dyes are said to require further adjustment. This is, however, a simple matter.

The emulsion will probably be made of greater speed, though this will tend to increase the difficulty in manipulating plates, and it is quite possible that the makers may have seen this difficulty, and are prepared to coat the plates with a more rapid emulsion as soon as the public are sufficiently educated in the use of a rapid panchromatic plate. What is of greater importance at the present moment is for the plates to have more latitude. Here again it is said that the Warner-Powrie process will have the advantage, because these plates may be coated with a thicker emulsion than it is possible to use on the Autochrome plate, where it is necessary to keep the film thin on account of the treatment of the plate following the first stage of development.

Furthermore, there is a demand for a plate from which prints may be made, and this demand is in a measure met by the Warner-Powrie process, for by it transparencies can be made from a negative, and probably in time we may hope to see prints upon paper by the "bleach-out" process. It is necessary for me to say more, because full details of this interesting American colour-plate have been given in "Journal" in a much more able manner than lies within my power. For the nonce, we must possess our souls in patience, trust that our wishes may soon be fulfilled, and, in the meantime, be content with the Autochrome plate. And, really, a marvellous production.

ARTHUR PAYNE, F.R.P.S.

## THE AUTOCHROME PROCESS.

(A Communication by Sir W. de W. Abney to the "Journal" of the Royal Photographic Society.)

LIKE a good many others, I have been trying the Autochrome plates, and, like most, I have been fascinated by the beauty of the results. My attention has, however, been most directed to the scientific side rather than to the pictorial qualities of the plates. With the latter aspect we have to reckon with the coloured substratum, and also with the sensitive film which overlies it. It may be said that both are novel applications of what is already known. The use of three colours in front of the film is on the same principle as the Joly process, but in the Lumière process we have the three colours placed in proper proportions, though at random, on the surface, whilst Joly had his three colours in coloured lines touching one another. The fact that the colours in the Lumière plates are in dots scattered at random makes it impracticable to follow the second part of the Joly process, which is to make a transparency and back the transparency with appropriate coloured lines. This difficulty must have been felt by Lumière, and hence the ingenious plan of turning the negative into a transparency which becomes a unique picture. The method recommended by the instruction issued with the plates for dissolving the silver from the negative after develop-

ment is simple, and succeeds with an ordinary collodion, as do the after manipulations.

#### Overlap in the Lumière Microscopic Filter.

Naturally, one turned to the spectrum to enlighten one as to the colours of the starch grains which form the coloured screen, and also as to the kind of film which lies over the layer of the coloured grains. Pretty exact information was obtained by exposing in the spectrum a plate through its back and following out the manipulations indicated in the book of instructions. Such a transparency shows that the red, green, and violet are comparatively simple colours lying along the spectrum in order, and not overlapping one another when the exposure has been short, but when the exposure is prolonged the strips of colour lengthen out and do overlap, giving a yellow and also a blue. If a line spectrum of sodium, lithium, and magnesium be pressed on the plate below the image of the continuous spectrum in which the three colours are seen, it will be found that the yellow colour is formed in the green of the spectrum, and the yellow sodium D line is shown as red; the blue lithium line is shown as slightly too green. It may be said here that



granules appear to be scarlet rather than red, the green is a pale green, whilst the third colour is slightly violet. In three-colour work the "taking screen" for the red of the spectrum is, in most plates which are sensitive to the red, a reddish-orange. The viewing screen, according to Ives' process, is a monochrome. In the case of the Autochrome, the viewing screen and the taking screen are the same. The impression one gets is that the Autochrome plate a compromise has been made between the colours of the two theoretically perfect screens, and a scarlet that has been arrived at. The divergence from the true orange is but slightly noticeable. The green granule screen appears to be correct, both for taking and viewing, whilst the red is also a slight compromise. By exposing one of the plates with the film side towards the lens the sensitiveness of the silver compound on the plate is readily obtained. It is evidently silver bromide which has been stained with one of the many dyes which have recently been brought before the notice of the photographic public. In what substance the silver bromide is bedded in I have not as yet had time to investigate. The use of permanganate at many stages of redevelopment would scarcely allow it to be of gelatine. Be that as it may, the film is an admirable one, and answers its purpose fully.

### A Method of Duplicating Autochromes.

The drawback to the process is that there can be only one positive from one exposure. There is, however, a plan which admits of any number of copies being obtained on glass, provided a proper three-colour negative has been obtained. Some two or three years ago I showed to the Society a method by which the transparencies from a three-colour negative could be illuminated by pure spectrum colours, the size of the picture being of necessity very small, since the illumination was comparatively feeble. If such an image be thrown on the Autochrome plate we can have as many copies of the picture that we may desire, and they should be all the same. Whether anything would come of using a slide made by the Sanger-Shepherd process I cannot say, but care would have to be taken to avoid blurring from want of contact with the sensitive film. One can see great possibilities from the Autochrome process. Photographers owe a debt of gratitude to Lumière et Ses Fils for the skill and patience which they have exercised in overcoming difficulties which must be patent to all, and giving them a plate which is so readily workable, and which gives them the power of registering colours in a way which has never before been attempted.

W. DE W. ABNEY.

## ADVERTISING IN PROFESSIONAL PHOTOGRAPHY.

The following is the report of the discussion which followed the recent meeting of the Professional Photographers' Association the paper on this subject by Mr. Edgar Scamell read at the and reprinted in an abridged form in our issue of last week.]

Mr. PERCY LANKESTER (Tunbridge Wells) quite concurred in all Mr. Scamell had said. He started reminding them that photography was a profession, and he (Mr. L.) was of opinion it should be known as a profession. During the last few weeks he had wanted to join a golf club, and had applied to several, but all been refused membership, simply because he had been taken upon as being in business, which he considered was wrong. He thought all photographers should endeavour to be thoroughly up-to-date, and should make their studios and reception-rooms as artistic as possible and to represent as much as possible a sitting-room. A good form of advertisement was to be the very best of stationery. He had pleasure in passing and for inspection one of his booklets, which were artistically produced, gave information about the studios, payments children's portraits, and were interspersed with pictures, etc. These booklets he disseminated among the best class of visitors (obtaining their names from the visitors' list) and among the best customers. The booklets cost him £20 for 5,000, and he got it back over and over again as a result of their distribution. He was, of course, always endeavoured to please his customers. If a customer was not absolutely pleased with his pictures, he always tried to get one that his customer was better pleased with. He always got orders from customers who were pleased with his work. He was not of opinion that advertising in newspapers was of any good in the photographic profession.

Mr. H. S. Mendelssohn thought the best advertisement for photographers was to turn out nothing but the best work. That, at least, alone, was the only form of advertisement that would

Mr. T. C. Turner (Hull) was of opinion that the question of advertising was one that really depended upon the type of business which was carried on. The man who ran a business of half a million sitters a year was bound to advertise in one form or other. He agreed with Mr. Mendelssohn that nothing but good work brought its reward, but he thought they should have good shows of their work. Twenty years ago it mattered little to professional photographers what sort of corner they had, but now, if a man was in a good position near one of

the great termini, he had a great advantage over a man in a suburban district. Therefore he imagined the best advertisement for a man was to get into a good position. The time had come when they must choose the best means of advertising a good position, and he thought that was obtained by making a good show. What Mr. Scamell had said about window advertisement was of supreme importance. One often saw good work in a badly-fitted window where the draperies had been allowed to fade, suggesting that the fortunes of the firm itself had faded too. Another important matter was to advertise with the right kind of people. If they wanted to reach a fashionable sinner and secure his or her patronage, care must be taken not to get the picture in the window with people outside that circle. He remembered an instance where a certain fashionable lady had requested a photographer to withdraw her portrait from a show-case. The photographer was unable to understand the reason for her request, and mentioned it to a friend of his, who asked him to show him the show-case. He looked at it, and at once pointed out the cause of the trouble. The particular lady apparently objected to be on show with someone in a different social position. With regard to keeping studios smart, they all knew that the style and objects in a house reflected to a great extent the manner of man who lived in it. The moment people came in they wanted to see evidence of taste in the things around them. The amount of money spent on a studio was in the long run the rock upon which they built. Photographers did not realise that every year it was essential that a large amount of money should be set aside for renewals. Booklets in a very tasteful form might be made the means of advertising. It seemed to be a very good medium, and was infinitely preferable to newspaper puffs. Colour photography, the display of little transparencies in the show windows were a few possible means in which photographers could advertise their business.

Mr. H. A. Chapman, J.P. (Swansea), thought that everything had been said, and said well, by the previous speakers, and he quite concurred with each speaker. The subject was well in hand, and it had been treated in the best manner.

Mr. Prodger said he would like to have the opinion of the

company present as to the difference between a shop-front and a porch, by way of advertisement. Mr. Bridge thought it depended greatly upon the class of work done. Mr. Lankester said he preferred a shop-front, as people liked to look at a photographer's window. Mr. Prodger suggested that a porch was less shoppy. Mr. Chapman said a man frequently made his rent through chance customers looking at his shop window. Mr. Prodger was of opinion, however, that some people preferred to go to a semi-private place than to a shop.

Mr. Edmonds Hull thought a shop had a great deal to do with business, and a shop window should be changed as often as possible. Mr. Lang Sims said circumstances alter cases. There were some people who could not dress a show-case at a door. His neighbour (Mr. Prodger) had one of the finest doorways in Brixton, however. Mr. Rigden (Bowes Park) said that for his part he had come to the meeting to learn all he could, and he was sorry not to find more suburban photographers there that night, as the debate had been very instructive. So far as the particular question went, his opinion as to advertising by means of printer's ink was that it did not pay. As to the question of show-cases versus shop-fronts, he thought the latter were preferable. If you wanted to get chance customers you must make it the easiest possible for them to come into your premises. If they had to go along a long passage and up a flight of stairs, they would not come. He thought railway-station advertising rather a difficulty. Some ladies seemed to object to their portraits being shown in a railway-station show-case as against a window-front.

Mr. Bridge thought advertising in newspapers was not the slightest use.

Mr. Fry thought that photography as a means of livelihood could be regarded from two distinct points of view, viz., the commercial and the professional. Viewed from the commercial standpoint, a shop-front in a first-class thoroughfare would be desirable; but if the photographer wished to carry on his work in a professional manner he did not think that a shop was advisable. He did not believe it possible to take a high professional attitude and be a shop-keeper too; the public would not accord its assent to the combination of ideas, however meritorious the work produced might be. Mr. Scamell had provided the ordinary photographer with some useful hints on advertising. The artist could only rely upon the merits of his work, and hope that a sufficient number of people would appreciate and recommend his pictures.

Mr. Bridge thought that, whether they differed or not, they

were all equally indebted to Mr. Scamell for his splendid paper, and he proposed a very hearty vote of thanks be accorded that gentleman.

Mr. Alfred Ellis, in giving his views, said that when twenty-five years ago he started in business in Upper Baker Street he was informed by a friend that it was a bad street for business and no one had been known to do any good in it. His friend supplemented his statement with the information, however, that if one started business up a mews people would come to you provided your work was good. Mr. Ellis took this fact to heart, and started with a few photographs in a show-case in a little lobby, and got on very well. Opportunity then came to him to take the whole of the premises, with the shop. He was mainly influenced in taking the shop from the fact that at the time he had commenced to take theatrical photographs and hitherto he had had no place to show his pictures. For that reason he had a shop-front, but if he had continued doing an exclusive private business a shop-front would not have been necessary, as a shop-front was not particularly appreciated by private customers, who did not like to have their portraits in the windows. With regard to advertising, he had always found that ordinary letter press printing was no good. Good work was the best advertisement. He had much pleasure in seconding the vote of thanks to Mr. Scamell.

This was carried with acclamation. Mr. Scamell, in thanking the company for their vote of thanks, said he was pleased to find that at least 50 per cent. of the gentlemen present had given their remarks on advertising. From his past experience in London and suburbs with middle-class people he found a shop-front a great amount of use, and he wished he had one now. He had experienced the same difficulty of sitters complaining of their portraits being exhibited, but he always felt safe in showing specimens of children. Mr. Fry had said the photographer should not advertise. He (Mr. Scamell) was very glad to find he agreed with him that the man himself was the best advertisement. As to Mr. Mendelssohn, he seemed to remember that at one time his pictures appeared in all the best illustrated papers, and that at a time when such insertions carried great weight. He suggested that this was a useful advertisement to Mr. Mendelssohn.

The chairman notified that at the next members' meeting, on the second Friday in January, a very interesting lecture would be given by Mr. Henry J. Comley on colour photography, and he hoped that there would be a good attendance of members on that occasion.

## PORTRAITS FROM LIKENESSES.

[The following is the conclusion of the recent address by Otto Walter Beck, commenced in our issue of last week. The writer's argument, as further stated in the volume by him which Messrs. Batsford have published, is in favour of a certain amount of hand-control in the making of commercial portraits, although more might be said as to the extent to which these methods are commercially possible.—Eds. "B.J."] ]

If you wish to avoid difficulties in character portrayal, do not introduce unnecessary accessories. For instance, a man so dressed and posed as this one is difficult enough to render, without placing a chair, table or plants at his side. Notice how the mass of detail in this chair so placed detracts from the attention the figure should have. It at once cheapens our sitter; he loses personality. Only when we have become masters in background arrangements can we use such accessories to advantage. You have often had this experience; a customer brings back photographs and says: "We agree at home that the likeness in these prints is pretty good, but we do not think the pictures natural; we do not like them." You, of course, know them to be likenesses about as good as you can get, but you ex-

press your willingness to try again. Carrying out your promise, you make some other arrangements in pose, lighting, and background, and in a way this objection has been removed. In the first instance you had stumbled upon some combination of lines that brought about an undesirable characterisation, and in the second attempt you tried another scheme that happily minimised this unpleasantness.

Would you not wish to know what causes these unprofitable effects, and would you not look into the future with more confidence if you could see in your results the realisation of your desires and impressions? I have seen refined women made to appear coarse in the photograph, children rendered ridiculous, and men materialistic, by certain background arrangements.



I will bring about a materialistic characterisation in the pose we have before us by employing just such a device as photographers have unwittingly used. Over the upper half of the background I throw a white sheet. This introduction of white has emphasised the chest, at the expense of the head, bringing out the materialistic, the physical. The lower part of the body, being black, sinks into its dark ground, and the lighted flesh of the face drops out of notice into the white tone behind it. We have lost stability in the figure, and equally lost all chance to set forth the intellectual. How could any one care for a print of this kind, even though the likeness were faithful?

But how wonderful are the resources of art when we can re-establish fine portrait conditions by merely lowering this white sheet to within six inches from the floor. How the figure looms out again; how height and dignity have returned. We have the man triumphing over accessories.

Do not these demonstrations prove that a single pose can be made to interpret a variety of characters simply by a change of accents? Is this not an advance upon the former conception of the meaning and office of the pose? However, we must accept

background and makes for atmosphere. It explains to the mind what the forms of the body mean, thus easing the mind's work and adding to the pleasure of the impression.

Notice in this second drawing how we get an effect of lighting through the one agency of the descriptive line. This line crowning the hat is faint because of the light on it; here it is a little firmer, here it is actually interrupted, at this point it is quite positive, and this lower rim of the hat has a powerful accent of dark. In this wise that hat comes to have roundness. Similar changes in the accents of the outline are to be found in the face, the neck, the hair, the arms, hands, and dress. For no distance does any outline maintain sameness of thickness. Wherever we soften marginal sharpness the light seems to have effect, and wherever we leave it evenly, mechanically hard light is absent. Therefore, we cause all lines to change emphasis at all points, and by doing so consistently we make forms round and give depth to space. The descriptive line is in a sense one form of gradation, and in gradation lighting has its being.

Observe how gradation has been used in this face. We have



Fig. 1.



Fig. 2.



Fig. 3.

the fact that the best thought-out pose will not save the good straight photograph from appearing patchy, disjointed, and unemotional, for which reason we must treat the figure and the background by working on the plate. These outlines, formed by the dark clothes against the white background, create what you call marginal sharpness. Always misused in such cases by straight photography, it becomes a defect, for it cuts the figure loose from the background and destroys the atmospheric connections. In fact, marginal sharpness uncontrolled is the greatest enemy lighting has.

See this outline drawing of a young woman (Fig. 1). Each line is assertive; each enslaves the eye. Wherever our gaze strikes such a line we are impelled to follow it, much as a telegraphic message follows its wire. A line of this sort divides the surface; under no conditions will it unite what is on either side of it, and by its use only flatness can result. Since this is true, how can we expect to give the appearance of body to any human form represented with absolute marginal sharpness? It is necessary that photographers should acquaint themselves with a new factor, the descriptive line. As a help in making objects look round, this line is almost limitless in its resources. It is the greatest friend that lighting has. It fuses the body with the

frontal lighting, the kind that is much in favour. The gradations in this plan of lighting are very subtle, and give opportunity for increased expressiveness in the features, but there is danger that photographers will use too much shading. It frequently happens that, because of this excess of shading, photographed flesh effects have a dangerous tendency to run into a hardness not characteristic of flesh. It sometimes amounts to a porcelain quality, or to a discoloration, as if the flesh in the shaded parts were of a kind dissimilar to that in the lighted sections. We should guard against this with particular care. Notice that gradation is everywhere present in the hat and the dress. Here, too, there is the constant play of shading, and the descriptive contour aids the flow of forms, one into the other.

I want to repeat with emphasis that the trouble with the camera is that it does not record nature as the human eye sees it. First, it records too much, and too confusedly when portraiture is the aim; second, the camera's eye does not see as well as does the human eye that studies. The human eye that studies changes its focus constantly, fixing the mind in turn upon each consecutive part. We then get the descriptive line that takes the place of the camera's marginal sharpness. Nor

does the camera amplify by giving our view of the person, which is a matter of supreme importance in portraiture.

What I have said is not a criticism of your work here in these rooms. There is nothing personal said or intended. I, as an educator, have analysed photography, the most facile method of reproduction the world has ever known. You are all ambitious to make it a perfect tool. Pride, profit, and position are involved. I have tried to lay bare the foundation; elsewhere you have a guide to help you build up your art, and there are also at your disposal processes that will enable you to get all the effects needed in the new creative work. Taking up a photographic plate, I see that the image is recorded through density of film. Now, why should we not add to or lessen these densities at our pleasure? By doing so we utilise what is best in the pose, and then we treat the plate until we have attained those effects I point out as essential in portraiture. When I look at your work I find such high quality, such good photography, that I feel nothing better can be done along those lines. It remains to achieve pictorial completeness. I believe with you that some of the needful effects can be in a measure secured by straight photography, but not in sufficient degree, and never with complete balance.

Why do you hesitate to go a little beyond straight photography? Whether you get density by direct skylight, or by using your fingers in distributing pigment on the plate or employing the reducer skilfully, what can sustain the objection? You will have observed by my work before you here that portraiture is not a copying of nature. The uninformed may not realise how true this is, but you have seen that there was a reason for each touch from beginning to end for each omission,

each accentuation. I do not say that artists consciously employ these reasons in every work, but I know that through study they have acquired a knowledge far exceeding anything that I can put into words in this hour's demonstration. I urge that you all adopt the habit of study, patiently experimenting, and the course of time you will become familiar with the reasons why you will work intuitively. Let us always keep before our minds the truth that good, straight photography will give the likeness, but that the portrait grows out of elaboration. I refrain from showing you more than can well be used in your work for the coming year. There are, however, problems for us to solve so limitless in variety that we may well consider the expediency of organising in order to help onward education among us. Progressively arranged lessons would certainly help in the practice of our art. We must get on higher ground, and above commercial influences, for we must realise that our photography, once launched in an endowed institution of education, will show an undreamed-of realm of invention and creation.

I have unbounded faith in the professional photographer. Holding this belief, for more than a dozen years I have laboured with you to overcome photography's difficulties. I am convinced that photographers may become a greater power for good and for the advancement of art than our art schools can ever hope to be, for the photographer is in daily living touch with every home in our land. His influence is unbounded, and its seriousness should not escape him. No higher ambition can beckon than the one that now urges you onward. Let us all join in advancing a movement that holds so much for the profession and the public. Let us make the advance guard a strong one; let no tarry in the rear.

OTTO WALTER BECK.

## ODOURLESS REAGENTS FOR SULPHIDE TONING.

[The following first account, by Mr. Harry E. Smith, of a process for dispensing with the objectionable sulphide solution in the sepia toning of bromides is communicated to the current issue of the "Journal" of the Royal Photographic Society. The process, which has been provisionally protected, is the subject of some further notes, which the author has been good enough to send us.—Eds. "B.J."]

THE present method of toning black bromide and gas-light prints to a sepia brown colour, often referred to as the "sulphide" process of toning, is open to objections. The most prominent of these seems to be the unpleasant smell of sulphuretted hydrogen given off by the alkaline sulphide solution (sodium sulphide generally), which is used to convert the bleached image into the brown sulphide compound of silver. Another is the liability of this method to give yellowish-brown tones on gas-light papers, and also on bromide prints that are lacking in contrast, a crisp brilliant black bromide print being desirable to start with if the best sepia tones are desired.

I have for some time been trying to find a suitable odourless reagent in place of the alkaline sulphides now used, testing compound salts containing sulphur, which are in themselves odourless, but might be expected to break up in the presence of finely divided silver. The first compounds that I made were thiocarbonates, such as potassium thiocarbonate. I did not, however, meet with much success with these, the impure salts, at all events, having a much more objectionable odour than sodium sulphide. After making a large number of compound thio salts, I have recently found that in the alkaline thiomolybdates we apparently have the desired compounds.

### Substitutes for Sulphide.

Taking ammonium thiomolybdate,  $(\text{NH}_4)_2\text{MoS}_4$ , as a typical specimen of this class, I find that a freshly prepared solution is practically odourless, and that 60 minims or drops (one drachm) of a one per cent. solution of it in one ounce of water, to which

is added five minims of .880 ammonia,  $(\text{NH}_4\text{HO})$ , may be used in place of an alkaline sulphide to tone the bleached silver image.

After toning, the prints must be rinsed, and unless the whites are desired to be of a creamy colour (and I would not recommend that they be left so), the prints should be immersed for about five minutes in a bath of dilute ammonia, five per cent. strength being suitable. This bath renders the clearing of the whites before the final wash (which is all that remains to be done) a short process, twenty minutes in running water being, as a rule, sufficient. A one per cent. solution of the ammonium thiomolybdate may be made up, and, as regards its toning properties, seems to keep fairly well, but if kept for more than a day or so the smell of sulphuretted hydrogen will be noticed, and if this smell is objected to, or, indeed, in any case, I would recommend that a fresh solution be made up from the crystals when required for use. This is very simple, as they are almost instantly soluble in water.

A minim, of course, weighs .91 grains; but, if we assume that a minim equals a grain, and take one grain of ammonium thiomolybdate crystals to two ounces of water (with ten minims or drops of ammonium hydrate), this, though not quite in the above proportion, will be found quite near enough for practical purposes. It is better not to exceed this strength, or with some papers the film may be sufficiently stained to require rather a prolonged final wash. This stain, however, which somewhat resembles that of potassium bichromate, may be cleared with ammonia, or, if persistent, with potassium or sodium metabisulphite.



### A Modified Toning Action.

The toning action of ammonium thiomolybdate solution is apparently that of not only converting the bleached image into the usual silver sulphide compound, but also of depositing in the sulphided image a proportion of sulphide of molybdenum. This deposit of molybdenum sulphide is of great importance, as it enables bromide prints that are too flat in contrast to be satisfactorily toned by the ordinary sulphiding method, to be easily toned to a fine sepia brown. Gas-light prints also take much better tone than the thiomolybdate solution, the tendency to yellowish tones being apparently overcome.

When the black silver image is bleached to silver iodide (as is sometimes done, with, for example, a solution of iodine in potassium iodide), it is advisable to clear the blue iodide of arch from the print with sodium sulphite as usual, as the thiomolybdate bath only partially discharges the blue colour if used for a moderate time.

When the silver image is bleached to chloride, as is sometimes done with potassium bichromate and hydrochloric acid, I do not find that such good tones are obtained as by the use of the usual ferricyanide and bromide bleacher.

### Other Substitutes.

Other thiomolybdates that I have used in place of the ammonium salt are potassium thiomolybdate,  $K_2MoS_4$ , and the double thiomolybdate of copper and ammonium. A saturated solution of this very insoluble salt can be made by heating, and should be used of full strength. While the potassium salt gives good tones, it is not so easily prepared in a pure state as the ammonium salt, and the copper and ammonium salt does not appear to give such good tones. The sodium salt is troublesome to prepare in a pure condition owing to its great solubility. Of other compound salts of a somewhat similar type that I have tried for this purpose (keeping to the same chemical group of metals, viz., the chromium group), I have tried tungsten and uranium to replace the molybdenum in an alkaline thio-salt. The alkaline thiotungstate that I would recommend is ammonium di-thio-oxytungstate,  $(NH_4)_2WS_2O_7$ ; a solution of this salt of the same strength as above recommended for the thiomolybdate giving a good sepia tone. It is better not to use the ammonium hydrate in the thiotungstate toning bath. The thiotungstate, however, does not seem to give such rich tones as the thiomolybdate solution, neither does it compare so well with it in regards freedom from odour in solution.

Replacing the molybdenum with uranium, I have tried potassium thio-uranate. This salt is, however, very insoluble in water, and a saturated solution requires to be used, as in the case of the ammonium and copper double salt previously mentioned. Moreover, it is of little practical use for toning the bleached image.

With regard to chromium, no use can be made in this connection.

### SOME FURTHER NOTES ON ODOURLESS SULPHIDE TONING.

It may, perhaps, be of interest to bromide workers to say that further experiments have enabled us to prove that when working on silver bromide in the laboratory with the thiomolybdate toning solutions as recommended, the bromide is decidedly turned into sulphide, while a sulphide of molybdenum is deposited in or on it. The latter fact I had always proved, and, of course, it was not likely that the black compound remaining could be anything but silver sulphide; but it seems satisfactory to be easily able to prove that it is by treating the residue in the filter with nitric acid, diluting, filtering off the sulphur, and precipitating with hydrochloric acid, the curdy precipitate of silver sulphide being, of course, easily recognised. The presence of sulphur (oxidised by the nitric acid) is further easily shown by precipitating a separate portion of the nitric acid solution with barium nitrate.

Regarding the "red chalk" toning of sulphided sepia bromides with a sulphocyanide gold toning bath, I do not find

tion of salts of this metal having a similar general composition to those mentioned above, as although thiochromites are known, those that have been prepared are, I believe, all insoluble in water, so that they cannot be applied easily to a photographic print. The sulpho-chromates are, of course, a different type of salt, the sulphur in the above-mentioned compounds being replaced by the acid radical group ( $SO_4$ ).

### As to Permanence.

Finally, I think that I may claim that prints toned with the thiomolybdate solution may be regarded as in all respects as permanent as the ordinary sulphide toned print, which has now stood the test of years. The image toned by the thiomolybdate is apparently the silver sulphide compound as usual in sulphide toning. Associated with this we have, however, in this case a proportion of a sulphide of molybdenum, which is no more likely to change than the silver compound under ordinary conditions.

The presence of molybdenum may be proved by treating pure silver bromide with an excess of thiomolybdate solution as prepared for the toning bath, when the silver bromide is seen to change quickly into silver sulphide mixed with molybdenum sulphide. The black precipitate, being washed with water to free it from the thiomolybdate solution, may then be separated into silver sulphide and molybdenum sulphide, by dissolving the latter in a solution of an alkaline sulphide in which silver sulphide is insoluble. If pure potassium sulphide solution be used to dissolve the molybdenum sulphide, the fact may instantly be seen by the colourless solution of potassium sulphide being coloured orange yellow, owing to the formation of thiomolybdate, which without further chemical tests may be recognised by its absorption spectrum. A 1 per cent. solution of ammonium thiomolybdate cuts off all the visible spectrum, except the deepest red, if used in a thickness of solution of two inches. The presence of molybdenum in the solution of potassium sulphide may be confirmed by decomposing the solution with hydrochloric acid, boiling off the sulphuretted hydrogen, and adding a little nitric acid, when the precipitated sulphide again dissolves. On boiling the liquid, and diluting (or neutralising with ammonia hydrate and acidifying with hydrochloric acid), and adding a piece of pure zinc, the solution, when mixed with a strong solution of potassium sulphocyanide, gives the typical crimson coloration (which is dissolved by ether when shaken up with it), indicating the presence of molybdenum.

If prints toned to a sepia colour with the thiomolybdate solution are required to be reduced, perhaps I may say that all the nine reagents that I recommended for reducing ordinary sulphide toned prints ("Photographic Journal," June, 1907, p. 281), will reduce with apparent equal facility those toned with thiomolybdate solution. The cupric chloride and sodium chloride mixture seems to be very suitable, the tones being well preserved.

HARRY E. SMITH.

that this gold bath is satisfactory with thiomolybdate sepia toned prints, the tones being, as a rule, a greenish brown. If the smell of ammonia is objected to in the thiomolybdate toning solution, one or two drops of a saturated solution of potassium metabisulphite may be used instead of the ammonia to each ounce of toning solution made up. This keeps the solution quite odourless, in my experience, but the tone at first is nearly a black or blue-black, though it afterwards turns to a satisfactory brown. Toning solutions with metabisulphite, however, do not keep so well, the action of the metabisulphite being to break up the thiomolybdate. This is, however, of little importance, as I would not recommend that the toning solutions be kept in any case. I have tried this process for intensifying negatives, and find it very suitable, the intensification, owing to the colour of the deposit, as well as to the added molybdenum sulphide, being very considerable. It is probable that suitable thiomolybdates will be put on the market shortly. Some so-called

sulphomolybdates compounds may even now be obtained; and, running short of my own preparations, I got some of these, and at once found that, though no doubt they are what they claim to be, they are not the compounds I have recommended. To start with, these compounds were almost insoluble in water; they could not be called crystalline, and, above all, I could not detect in them any of the dichroic properties (green by reflected, and red by transmitted, light), so typical of the crystals of normal thiomolybdates. These compounds were probably salts

of trisulphomolybdic acid, and were useless in this connection. A sample of ammonium thiomolybdate prepared in my laboratory possesses a very fine dichroic effect. Please do not take, however, that the ammonium salt would be the most suitable thiomolybdate compound to put on the market. As is well known, it often unfortunately happens that the best compound to use in a laboratory is not necessarily the best for a commercial article, as the questions of keeping properties, etc., complicate the matter. HARRY E. SMITH.

## MULTIPLE - COLOUR ILLUMINATION AS AN AID IN PHOTO-MICROGRAPHY.

EVERY photo-micrographer sooner or later meets with a subject of which, owing to its lack of contrast, it seems almost impossible to obtain a really satisfactory and convincing photograph. In my own biological investigations, such subjects have constantly to be photographed, and at one time were the cause of much vexation and many weary hours of labour. For the last three or four years, however, I have adopted a method of multiple-colour illumination, based on the principle suggested by Mr. Julius Rheinberg, which has enabled me to obtain with ease most successful photo-micrographs of these hitherto difficult subjects. From the practical results and experience thus obtained I have no hesitation in recommending this method of illumination to the consideration of all who are interested in photo-micrography.

### Preliminary Arrangements.

I will suppose that the photo-micrographer has a microscope properly equipped with a substage condenser capable of being accurately centred, and having some form of holder to carry patch stops, for producing dark-ground illumination. Also that he has carefully and thoroughly tested his set of patch stops, and knows which of the series produces the best result with a given objective and eyepiece. Comparatively few workers appear to fully realise the vital importance of accurately adjusting the diameter of the patch stop to the aperture of the condenser and objective in obtaining perfect results by dark-ground illumination. Unless the diameter of the patch stop is of suitable size it is impossible to obtain the best results, and I believe this is the chief reason why dark-ground illumination has been comparatively neglected in the practice of photo-micrography. The additional apparatus necessary for the production of multiple-colour illumination is neither costly nor difficult to obtain, and consists of some sheets of different-coloured gelatine, such as red, blue, green, yellow, and clear uncoloured, and some micro-cover-glasses of a size that will fit the patch stop holder of the condenser.

### Making the Coloured Stops.

Having obtained the necessary sheets of gelatine, the next step is to cut from them a series of discs that will fit the patch stop holder, and then punch a hole in the centre of each just a shade smaller than the central discs of the patch stops. Next, another set must be cut out exactly the same size as the central discs of the patch stops, and mounted on full-sized discs of unstained and transparent gelatine, by slightly damping and pressing into position, or moistening with a strong solution of gelatine. Now make another set of marginal discs with central holes, from the transparent sheet of gelatine, and mount on each disc four coloured sectors, the two opposite sectors being of the same colour—say, for instance, two red and two blue, or two red and two green, or two blue and two yellow. Cover the centre openings of these compound coloured discs with circular stops of suitable size made of black paper or thin black card. It will also be as well to make a set of

marginal discs composed of two sectors, one blue and the other red, or one green and one blue. I have found it of great convenience, when by experiment the most useful combination of colours has been determined, to mount the marginal and central stops up together between two micro-cover-glasses, as by this means they are not only protected from scratches and finger-marks, but they will keep flat and in proper register.

### Adjusting the Coloured Illumination.

The stops made, the next thing is to put them into use. Set up the microscope, and, using, say, a 1 in. objective, focus a slide of potato starch grains or some foraminifera. Centre the substage condenser carefully and obtain critical lighting, and then, by means of the paralleliser, even illumination. Working with low powers such as the 1 in. or 2 in. objectives, the top lens of the substage condenser should be removed before the condenser is focussed.

Having focussed the object and obtained even illumination, open the iris diaphragm of the substage condenser to its fullest, and insert in the stop-holder a red marginal and a blue central disc. On looking through the microscope, the object will now be seen to stand out brilliantly illuminated and of a perfect red colour against a deep blue background, the contrast being most striking. Now, keeping the same object on the stage, experiment with the various coloured discs, keeping in mind that the central discs, which are responsible for the colour of the background, should always be of a darker tint than the marginal discs.

If the photo-micrographer is a really keen worker, it will well repay him for the trouble to make for himself a set of standard chart for reference, which will show at a glance the result he can obtain by the combination of the various coloured central and marginal discs. This he can easily accomplish by taking a series of photo-micrographs of the same object illuminated with different combinations of the coloured discs. From these negatives he can make a set of prints, mount them on a card, and mark under each the colour of the central and marginal disc used.

### Compound Coloured Discs.

Having experimented with the single-coloured discs, try the effect of one of the multi-coloured discs made up of four sectors, but this time using as the object a strand of silk mounted in Canada balsam, or a section of the stem of a pine unstained. The result will be a most striking and delightful blending of colours. For instance, if a composite disc of red and blue sectors has been used, in conjunction with an unstained section of a pine stem, all the horizontal fibres will appear blue, and all the vertical fibres red.

Now, using the whole condenser, and  $\frac{1}{4}$  in. or  $\frac{1}{2}$  in. objective, arrange a slide of diatoms having fairly coarse markings upon the stage of the microscope, and insert in the stop-holder a ruby-red central disc and a malachite-green marginal disc. The colour of the green disc is rather important; it can



made by pouring a small quantity of a solution of collodion dissolved in equal parts of alcohol and ether, to which the stain has been added, over a sheet of clear gelatine, or over the ordinary green gelatine, and allowing it to dry, when it should be of a blue-green colour. On looking through the microscope the whole field or background will appear green, which is due to the aperture of the objective being sufficiently great to admit a cone of light much wider than that proceeding from the central red disc alone, the consequent excess of green light having the effect of completely swamping the weaker red light.

Watching closely, and working slowly, gradually close the iris diaphragm of the condenser so as to reduce the cone of light and partially cut out the excess of green. If this is done carefully, the background will be seen to gradually change colour until a point is reached when it will appear a neutral or almost white tint. The diatom should now stand

out from this pale background in brilliant hues of red and green, the ridges on the frustule green, while the depressions and holes show red. This selective colouring is due to the ridges on the frustule of the diatom catching the oblique green rays, while the transparent parts and perforations receive only a very small proportion of these oblique rays, but pass an excess of the red rays forming the centre of the illuminating cone. I consider this a very useful means of determining the structure of diatoms, while for the photo-micrographic demonstration of their structure it is of the greatest assistance. In taking photo-micrographs by this method of multiple-colour illumination, as in all photo-micrographic work, backed isochromatic plates should be used.

If it is given a thorough and fair trial, I am convinced that the photo-micrographer will find multiple-colour illumination of very great service to him in his work.

F. MARTIN DUNCAN, F.R.P.S.

## FINE FOCUSING METHODS—OLD AND NEW.

In ordinary field work it is easy to obtain sufficiently accurate focussing on an ordinary ground-glass screen without adventitious aids. For the pencils of light from points at practically infinite distance away diverge rapidly from their convergence points in the focal plane of the lens, and the very small displacement of the screen necessary to put the image badly out of focus is favourable to accuracy of adjustment.

But in the photography of objects close to the camera (*e.g.*, diagrams for lantern slides, delicate apparatus and so forth) the depth of focus is much increased; the ray pencils from each point of the object diverge but slowly from the point foci in the image plane. Consequently the focussing-screen can be moved through appreciable distances without perceptibly affecting the apparent eye-judged sharpness of the image on the screen, and doubt exists as to its precise setting. In such cases the employment of a magnifying-glass is helpful; not that the glass can contribute much in the way of showing up fine detail on the ground-glass surface, but it enables one to locate the position of maximum crispness of outline and freedom from nebulosity in the gross image with more certainty than can be attained without its aid.

The ordinary ground-glass screen, though fortified with a magnifier, is, however, quite inadequate when the most perfect focussing of very delicate detail is in question, for the finer detail of the image is broken up and confused by the scattering action of the roughly ground surface. In such cases recourse is frequently had to screens with a finer grain and with greater transparency than can be secured by grinding glass. A description of some such substitutes for ground glass appeared in the *BRITISH JOURNAL* for March 30, 1906. The aim, of course, is to obtain a screen of just so much, and no more, optical irregularity of surface as will prevent an image formed by the lens in front of the screen from being seen through it. Though such screens display a far higher order of detail in the image than do ground-glass screens, yet they labour under the disadvantage that, with the exception of the small portion of the image which happens to lie in the neighbourhood of the line joining the eye with the optical centre of the lens, the image as a whole is much dimmer than in the case of the coarser ground-glass screens, and therefore the eyes must be very carefully shielded from extraneous light, in order to permit of the composition and proper centring of the picture on the screen.

### A Fine Focussing Screen.

For some time I have made use, with good results, of a novel screen of this class prepared by the following procedure:

A plate which has been exposed in the camera to a uniformly lighted sheet of paper is developed, fixed, and then placed in a bath of hydrogen peroxide acidulated with sulphuric acid. The bath is warmed to a temperature of about 20 deg. C. In a short time the hydrogen peroxide removes the developed silver and concomitantly some of the gelatine in which the silver was embedded, leaving the remaining gelatine in a very faintly opalescent condition. The plate is now washed, treated with Farmer's reducer if it still looks brown, and dried. A screen so made has just enough optical irregularity to prevent the image being viewed through it, but not enough to militate against the presentation of very fine detail in the focussed image. I must confess that I sometimes failed to get a good screen by this process even when observing, so far as I was aware, the same conditions that in previous trials had led to satisfactory results. This uncertainty or "trickiness" in manufacture is to be regretted, for of all the many screens I have experimented with none seemed to give such perfect detail rendering in the image as these gelatine screens.

### The Transparent Patch Method.

A much favoured device for fine focussing is a ground-glass screen of which a portion has been rendered quite transparent. The major translucent portion of the screen serves the purpose of centring and composing the picture, and the final focussing is done whilst observing the image through the transparent portion of the screen with a magnifier. Local transparency is secured by cementing on the ground-glass by means of Canada balsam a microscope cover-glass. Pencil lines drawn on the screen before balsaming are used as an object for the preliminary setting of the magnifier. When one of these locally transparent screens is used very great care must be devoted to the setting of the magnifier. It is carefully focussed through the screen on the pencil marks and set accordingly. (It is, I think, questionable whether lines which have been pencilled on ground glass form the best conceivable objects for determining the setting of the magnifier, for the separate carbon patches of which the lines are built up are always somewhat vague and nebulous as to outline.) Now, it is assumed that if the image is seen sharply through the magnifier so adjusted, then the image must be in the plane of the front surface of the focussing screen (*i.e.*, in the plane of the pencil marks). But it seems to me that this method of attacking the problem of securing critical focus is open to serious objections. On account of the accommodative power of the eye, the magnified image seen through the transparent portion of the screen may

appear quite sharp, even when it is not in the same plane as the pencil marks.

#### High-Power Magnifier Accommodation.

Take the case of a person of normal vision who can accommodate for any distance from "infinity" to a near-point of, say, eight inches. If such a person use a magnifier of one-inch focal length, he will in virtue of accommodation be able to see a perfectly sharply defined virtual image of any object (or primary image) distant from the magnifier either one inch, eight-ninths of an inch, or any distance intermediate between these values. In the preliminary setting of the magnifier his eye may be unaccommodated—i.e., the magnifier is set one inch from the plane of the pencil marks. Suppose this to be the case, then when racking out the focussing screen for the purpose of focussing the image the observer is very apt to accommodate the eye without consciousness of the fact, and stop the racking out when the movement of the screen is such that the image (assuming, for the sake of argument, full accommodation) is only eight-ninths of an inch from the magnifier, and therefore one-ninth of an inch behind the plane of the front surface of the screen. (The figures here given are merely illustrative. They are calculated on the assumption that the magnifying lens is ideally thin, and that the eye is in contact with it.) It should be noted that errors in focussing due to the instability of accommodation vary in possible magnitude with the focal length of the magnifier used. Thus with a magnifier of half-inch focal length, the maximum possible error in setting the screen would be reduced from one-ninth of an inch to one thirty-fourth of an inch. Hence it would appear to be advisable to use a magnifier of higher power than those usually sold.

Of course, if one could concentrate one's attention simultaneously on the pencil lines and on the image, such errors in focussing as I have suggested would be impossible; but as Dr. Wells in one of his optical essays puts it, "We are by our present constitution capable of attending accurately to only one thing at a time." The pencil marks are opaque; the image cannot be seen through them and superposed on them. To see the image distinctly direct vision must be diverted—slightly, perhaps, but yet diverted—from the pencil marks, and during this diversion of the line of fixation slight changes of accommodation may take place in the eye without our cognisance.

On account of the uncertainty arising from unconscious accommodation changes to the eye. I have of late quite discarded the method of fine focussing just described, and place my reliance on a parallax method in which accommodative changes to the eye are impotent to vitiate the results.

#### How to Avoid Accommodation.

The screen used is a plate of glass fairly heavily ground all over (with a view to a bright general image) with the exception of a small circular central spot, which is left transparent. Such a screen is made in a few minutes by sticking a small washe on the centre of the plate and grinding round this with carborundum powder, using as a muller a small piece of flat glass to which a slab of wood has been stuck to act as a handle. A small strip of tinfoil cut with a razor is stuck across the transparent portion of the screen. On the unground surface of the glass, just over the region of the transparent disc, a small adjustable magnifier of about half-inch focal length is permanently fixed. (The magnifier actually used was constructed from a cheap linen tester.) The magnifier is focussed on the edge of the tinfoil slip and set. It is not necessary to bestow any especial care on this adjustment. The screen is now racked until there is no apparent relative movement (parallax) between the edge of the slip and any selected portion of the image seen through the magnifier when the eye is moved laterally across the field of view of the magnifier. This being the case, the lens image must of necessity lie precisely in the plane of the front surface of the screen. The function of the magnifier here, it will be noticed, is not to aid the attainment of that very uncertain condition the exact position of clearest visualisation of fine detail in the image, but simply to magnify a displacement. Hence there can be no complications arising from unavoidable accommodative changes in the eye.

The delicacy of this method of focussing—virtually a "null method"—is quite surprising; the most insignificant rotation of the focussing pinion from the position of zero parallax produces an easily perceptible relative displacement of the fiducial mark and any selected image detail. I can confidently recommend those who have met with difficulties in fine focussing to give the parallax method a trial.

DOUGLAS CARNEGIE.

## ALLEGED ANTICIPATIONS OF THE WARNER-POWRIE PROCESS

SOME indication of the interest awakened by the Warner-Powrie process is afforded by the publication in the German journal "Der Photograph" of the heated protestations of a Dr. Mebes, apparently the editor of our contemporary, that the process cannot be patented in Germany. Dr. Mebes claims to be doing the photographic trade of his country a good turn by his alleged proof that the American screen-plate process has no features which entitle it to patent protection in Germany. Dr. Mebes writes as "ein gelehrter Mensch, der kennt Alles," and hence it seems a pity that he does not inform his countrymen of the patent granted to Dr. Powrie by the American Patent Office, the controllers of which are equally as strict, if not stricter, than is the German "Patentamt" in their examination of an inventor's claims. Dr. Mebes cites the French and English patent, but he appears to be ignorant of the date and number of the American patent. If he looks in the U.S. General Index of Patents for 1905 he will see that the entry under Powrie is misplaced in the alphabetical order. Can it be that in his haste to disparage the process, Dr. Mebes has missed the entry in the register? It is not a very charitable suggestion, but nevertheless the most plausible we can think of. Probably the German photographic trade will begin to feel grateful to Dr. Mebes when he points out this entry in the index.

As Dr. Mebes may not do this, it may be well for us to refer to his criticisms of the Warner-Powrie process. They cite a patent of Brasseur (No. 571,314 of U.S. patents), which describes the use of a screen with opaque and transparent bands (the former double the width of the latter), in conjunction with three mono-chromatic light filters, for making a banded negative in three separate exposures. The patent does not refer to a colour screen-plate or to the printing of a three-banded filter-plate from such a double-band screen, and the use of such a "double-band" screen is not mentioned as an essential item in the claims of the Powrie British specification or fails to see the relevance of Dr. Mebes' citation.

Similarly Dr. Mebes cites the MacDonough British Patent, No. 5,597 of 1892, to show the Powrie patent cannot obtain protection for colour screen-plates in general, that is, combinations of filter screen and emulsion, which, of course, it does not, but only for a particular form of screen-plate and a particular method of producing it. Dr. Mebes must be very imperfectly acquainted with the claim in the Powrie English specification or he would see that in citing these alleged anticipations—which, by the way, are not the best he could cite—he is ploughing the sands.

Lastly, he comes to the claim in the Powrie specification for a plate of three coloured portions, all contiguous and forming a full



filter surface, as an anticipation of which he quotes the classical French patent of Du Hauron (No. 83,061 of 1868). It cannot require much knowledge of patent distinctions to perceive that a previous description which says not one word on the method of securing contiguity of all the colours and flatness of the finished filter is perhaps not the best publication to bring up as an anticipation. Du Hauron, as everyone knows, originated a great idea in this patent, but that he dropped one hint as to the methods of forming the filter plates which are under discussion in the Powrie patent is flatly contradicted by the specification from which Dr. Mebes has taken extracts. In short, Dr. Mebes' criticisms amount to this: He cites Brasseur and MacDonough to invalidate claims in the Powrie patent which do not exist; and when he quotes Du Hauron as anticipating an actual claim in the process, behold Du Hauron says nothing on the essential points.

We would not think it necessary to deal with the historical fallacies of Dr. Mebes did they not afford a nice illustration of the blunders which the hurried writer can easily make. In his case it does not matter much to anybody, but we are thinking of one or two instances which have come before us quite recently in which the disregard, through ignorance, of the rights subsisting in certain patent had involved those who could ill afford it in expensive litigation. Dr. Mebes' efforts, no doubt, arise from the most patriotic motives, but his countrymen, it is to be hoped, are too astute business men to accept them as the word of a competent authority.

## THE SOCIETY OF COLOUR PHOTOGRAPHERS.

### ANNUAL MEETING.

THE annual general meeting of the Society of Colour Photographers was held on Thursday, October 17, at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY, where at the present time the exhibition of the Society is being held. Amongst those present were:—A. J. Newton (London), A. W. Everest (Hampstead), F. T. Hollyer (Kensington), George E. Brown (London), H. Snowden Ward (London), J. Wall (London), F. S. Poole (Godalming), A. Lander (Canterbury), E. D. Doncaster (Surbiton), C. W. Madden (Highbury), E. Weinberg (London), Sidney L. Young (London), E. W. Burchard (Bicester), W. Fischer Keep (Putney), C. Welborne Piper (Blackheath), Dr. H. Hutchinson (Lowestoft), Paul Corder (London), and Henry J. Comley (Stroud).

Mr. A. J. Newton was voted to the chair. Arising out of the Secretary's report (appended) some discussion took place as to the more rapid circulation of the portfolio of prints and the cases of free-colour transparencies. It was decided to restrict the time during which each member should hold the portfolio to three clear days. Arising out of complaints that the portfolio occasionally remained longer than its scheduled time with members, it was pointed out that in the case of members who were away on their holidays the portfolio might remain unexamined until their return. On the suggestion of Mr. E. D. Doncaster the present automatic rotation system to be replaced by one under which each member of the Society is notified by the secretary a few days in advance that the portfolio is due to reach him, and will be sent on or his replying that he is in readiness to receive it, and send it on to another member.

The officers for the ensuing year were re-elected, namely:—Secretary and treasurer, Henry J. Comley; committee, George E. Brown, T. Hollyer, A. J. Newton and E. J. Wall.

Messrs. E. D. Doncaster and A. W. Everest were appointed auditors. Mr. G. E. Brown said that it had been a great pleasure to co-operate with the society in holding the exhibition, yet he regretted to say that the time of year was in many respects—the months of September, October and November—so fully occupied by both publishing and editorial staff of the BRITISH JOURNAL that he did not see that it was possible to offer the exhibition rooms another year during these months. After some discussion it was decided to hold an exhibition in the earlier part of the year, probably in May or June of 1908.

The following is the text of the Secretary's report:—

Ladies and Gentlemen,—It is with a great amount of pleasure that I present to you the first annual report of the Society of Colour Photographers. The first year in the history of a society of this kind cannot be expected to be anything more than a period of experi-

ment in organisation and preparation for the future. I do not claim that anything greater can be said of the Society, but the success which has attended it during its one year of existence has been indeed very encouraging.

Commencing on October 16, 1906, with a nucleus of eleven members, we now have a membership of seventy-three, of whom fifty are working members. The remainder are ladies and gentlemen who have joined us in order that they may show their sympathy with the aims of the society, and at the same time keep themselves informed of the latest advances in colour work.

Our members are very widely scattered; twenty-five live within the London postal area, and while the majority of the remainder are distributed all over England and Scotland, we have members in America, the Transvaal, India, Belgium, Switzerland and Italy; and I am convinced that with the continued interest and co-operation of the present members, the society may soon largely increase its numbers and claim a position among the most important societies in the photographic world.

Very few photographic societies are able to hold an exhibition during the first year of their existence. In this particular we have probably created a record, and it is encouraging to know that the exhibition has been visited by a far larger number of people than was anticipated, and has received the most favourable comments from all sections of the press.

Very few young societies have received so much encouraging recognition from the press both photographic and lay; on numerous occasions during the year paragraphs concerning us have appeared in the leading London dailies, and these have been copied by the foreign and colonial press until in the brief space of twelve months, the Society of Colour Photographers has become known all over the world. Special mention must be made of the great assistance given to the society by the editor and proprietors of THE BRITISH JOURNAL OF PHOTOGRAPHY, who have not only on various occasions devoted a large amount of space in their JOURNAL to notices and correspondence relating to the society, but have always very kindly placed a room at our disposal for the meetings of members and committee. They also very generously offered to house our exhibition without charge on condition that admission to the exhibition should be free. This offer the committee very readily accepted. The "Colour Photography" supplement of THE BRITISH JOURNAL has been a great boon to the members of our Society, and to colour workers in general. All this kind assistance on the part of those connected with THE BRITISH JOURNAL OF PHOTOGRAPHY, has, of course, been a great saving of the funds of the Society, and I am sure that our sincerest thanks are due to them.

Reviewing the year's work one cannot help feeling that more might have been accomplished, but there has been a great amount of satisfaction in the knowledge of the fact that the work done has been foundation work, and although it leaves room for great improvement in succeeding years, the past year's work has probably decided the possibilities of the future of the society.

Taking the activities of the Society in their published order, (a) Four portfolios of prints and two cases of transparencies were put into circulation, and these, together with the hints and criticisms upon the work which accumulated as they passed from member to member, have proved most interesting and instructive.

The great difficulty in connection with the circulation of the portfolios has been to get together sufficient work to make interesting collections, and it will also be readily seen that owing to the fact that five days have been allowed to each member for the inspection of the work in the folio, although a number of folios have been in circulation, many of the members have only had the opportunity of receiving one. The time allowed for the inspection of the portfolios should, I think, be reduced to three clear days; in this way all the folios would pass into the hands of all the members in a little over a year.

(b). A number of members have taken advantage of the privilege offered by the society, by which they may correspond with the secretary upon matters of difficulty experienced in their work. It will be remembered that a number of gentlemen placed themselves at the disposal of the society for the purpose of answering technical questions of this kind through the medium of the secretary, but the questions asked have generally been of such an elementary character that the secretary has been able to give the information without

referring the matter to experts, and has thus avoided excessive correspondence.

(c). Referring to the exhibition which is now in progress, it must give you all a great amount of satisfaction to know that it is such a great success; all the popular processes are well represented, and the quality of the exhibits is, generally speaking, very satisfactory. The combined exhibits of prints and transparencies are quite the best collection of colour work that has ever been brought together. We have to congratulate ourselves upon having the honour of introducing to the world the extremely interesting and successful "Warner-Powrie" process, which is probably destined to rapidly come into public favour as a thoroughly practical and commercial process of colour-photography.

The success of the exhibition is largely due to the interest and untiring efforts of Mr. G. E. Brown, the Editor of *THE BRITISH JOURNAL OF PHOTOGRAPHY*, who so kindly undertook the onerous duties of arranging and cataloguing the exhibits. He also at a very great sacrifice of valuable time assisted in the clerical work necessary in getting the collection together; and a number of the most interesting items in the catalogue, including the "Warner-Powrie" exhibit, is the result of Mr. Brown's efforts, which cannot be too highly appreciated.

The future of the Society will largely depend upon the interest which the present members take in its welfare. The first great need is for the working members to send in sufficient new examples of their work to fill at least three new portfolios and three transparency cases; these, with the portfolios already in hand, would give us a good start for the year, and would enable the secretary to keep alive the interest of those who have not yet taken up practical colour work, and to encourage them to turn their attention in that direction.

It is interesting to mention that one or two of our members are working out original ideas for the perfecting of printing methods; others are experimenting in the direction of improved methods of negative making; and at least one is working upon a process of direct colour photography. This society should be in a position to encourage workers who are engaged in original research, and for this purpose gifts of scientific apparatus would be very welcome. This apparatus would be the property of the Society, but would be available for the use of members applying for same.

I sincerely hope that you will all have the future welfare of the Society at heart, that you will encourage others to join us and take up colour-photography, for with an increased membership in London we would soon be able to have a programme of members' meetings, which would be a means of greatly enhancing the usefulness of the Society.

HENRY J. COMLEY,

October 17, 1907.

Hon. Secretary and Treasurer.

#### SOME ESSENTIALS TO COMMERCIAL SUCCESS IN PORTRAIT PHOTOGRAPHY.

WHILST many photographers are complaining of the badness of the times, there are many others who have discovered that business in quantity is to be done, but on business lines which call for more application and discretion than were sufficient a few years ago. The following short paper, read before an American convention by W. J. Hillman, of Richland Centre, emphasises some of the ways in which the photographer may find on self-analysis that his methods may benefit by revision:—

Be very careful in making your sittings. See to it that you have the very best that you can produce in the way of negatives. Do not let a plate or two stand in the way of your success, but know yourself that you have the very best negative that can be made before the customer leaves the studio; for with good negatives and proper care in the printing and finishing you are sure to turn out a pleasing portrait. I believe that it pays to put in honest and conscientious work all along the line. Our customers will, in time, recognise our efforts to please them, and, knowing our integrity, will be more inclined to give us their patronage rather than to pass it to those who are known to be careless and indifferent as to the quality of their work.

#### QUALITY TELLS.

Let us be clean and painstaking in finishing our work, remembering that a clean, well-finished picture is a credit to its maker and a

travelling advertisement for more patronage, while a dirty, slovenly piece of work is an abomination, unworthy of the efforts of the producer; and, while also a travelling advertisement, it is that keeps away trade rather than that it should bring business to the one who is known to have sent it on its rounds.

Let your pictures have a clean, crisp appearance as they go to the hands of your patrons, and by placing a small envelope of unfumed sachet powder within the package, with your advertisement neatly printed thereon, thanking the patron for the favour of order, it will give a dainty effect and prove very pleasing to the customer.

#### WORK TO TIME.

The confidence of the public is your "winning card," and is worth much to you in your business. Do all you can to gain and retain this confidence, for it means success. Finish your pictures promptly and on time, according to agreement. Do not agree to have pictures done at a certain time and then fail to deliver them (making excuses that the patron will consider only as such), for how can you keep the confidence of your patrons while disappointing them, and will they think of you as a business man if you treat them in this manner? Again, how humiliating to you if you have to make kinds of excuses for not finishing their work when promised.

Soon you will have lost your reputation for reliability and promptness, and your competitor over the way has gained a customer through your negligence. Be prompt if you would succeed. Let it be understood from the start that you are a man among men, not a "cheap John." Let the people understand that you are doing the very best work at reasonable prices, and that your products are fully worth the price that you ask for them; that you are in the business for your health, nor in competition with the cheap man in the country, but to live as the people live about you, and gain a competency for old age. Charge prices that will pay your expenses and keep you honest and your name and credit a reproach, leaving a goodly amount for a bank account. Less than this means failure, and, in the end, with credit gone, you are classed with the disreputables and the unsuccessfuls.

#### THE BUSINESS SYSTEM.

Study the cost of your products and see if they can be produced for the prices that you are asking. Remember, you are to be honest with yourself and those who are dependent upon you as well as with the persons on the other side of the transaction. Many photographers figure only the cost of plates, paper, cards, and chemicals, and charge accordingly, thinking that all receipts above these expenditures are "profit," and that their "profits" are large. If you would add the interest on money invested (which is a perfectly legitimate item), the rent of their studios, the cost of fuel, tax, light, insurance, help (if any is employed), repairs to instrument, furniture, etc., and occasionally the addition of a new article of furniture or a new and improved instrument; in fact, all necessary expenses connected with the conducting of the business, and not getting a reasonable salary for the proprietor (whose time, labour, skill, and energy ought to be worth as much as those of men engaged in other professions), they might discover that business was done at a loss, and unless prices were raised to meet the discrepancy, they must close up and retire in a short time.

PROFESSIONAL AUTOCHROME PORTRAITURE.—Mr. Abernethy, High Street, Belfast, so we read in the "Belfast News Letter," announced his intention of undertaking portraits in natural colour on the Lumière Autochrome plates. Professional photographers everywhere will doubtless keep themselves alert to the opportunity of securing some good local advertisement, even if the new department does not bring them a remunerative number of orders.

AUTOCHROMES AT MESSRS. GRIFFIN'S.—Messrs. John J. Griffin & Sons, Limited, write:—"We have secured some exceedingly interesting specimens on the Autochrome plates, produced by an expert at the College, which we have on view in our exhibition room. The photographs are particularly interesting as being the first cases, as we know, where Autochrome plates have been applied to photography. The rendering is extremely fine in the case of photographs of the tongue and lung, the same being taken direct. The transparencies will be shown to visitors."



## ROTHERHAM PHOTOGRAPHIC SOCIETY.

ASS G.—Best Boards of Exhibits.—Silver medal: 228-235, Miss  
tson; bronze medal, 434-442, A. S. Pye; 260-278, W. R. Britton.  
set awarded a bronze medal.

TE SCREEN PLATES.—No. 22,228. Improvements in the manufacture of photographic colour screen plates. Henry William Hamblin Palmer, 43, St. Martin's Lane, Charing Cross, London.

book or album; but the invention can be embodied in single sheets as well as in a complete book. Upon this page are secured sheets B, preferably of heavy paper, each of the sheets being of the form shown in Fig. 2, the same comprising a central rectangular blank of the size and shape of the picture or other object which it is

desired to mount upon the page and each being provided at its four corners with diagonally extending flaps *b*. Before the sheet *B* is mounted upon the page *A* each of the flaps *b* is folded along the line joining it to the rectangular blank *B*—i.e., along the dotted line *b*<sup>1</sup>, Fig. 2, in front of the blank *B*, so as to form a diagonally disposed corner strip, as shown in Fig. 1. The end of the flap *b*<sup>1</sup> is folded along the dotted line *b*<sup>2</sup>, behind the body of the blank *B*, and pasted or otherwise secured in place. At the upper right-hand corner of Fig. 2 one of the flaps is shown folded into position, and the portion of it which lies behind the body of the blank *B* is indicated by dotted lines.

When it is desired to mount a picture the corners of the sheet are placed under the edges of the flaps *b*. As a modification of the form illustrated at the left-hand side of Fig. 1, sheets are provided, as shown at the right-hand side, the body of each mounting sheet being made in the form of a Greek cross and the flaps *b* being provided at each of the eight corners of the cross, as illustrated in Fig. 3, the same being folded into place, as already set forth. By these means a mounting is secured in which a picture can be held, either in a vertical or horizontal position as desired. Charles Frederick Engstrom, 552, Wabash Avenue, Chicago, U.S.A.

The following complete specifications are open to public inspection before acceptance, under the Patents Act, 1901:—

APPARATUS.—No. 18,399. Photographic apparatus. Seele.

CINEMATOPGRAPHS.—No. 20,863. Cinematograph apparatus for continuous taking and projection by means of photographic plates. Fauconnet.

### New Trade Names.

IMPERIAL.—No. 293,654. Plates and films included in Class I, prepared for photographic purposes. The Imperial Dry Plate Company, Ltd., Ashford Road, Cricklewood, London, N.W., manufacturers of photographic materials. June 11, 1907.

SPEEDY.—No. 294,456. Photographic Dry Plates. Wellington and Ward, The Elms, Shenley Road, Elstree, Herts, photographic material manufacturers. July 9, 1907.

TARGOT.—No. 294,912. Chemical substances used in manufactures, photography, or philosophical research and anti-corrosives. Joshua Rea and Sons, Collingwood Street Oil Works, Collingwood Street, Liverpool, Lancs, oil and paint manufacturers. July 27, 1907.

KOH-I-NOOR.—No. 295,646. Sensitised photographic papers. Photochemische Fabrik Roland Risse, Gesellschaft mit Beschränkter Haftung, 4, Weibachstrasse, Flörsheim-on-the-Main, Germany, manufacturers. August 19, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### The Position of the Lens in Portraiture.

As a general rule (writes Mr. A. J. Anderson, in an article in "The Amateur Photographer," of October 22, on "Some Principles of Portrait Work," which we emphatically commend to the study of every professional photographer), the lens should be placed level with the sitter's eyes, and exceptions from this rule should be made with a definite purpose. In some few cases a station point that is slightly above the level of the eyes will be found to give a more pleasant rendering of the features, and a sympathetic operator will always be kind to his victim—but in such a case I think that the subject should be shown seated—in other cases a lower station point will be found to give a delightfully saucy rendering of a saucy face. However, as a rule, the higher station point will prove unsatisfactory, for the simple reason that pictures are seldom hung below the line of sight, and a portrait that is placed on a table is generally stood so that it is at right angles with the line of sight; the lower station point is more often satisfactory, but there is always a risk in giving an extra tilt to a nose which is already tip-tilted by nature.

### A Flashlight Stand.

An ordinary folding metal music stand (writes a club secretary in "Focus") is obtained (nearly every household possesses one), the

top part is taken out at the place where the height is regulated, in its place is put a piece of iron rod of the same thickness, about 4ft. long. Then a piece of board is obtained, about 6in. by 3ft. a hole is made in the centre of this, so as to wedge tightly on the end of the iron rod at right angles, or the end of the iron rod can be screwed so as to screw into the hole in the board. The flash powder can then be flashed on this board, or, better still, a piece of cotton wadding is first placed on the board, and the flash powder in this, the cotton wadding is then ignited with a taper, which ignites the powder in about two seconds; this gives the operator time to get out of the way, thus doing away with the cane walking-stick. This stand, as will be seen, can be regulated to any height, and can be folded up in a small space when it has to be carried or put away.

## New Books.

"La Photographie des Couleurs et les Plaques Autochromes." By E. Wallon. Paris: Gautier-Villars. 1 fr. 50.

It is a pleasure to come across an able writer like M. Wallon writing dispassionately of the Autochrome process. His 40-page monograph reviews the principles upon which the one-plate processes of colour photography rest, and incidentally traces the development of the grain method from the first suggestion of Ducos du Hauron. M. Wallon's experience with the Autochrome plates described without ostentation, amounts to this—that any departure from MM. Lumière's precise directions is inadvisable, a conclusion which, however, cannot be said to have been confirmed in its respects by workers in this country.

"Aide Mémoire de Photographie pour 1907." By C. Fabre. Paris: Gautier-Villars. 1 fr. 75 c.

M. Fabre's annual précis of photographic progress, of which the present volume is the 32nd issue, resembles its predecessors in general arrangement, and supplies a conveniently arranged abstract of the principal technical advances of the year. It contains also much information as to photographic societies in France and other countries, a list of photographic books published during 1906, and particulars of the French and foreign photographic press. The latter, in some respects, call for revision.

"La Reproduction Photographique des Couleurs." By H. Calme and L. P. Clerc. Pp. 132. Paris: Office of "Procédé." 6 francs.

This is a compact manual of three-colour practice issued from the office of "La Procédé," in Paris. It is not to be imagined, from the fact that it forms No. 12 of the "Bibliothèque Photomécanique," that the book deals exclusively with three-colour as applied to photoengraving: fully one-half the text applies equally to three-colour photography of all kinds. Thus we have an historical introduction and a full explanation of the nature of light and colour, and of the principle on which three-colour photography depends. Other sections deal exclusively with "Procédés Photochimiques," and "Synthèse Optique." The first includes a working description of all the usual subtractive methods, imbibition, carbon, pinatype, etc., and the last all the synthetical, as triple projection and the chromoscope, describing the new Autochrome and Omnicolour plates. The remainder of the book deals in the first part with everything concerning the making of colour negatives, and in the second with photomechanical work, especially in relation to the printing in and the use of the cross line screen. The book has half a dozen indifferent coloured supplements, but is well illustrated with diagrams in the text.

PLATINOCHROM.—Messrs. Sichel write that they are informed that the new "Platinochrom factory is now completed, and that they will be in a position to resume deliveries of this paper in about fourteen days."

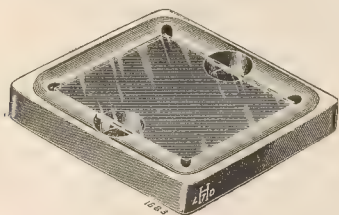
AUTOCHROME FILTERS.—According to Dr. Harberrisser in the "Chemiker Zeitung," very good results are obtainable on the Autochrome plates by the use of a filter obtained by staining gelatin glass with a solution of 9 parts of "rapid filter yellow" and 1 part filter red (Hoechst). The tint should correspond at the most to that of a medium yellow screen. Dr. Hauberrisser suggests that the above formula may be employed if the correct Lumière filter is not obtainable.



## Dew Apparatus, &c.

The "Ensign" Cover-Glass Cleaning Frame. Made by Houghtons Limited, 88/89, High Holborn, London, W.C.

For lightening the labour of lantern-slide binding we can recommend this little piece of apparatus of Messrs. Houghton's, which makes short work of the preparation of the cover glass. The



cleaning frame is of the type familiar to wet collodion workers, and will be endorsed by them as the most suitable kind for the polishing of plates of small size. It consists of a solid block covered with cloth and recessed to just sufficient depth to accommodate the thin lantern-slide cover-glass. The cleaning frame is sent out complete with a couple of screws for securing it firmly to the table top, and costs only one shilling. It should last the slide-worker a lifetime, save him many broken cover-glasses, a goodly proportion of time, and probably some finger-cuts.

Clarkson's Dry-Mounting Block. Sold by F. C. Clarkson, Colchester.

This piece of apparatus consists of a metal plate, conveniently mounted on wood and provided with a thermometer to indicate its temperature. It thus serves as a ready means of securing the adhesion of prints by aid of dry-mounting tissue, and can be got ready for use in a few moments over a gas stove or spirit lamp, or in an oven. The block is made about 7in. x 5in. in size, and may be used for prints of larger size than itself by being kept in motion while applying hot pressure. The block is offered in conjunction with the dry-mounting tissue of Mr. Clarkson, which is supplied for use at the low temperature of 60 deg. C., and affords excellent adherence in our experience of it. A piece of the tissue slightly larger than the print is cut, and placed on a sheet of glass, which has been wiped with a wet sponge. The dry print is then laid on the tissue, both are trimmed to the required size, and are laid in position on the mount. The print is then covered with a piece of clean dry paper and affixed to the mount by pressure of the suitably heated block. The very handy block is sold in 7in. x 5in. size at 7s. 6d., or 10½in. x 8in. at 15s. The tissue is obtainable at 9d. per yard, 18in. wide, or 1s. 6d. per yard, 36in. wide.

CARRYING CASE AND LENS HOOD.—Those who have read Captain Owen Wheeler's recent articles on the advantage of the lens hood in telephoto work, as well as many others who have appreciated the contrivance in ordinary work, will be interested in hearing of an ingenious device which was shown to us a few days ago by Mr. Edgar Clifton, of Messrs. J. H. Dallmeyer, Ltd., 24, Newman Street, Oxford Street, W. This was a wooden carrying case for a large lens, and was so made that, while it answered its nominal purpose perfectly, it served equally well as a hood for the lens. This double purpose it was enabled to perform owing to the provision of a circular aperture (closed at will) which fitted the lens hood. Further, one side of the case was made with a sliding shutter, which could be employed to adjust the shading of the lens to a nicety, and to give a graduated exposure to sky and foreground. These advantages are secured without any addition to the weight of the kit, for the case is made no larger on account of its functions as a hood. Messrs. Dallmeyer are making the hood-cases for any type of lens and telephoto attachment.

AN INTERESTING ENLARGEMENT is to be seen outside the Hicks Theatre in Shaftesbury Avenue, representing a scene from Charles Frohman's production of "Brewster's Millions." The picture is 6 feet by 4 feet in size, and is one of the largest photographs on public exhibition.

## New Materials.

Christmas and New Year Mounts. Sold by Jonathan Fallowfield, 146, Charing Cross Road, London, W.

Year by year we find Messrs. Fallowfield to the front with greeting mounts for the Christmas season and the present occasion is evidently to be no exception to its predecessors. The selection of mounts obtainable from the Charing Cross Road firm is a very large and varied one, and allows the most diverse requirements to be satisfied. The plainer and more reserved type of mount is present in a larger proportion than previously, a sign, we hope, that the public is beginning to prefer a really tasteful design to those answering to the description "Christmas-cardy." The latter, it is true, are usually excellent in themselves, but their union with a photographic print is



seldom happy. Messrs. Fallowfield meet the case with cards of both orders, and have produced some most excellent designs, which externally resemble the private greeting card as it has become known of late years, whilst the interior contains a cream folder, which forms an admirable setting for a small bromide or platinotype print. Some cards of this type with Dutch designs are most attractive. However, we can best refer to the 24-page list, wherein will be found fully illustrated particulars of the mounts, together with the details of the special offer (of a set of selected specimens) to dealers and professional photographers. The list is sent free to all on application. The offer is extended only to dealers and professionals.

A SELF-TONING PAPER has been placed on the market by Walter "de" Welford and Co., 61, Mansfield Road, Ilford. The special advantages emphasised by the makers are the speed of printing and the resemblance of the tones to those of gold-toned P.O.P. The paper is sold in 3d., 6d., 1s., and 1s. 6d. packets.

CHRISTMAS MOUNTS AND CALENDARS.—The Crown Photo Manufactory, Rotherham, send us some examples of their Christmas mounts for the coming season. Among the bulk we find a number of brightly printed designs suitable for prints from quarter-plate size downwards. Many people we know prefer plenty of colour and embossed lettering in their festive missives, and photographers catering for them are foolish to offer them anything else. The Crown Factory's selection is excellent in this respect; whilst the "Royal" Calendar, with oval opening for cabinet print, shows that they can also supply mounts of more reserved colouring. The prices in all cases are most moderate.

AUTOCHROME MATERIALS.—"Fallowfield's Courier" for October contains a catalogue of the materials for the Lumière process, which the firm of Fallowfield are preparing to supply specially for the convenience of Autochrome users. These include solutions for the process, which are obtainable singly or in complete sets at 6s. 6d., glass dishes, pneumatic holders, metric graduates, and electric fan for quickly drying the finished Autochromes. Messrs. Fallowfield's circular, obtainable from 146, Charing Cross Road, London, W.C., gives particulars and prices of these items.

CHRISTMAS "CUT-OUT" MOTTOES.—Mr. F. C. Clarkson, Colchester, sends us specimens of some most effective gilt mottoes, which are instantly attached to any mount and convert it into one of specially "Christmassy" character. The gilt of the lettering goes well with almost any colour of mount and print, and gives a very handsome appearance to the whole. The mottoes, which include such phrases

as "Hearty Greetings," "All Good Wishes," or "Remembrances," are supplied, assorted, at 14s. 6d. per 1,000.

**ROTARY CHRISTMAS POSTCARDS.**—The Rotary Photographic Company, New Union Street, E.C., have just issued the sensitised postcards for the Christmas season, bearing suitable mottoes and decoration in the space reserved for communication on the address side. These Rotox and Rotograph cards are attractively produced, and should enjoy a wide sale. A set of similar Rotona cards is also obtainable from a different series of designs.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, OCTOBER 25.

West London Photographic Society. "Autochrome Process." W. G. Cullen.  
Aberdeen Photographic Association. "Toning of Bromide Prints." H. MacLennan.

#### SATURDAY, OCTOBER 26.

Worthing Camera Club. Outing to Shoreham and Southwick.

#### MONDAY, OCTOBER 28.

Bradford Photographic Society. "Yorkshire Minsters." C. B. Howdill, A.R.I.B.A.  
Kidderminster and District Photographic Society. Competition.  
Oldham Equitable Photographic Society. "Enlarged Negatives on 'Rotograph' Negative Paper."

#### TUESDAY, OCTOBER 29.

Birmingham Photographic Society. "Some Schools of Art and their Photographic Imitation." H. Barratt.  
Leeds Photographic Society. "Sea Birds at Home." Riley Fortune.  
Nelson Camera Club. "Rotary 'Carbograph' Paper."  
Bootle Photo. Society. "Photographic Chemicals."

#### WEDNESDAY, OCTOBER 30.

Edinburgh Photographic Society. "First Lesson on Elementary Geometrical Optics." W. J. Macdonald, M.A., F.R.S.E.  
South Suburban Photographic Society. "Time Development." W. F. Slater, F.R.P.S.  
Everton Camera Club. "Naples, Rome, &c." Rev. S. A. Barrett.  
Coventry Photographic Club. Judging No. 1 Summer Competition.  
Croydon Camera Club. "Leto Pigment Paper." F. J. Terry.  
Leeds Camera Club. "My Rambles in Upper Wharfedale." Thos. Ryder.  
North Middlesex Photographic Society. Technical Meeting.  
Chorley Photographic Society. "Rotary 'Carbograph' Paper."

#### THURSDAY, OCTOBER 31.

Chelsea and District Photographic Society. "Portraiture." Harold Baker.  
Queen's Park Amateur Photographic Association. "Lantern Slide Making." David Horn.  
London and Provincial Photographic Association. "Oil Printing." A. W. Green.  
Rugby Photographic Society. Slides of "Tasmania," by Members of the Northern Tasmanian Camera Club.  
Longton and District Photographic Society. "Holland." E. Marks.  
Richmond Camera Club. Amateur Photographer Prize Slides 1907.  
Liverpool Amateur Photographic Association. "The River Mersey from the Moors to the Sea." Dr. John W. Ellis.  
Hull Photographic Society. "The Carbon Printing Process." J. T. Dyson.  
North London Photographic Society. "Mounting and Trimming." Competition.  
Handsworth Photographic Society. "Stand Development." F. Smith.  
Darwen Photographic Association. "Enlarged Negatives on 'Rotograph' Negative Paper."  
Windsor Camera Club. "Photographic Chemicals."  
Nottingham Camera Club. "Ozobrome." H. L. Hopkins.  
Blenheim Club 1. "The Invention and History of Steel Pens." 2. "Gold Pens and their Manufacture." James P. Maglunius.

**KIDDERMINSTER PHOTOGRAPHIC SOCIETY.**—At the annual meeting, held October 14, the following officers were elected:—President, Mr. W. Adam, J.P.; vice-presidents, Messrs. J. A. Batley, R. B. Dawson, H. E. Hadley, and Charles Hughes; hon. treasurer, Mr. G. F. Griffin; hon. secretary, Mr. H. W. West, 12, Shrubbery Street, Kidderminster.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—On October 16 the president, Professor H. E. Armstrong, Ph.D., LL.D., F.R.S., gave a lecture of a most interesting nature, on "The Chemistry of Photography," in which he dealt with the theories of the latent image, reversal, and development.

**SUTTON PHOTOGRAPHIC CLUB.**—The report read at the annual meeting, held on October 18, indicated that a notable revival in photographic interest on the part of local amateurs has ensued during the past two years, the effective membership of the club having in that period been almost trebled. Amongst those who have recently joined and especially noteworthy is Mr. Andrew Pringle, who is taking an active interest in the club, not only by giving a demonstration upon Ozobrome on November 15, but also by placing at the

disposal of the members his photographic portrait studio at Banstead, a privilege which should prove of great value to all whose inclination lies in the study of figure photography. Mr. Hector Maclean, F.R.P.S., was reappointed chairman, and Mr. J. W. S. Burmester, F.R.I.B.A., of Fairhome, Grange Road, Sutton, hon. sec. There was a large attendance of members, who were much interested in an account of the work and aims of the Surrey Photographic Survey, which Mr. Maclean explained by the aid of lantern slides.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting on Thursday, October 17, 1907, Mr. A. E. Smith in the chair, Mr. Ferry gave a few hints to would-be patentees—a hint was to invent something.

**MORPETH Y.M.C.A. CAMERA CLUB.**—On October 14, 1907, the opening of the winter session commenced with a highly instructive lecture by Mr. Arthur Payne, F.C.S., F.R.P.S., on "In Search of the Picturesque." Mr. Payne showed some examples of autochrome transparencies taken by himself, in regard to which it is stated in the local journal that "It may interest the people of Morpeth to know that they have had an opportunity of witnessing the first exhibition of these colour plates in England, north of Manchester."

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—On Monday, October 21, Mr. G. C. Druce delivered his lecture entitled "Animal Sculptures in Church Architecture." The author, who is an ardent archaeologist, has made a special study of ecclesiastical grotesque sculptures, such as are generally found on fonts and misereres, and on the soffits and tympanums of Norman arches, and has endeavoured with very good effect to elucidate their meaning and the story they have to tell.

### CATALOGUES AND TRADE NOTICES.

SEASONABLE lists of enlarging apparatus and Christmas card mounts, have been sent us by Messrs. W. Butcher and Sons, Camera House, Farringdon Avenue, E.C., from whom they may be obtained on application by postcard. Messrs. Butcher will supply circular of discounts to bona-fide dealers on application.

**HAUFF PHOTO-HANDBOOK.**—A new edition of the instruction manual for the use of the many Hauff developers has been issued by Messrs. Fuerst Bros., of 17, Philpot Lane, E.C., and will be sent post free on application. Almost all the developing and other chemicals can now be obtained in the convenient "carton" form, but the best formulae for the home preparation of the working solutions are given at some length in the booklet, which also contains particulars of the various brands of Hauff ordinary and orthochromatic plates.

## Commercial & Legal Intelligence.

**ONE MONTH FOR CANVASSING FRAUD.**—In the Stonehaven Sheriff Court last week James Wilson was charged with defrauding a number of farm-servants and others by pretending that he would make them picture postcards at 2s. per dozen, and that on receipt of a deposit, he would send on the photographs by post. The offences were committed in July and August, and the sums received by accused from thirty-one persons ranged from 6d. to 1s. Accused, a man of good appearance, pleaded guilty, and said he was to get a camera, but the man from whom he was to get it said he was doing the work too cheap, and refused to give him the camera. Accused was sentenced to thirty days' imprisonment.

**CANVASSER CHARGED AT BROMLEY.**—At the Bromley Petty Sessions last week Joseph Lemoine (twenty-eight), of 181, Canterbury Road, West Kilburn, was charged with obtaining at Chislehurst sums of money by means of a worthless photographic coupon. Prisoner called called upon a number of domestic servants and represented himself as an agent of a Bond Street firm of photographers who, he said, had opened a shop at Bromley. He was remanded.

### NEW COMPANIES.

**SYNOLOIDS, LTD.**—Registered October 9 by E. B. Gee, 15, Copthall Avenue, E.C. Capital £60,000, in £1 shares. Objects: To adopt an agreement with the S. P. Syndicate, Ltd., to manufacture and deal in the composition known as "Synoloids" and other similar compositions, chemicals, photographic paper, and photographic and scientific appliances. The signatories are:—S. O. Fairn, 85, Grace-



urch Street, E.C., 1 share; L. Lambert, Petworth, Dingwall Road, Croydon, 1 share; S. H. Lee, 85, Gracechurch Street, E.C., 1 share; G. London, Shakespeare House, Lakeside Road, Palmer's Green, 1 share; A. B. Larkins, 33, Philbeach Gardens, S.W., 1 share; A. Hinde, 5, Colwell Road, E. Dulwich, S.E., 1 share; W. Lee, Renthall Avenue, Chiswick, W., 1 share. No initial public issue.

## News and Notes.

**FIRE AT A BRADFORD STUDIO.**—A small outbreak of fire took place Sunday night at the lock-up shop of Mr. Allan Whiteley, photographer, 34, Heaton Road.

**THE R.P.S. DINNER.**—Members are reminded of the date of the Royal Photographic Society's dinner, namely Wednesday next, October 30.

**THE "ENSIGN" ROLL-FILM MONTHLY COMPETITION.**—In the roller competition the three-guinea camera was awarded to Mr. S. Pasco, of 77, Leopold Buildings, Columbia Road, N.E., and several supplementary money prizes to other competitors.

**THE COLOUR OF DYE SOLUTIONS.**—Mr. S. E. Sheppard writes to "Nature":—"It is generally accepted that the colour of dye solutions depends upon the chemical structure of the dye, and colour changes usually attributed to some change in constitution; but certain recent investigations on colloidal solutions show that this argument must be accepted with caution. It is well known that colloidal solutions of the metals are highly coloured. Further, it is recognised that many dyes exist in solution in what, for lack of a better term, is called the colloidal state. Some observations of my own point to the following statement as being true for certain dyes:—The absorption spectrum of the dye in solution may be either (a) a characteristic absorption, consisting of one or more narrow bands and depending on the chemical structure of the dye molecule, or (b) a "resonance" spectrum due to colloidal particles, and much more closely connected with chemical constitution. This spectrum is well defined. The detailed experiments which have led to these conclusions will be communicated in a paper shortly to be published. It is of course of two or two is desirable in explanation of the term "resonance" spectrum. By this is denoted the type of absorption exhibited by colloidal metal solutions, glasses, and certain photographically prepared films (F. Kirschner, "Drude's Annalen," 1904, xiii., 239; Kirschner and R. Zsigmondy, *ibid.*, 1904, xv., 573; K. Schaum and Schloemann, "Zeit. wiss. Phot.," 1907, v., 109). It is probable that all absorption is due to resonance, no doubt, and hence the narrow-band type (a), but in this case the resonators would be the molecules or the contained electrons, whereas in case (b) the resonance is due to larger aggregates is the cause of the absorption. The investigation must be continued, but a striking case was found in one of the pinacols, a class of dyes recently introduced as photographic sensitizers. This dye gives in aqueous solution a flattish, ill-defined absorption, the solution showing all the characteristics of a colloidal solution. In alcohol and organic solvents the absorption was of a narrow-band type, entirely different, and this spectrum was also obtained by dissolving the aqueous solution to boiling point. The behaviour was analogous to that of starch, which gives crystalloid solutions on boiling point.

**FIXING.**—Messrs. John J. Griffin and Sons, Ltd., write from Kingsbury, W.C.:—"For some time past we have been enforcing the desirability of using acid fixing bath with our "Velox" paper. It is not generally known that the use of an acid hypo bath for "Velox" paper, or indeed any gaslight paper, is absolutely essential. The worker wishes to keep clear of pitfalls. If a plain hypo bath is used it is almost impossible to prevent stains and blisters, whereas an acid hypo bath properly compounded these would not occur. We believe nine-tenths of the failures with gaslight papers are caused by using an improper fixing bath. For some time past we have been using the ingredients for making this special fixing bath in a tin, and the same at 6d. Lately we have found it desirable to issue this bath under a distinctive name, as many photographers, when asking for an acid hypo, have obtained something else. We have therefore

called our acid-fixing preparation "Acifix." It is made up according to our formula, and will not throw a deposit of sulphur.

**STOLEN APPARATUS.**—The following notice has been issued by the Hove police:—"Stolen in the above borough, on the 8th inst., a No. 4a folding pocket Kodak with Goerz "Dagor" lens, No. 2/212360, by a man giving the name of Walker, aged about 27 years, height 5 feet 11 inches, pale complexion, fair, clean shaven, small scar on bridge of nose, widening of nose just below the eyebrows, partially cutting off the eyes when viewed full face, medium build. Information to Chief Constable, Hove, Sussex.

**CROYDON CAMERA CLUB.**—The ninth annual exhibition will be held in the Art Galleries, Park Lane, Croydon, from November 20 to 27 inclusive. The judges will be Messrs. Furley Lewis, Harold Baker, and B. Gay Wilkinson. In four of the six open classes the awards will be a silver cup, bronze plaque, and hon. mention. In Class D, which is devoted exclusively to colour work, the awards will be a silver plaque and hon. mention; and a bronze plaque is offered in Class F to all amateurs residing in Croydon and district, who are neither past nor present members of any photographic society. A silver gilt plaque will also be awarded to the best picture in the exhibition. Entries close November 6, and entry forms and full particulars may now be obtained from the exhibition secretary, Mr. H. T. Dodsworth, Enmore House, Woodside Green, South Norwood. Exhibits at the Hackney Photographic Society's exhibition may be transferred free of cost to Croydon, if instructions to this effect are given on the entry forms of both societies.

**INSTRUCTION IN THE AUTOCHROME PROCESS.**—The "Amateur Photographer" says of the book of instructions issued by Messrs. Houghtons Limited at 2d.:—"Instructions for the new Autochrome process are now obtainable at the small cost of twopence, in a booklet by two thoroughly competent and successful early workers of the method, Mr. George E. Brown and Mr. C. Welborne Piper. Messrs. Houghtons Limited are agents for the sale of this timely production." "Focus" writes:—"It is a complete manual on the process, giving full and lucid instructions for the manipulation of Autochrome plates, and should prove extremely useful to the many photographers now experimenting in direct colour work. Some useful hints on the prevention of frilling, etc., are included, and the section explaining the influence of over and under-exposure is specially valuable. . . . We would recommend dealers to waste no time, but make prompt application for a supply, as no doubt this little book will be very popular."

**PHOTOGRAPHS BY TELEPHONE.**—Much attention is now paid in Germany (writes the United States Consul at Chemnitz) to the remarkable measure of success which has attended the installation of Professor Korn's invention for the transmission by wire of photographic reproductions over long distances. His latest experiments show that nearly as satisfactory results are secured by making use of ordinary telephone wires as on lines specially constructed for the purpose. The only difficulty encountered on telephone wires results from calls on adjoining wires. These cause the formation of zigzag lines on the reproduced picture at the receiving station; but they are easily corrected by retouching. Alterations in current intensity by ringing on or ringing off, as well as during conversations over adjoining wires, are without effect. It is further shown that the wire employed for photographic reproduction can simultaneously be utilised for telephonic conversation. The first journal to utilise the new invention is the "Copenhagen Daily Politiken," which has ordered a complete installation for telephonic and telephotographic communication with its Berlin offices.

**TRAILL TAYLOR LECTURE.**—The tenth annual memorial lecture was delivered at the New Gallery on Tuesday last, October 22, by Mr. S. D. Chalmers, M.A., head of the optical department of the Northampton Institute. The subject, "Aberrations in Photographic Lenses," was necessarily of a very technical character, but proved exceedingly interesting from the fact of the "aberrations" being treated from an unusual point of view. In the discussion which followed the lecture Messrs. Conrad and Horace Beck took part, and there seemed a general consensus of opinion that the Petzval condition need not necessarily be fulfilled in photographic lenses, though at certain times and under certain conditions it may prove useful. The proceedings closed with a hearty vote of thanks and presentation of the medal to Mr. Chalmers.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE NEW COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—There is one point which has occurred to me in connection with this very ingenious process, and one which I have not seen mentioned in any articles which have been written about it, and that is, whether the colours are all permanent. Presumably Messrs. Lumière have satisfied themselves on this point, because, should it prove otherwise, the pictures would in time present a rather remarkable appearance, and the colours anything but true to nature.

Of course, the process is but a variant on the three-colour process, and possibly the same colours are used to dye the starch grains as are used to dye the gelatine films used for that process. If so, there may not be much doubt, unless it may be that starch acts differently to gelatine.

Some of the results shown at the New Gallery are very good, others distinctly disappointing, and I think all who have seen them will agree that the lighting is far from good. The slides projected by the lantern seem to do justice to this new process, more than the transparencies in the balcony; but, of course, the whole process is at present a novelty to most workers, and no doubt admits of improvement.

Meanwhile, the question of colour permanency may be worth a little discussion, should you consent to allow it to take place in your columns, which have recently devoted space to the question of colour photography.—I am, gentlemen, yours faithfully,

Croydon.

J. H. BALDOCK.

## Answers to Correspondents.

- \*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \*\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \*\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \*\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- H. Owen, The Quarry, Stourbridge, Worcestershire. *Photograph from a Black and White Drawing of the American Clipper Ship "Flying Cloud"*
- Miss E. Dundas, 7, Irving Mansions, Queen's Club Gardens, W. *Photograph of the Rev. F. E. Murphy*
- A. E. T. Jordan, 24, Lavender Hill, London, S.W. *Photograph of the Interior of St. Philip's Church, Queen's Road, Battersea.*
- W. Harrison, The Studio, Skipton Road, Barnoldswick. *Photograph of the Barnoldswick Prize Brass Band and Band Officials.*
- J. Hodgson, 158, South Parade, Cleckheaton, Yorks. *Two Photographs of the Conductor's Funeral, Pynest Tram Smash.*
- Miss M. Wright, 75, Albert Road, Middlesbrough. *Photograph (Flashlight) of the Middlesbrough Amateur Operatic Society in "The Mikado."*

COOPER-HEWITT LAMPS.—Could you obtain for me the address of the makers or agents of the Cooper-Hewitt mercury vapour electric lamp, as used by "Daily Mirror" to photograph French Municipal councillors at dinner?—T. J. BENNETT.

The lamps are made by the Cooper-Hewitt Co., of New York, and sold in this country by the Westinghouse Co., Norfolk Street, Strand, W.C., who are agents of the manufacturers.

A READER.—We believe quick production, such as you allude to, has been done several times. If you could cite the issue containing our report we could perhaps give you particulars.

COPYRIGHT.—Could you advise me what to do in this case? I to Halifax and took a photograph of the funeral of the conductor who was killed in the tram accident. A local stationer from Halifax called on me the same day and wished to buy a print for reproduction in penny cards. I refused to him one, and also told him I was getting a print ready to right the same. I supplied a shop in Halifax with 40 postcards. The stationer above referred to bought six of man, and the same night was offering penny ones for sale of photographic postcards. What can I do? Can I stop him and have I good case for claiming damages? He was told was doing wrong, but he says he has bought the card and a right to do what he likes with it. I may say I do a large in photographic postcards, and this copying business is becoming rather common, and I wish to stop it, and I should like to an example of some one.—J. HODGSON.

Your remedy is quite simple. Register the copyright of subject before issuing it. In the present instance you could do anything in respect of copies issued before your registration of the copyright.

W. E. DAW.—1. A thin coat of pure asphalt varnish would probably remedy matters. 2. The second of the cameras is the one I should prefer, particularly the higher priced patterns. It is essentially a question of cost.

J. A. JAMES.—A lamp in which a powder can be burnt in a space will be better than any other form of light as regards smoke. We expect the audience will have to put up with smoke, however. Your best course is to use a good powder, as the Agfa, and lay a train of it in a long narrow tray. It is impossible to say what your exposure will be; it depends largely on the colour of the walls.

F. C. T.—A strong pure paste, such as Vanguard Fixit, will answer quite well, as will also a thick shellac solution. There is no means of applying it to the back only except by exercising care.

S. B. T.—The sample you send is an ordinary lithographic transfer. Litho-transfer paper is bought, sensitised with bichromate then printed underneath a negative, which has previously been made to the correct size from the drawing it is required to reproduce. It is then rolled up and developed, and is then ready for the lithographic printer. Nothing can be more simple. This looks a somewhat unusual kind of lithographic transfer paper, or has had an unusual amount of rubbing, or hot water because the gelatine has almost disappeared, but anyhow, it at one time had a gelatine surface. All sorts of gelatine-faced papers are used in the same way, as, for example, type temporary support. If you want something unusual in way of transfer papers, you will have to experiment for yourself. We should advise you to study Fritz's "Photo-Lithography."

STUDIO.—We believe you will be liable for the rates from the commencement of your tenancy. The fact that you pay no rent has nothing to do with the municipality.

R. P. S.—The following and closing lecture will be delivered at the New Gallery, Saturday, October 26, "The Beauties of the High Alps," by Louis J. Steele, M.I.E.E., member of the Alpine Club.

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## SUMMARY.

The exhibition of portraiture by artificial light opens this day at the house of the "B.J.," and remains open until November 30.

Review of the exhibition, pointing out the results accomplished by the various systems, "Westminster" enclosed arc, mercury-vapour, "Morgan," "Adamson," etc., appears on page 824.

An account of some further tests of the "Jupiter" arc lamp appears on page 825.

The first chapter of a series of abstracts of recent papers on artificial lighting, by Baron von Hübl, will be found on page 826.

"Photograms of the Year," just published, will be found an admirably illustrated survey of recent pictorial work in photography. Our review of its illustrative and literary contents appears on page 831.

Silver phosphate emulsion, a process of screen-plate photography, and a three-colour camera, are among the patents of the week. (P. 829.)

Autochrome flower studies.—A note on the æsthetic side of this variation of the Autochrome plate appears on page 822.

The will of the late Mr. A. L. Henderson is quoted on page 835.

Mr. A. Lockett makes a suggestion as to stereoscopic effects in artificial illumination. (P. 828.)

## "COLOUR PHOTOGRAPHY" SUPPLEMENT.

Replicates of Autochromes.—Mr. C. Welborne Piper records the results of experiments in making contact and reduction copies of Autochrome negatives and positives. (P. 81.)

Mr. Alfred Watkins shows that a panchromatic meter paper is likely to prove a more reliable guide to the exposure of Autochromes than the present three-speed method. (P. 82.)

Auto-micrographs of the Warner-Powrie screen-plate have been made by Mr. Martin Duncan. (P. 83.)

Apparatus makers have been active in offering accessories for use with the Autochrome plates. Three patterns of whirler and a developing dish to prevent frilling are reviewed on page 85.

A chemical-toning method for making three-colour transparencies is recommended by a German worker. (P. 84.)

## EX CATHEDRA.

### The Artificial Light Exhibition.

We hope that of the many professional readers who address us on the use of artificial light for portraiture, all those who can do so will take the opportunity of seeing the 130 examples now collected at the house of the "B.J.," and to be seen by every visitor. We notice the exhibition at some length this week, and we shall, within the next week or two, give special attention to the present systems of artificial lighting in the shape of articles on the use of enclosed arc lamps, the mercury-vapour light, and on the general principles which underlie artificial illumination. The exhibition remains open until November 30.

\* \* \*

### Testing Lenses.

Mr. Chalmers, in his Traill-Taylor Memorial lecture, expressed the opinion that a lens should be considered quite satisfactorily corrected if it represented a true point of light by a disc or patch not exceeding one-thousandth of an inch in diameter in the centre of the plate, or by one four times as large at the margins of the plate. Of course, the marginal definition can never be so perfect as that in the centre, and an allowance must always be made for this. Many inexperienced people, however, are not aware of this fact, and they are very apt to unjustly condemn a lens that they have submitted to a test that is really somewhat too critical for their comprehension. If an artificial "star" is made by placing a very strong light behind a very small pin-hole, and this is used as a test object, many lenses of really fine quality will appear to the inexperienced to be behaving very badly near the margins of the plate. With such a test it is easy to detect obvious traces of astigmatism and coma, even in a very good lens, but it is also easy to forget that these appearances may be of no consequence. Very much depends on the distribution of the light in the patch observed. If there is a very small disc or patch that is brilliantly illuminated, and a coma wing that is very faintly illuminated, the lens may still behave very well indeed in practice, for though the wing may be visible in the circumstances of the test, it does not follow that it will affect the plate. Indeed, it is often an extremely difficult thing to secure a photographic impression of it at all under the best experimental conditions. In practical testing, a good deal of judgment has to be exercised in discriminating between appearances that are important and those that are of no possible consequence. Hence the casual purchaser of a lens is well advised if he confines his own experimental tests to actual exposures in the camera in the conditions under which he will generally use the lens. If he endeavours to apply more scientific tests hurriedly picked up out of text books, he will probably misjudge the lens altogether.

### Flower Studies in Colour.

The Autochrome plate has tempted many photographers to produce flower studies of a kind that show they have hitherto given little attention to still-life work. Of course, the fact that the process is so new may have impelled them to give more attention to the properties of the plate than to the arrangement of their subjects, for many of the results are excellent advertisements for the plate, though very few are good flower studies. Still, it is rather noticeable that workers who show plenty of restraint, and evidently appreciate the value of simplicity in their monochrome work, should yield to the temptation to revel in gorgeous colour contrasts and over-complex detail in their Autochromes. Enough experience has been gained with the Lumière plate to show that it offers opportunities to the flower photographer that are unique and of great value, if only he will give his attention to and concentrate his energy upon the flowers. In many of the studies that have been on view, the flowers are spoilt by the juxtaposition of drapery, old china, and varied bric-a-brac that is only detrimental to the effect. Metal bowls, china vases, elaborate tablecloths, and hanging drapery are not wanted. In colour they are even more obtrusive than in monochrome, and in many cases the attempt to preserve their true colours has caused the correct rendering of the flower tints to be neglected. While the Autochrome process seems to be far ahead of other colour processes in the literal truth of the colour rendering, yet it is hardly quite perfect in this respect, and in a long scale of very varied colours some are not represented quite so accurately as the others. Some seem to require more intensification than the rest, therefore the truest general effect is obtained when the range of colour is not too varied. In a flower study the whole interest is naturally concentrated in the flower, and a true rendering of it is of the first importance. In many cases, however, it is obvious that the photographer has refrained from intensifying his flowers up to a sufficiently rich tint, for fear of over-intensifying sundry gorgeous accessories that would have been better left out of the subject altogether.

### Intensity of Diffused Daylight.

Professor Olin Basquin, of Chicago, has been measuring the intensity of diffused daylight received from the zenith at different seasons and times. We have not seen any description of this method of measurement, so cannot say whether he measured it photometrically or not; but, in any case,

it would seem that the results should have some bearing on the question of exposure with photographic plates. He found that the average intensity of the light during November, December, January, and February is only one-quarter that of June, July, August, and September. Averages are very deceptive, but it is interesting to compare this one with the relative values for diffused daylight in December and June according to Welcomme's Experimental Record. This ratio is one-third. As regards the variations at different times of the day, Prof. Basquin found that the average light at 9 a.m. was two-thirds as great as at midday, while at 4 p.m. it was but one-quarter. The ratio is therefore 8 to 3 at 9 a.m. and 4 p.m., which is a considerably greater difference than that allowed for in Welcomme's tables. The variations found by Prof. Basquin are therefore all greater than those allowed for in the tables, which is a somewhat curious result. The measurements are visual ones. If they are photometric the differences are too great to be satisfactory, for it is well known that the relative light values given in the tables are fairly accurate guides in matters of exposure. Probably the discrepancies are due to the method of taking averages, which cannot possibly give any useful information for photographic purposes, and is not likely to be of any use for any others. For the middle half of the year the ratio of the intensity at 9 a.m. and 4 p.m. are fairly constant, varying only from 3:2 to 4:3. For the rest of the year they are very variable, ranging from 2:1 to almost any conceivable ratio. The average for the whole year is therefore a very misleading quantity.

### View Meters.

It is a little astonishing that so many outdoor workers make no use of the view meter, seeing its great convenience. In conversation with several amateurs lately on the subject we learned that some of them did not even know of the existence of such an instrument. Probably, if they did they would not use it without one. In principle it is a reversed Galilean telescope on a small scale. An ordinary opera-glass is really a Galilean telescope, and is quite familiar to every one. In that the large, or field-glass, is a positive lens, the small, or eye piece, is a negative one. If we look through a reversed way through an opera-glass we see the scene a diminutive scale, and at an apparent long distance. Now in the view meter the field-glass is the negative and the eye one the positive. These are mounted in a tube sliding in another, which is fitted with a diaphragm.

## THE BRITISH JOURNAL OF PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL OF PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

Among other alterations and improvements which have been made in the forthcoming volume, the publishers beg to announce that:—

All three indexes (text, advertisement, and trade addresses) will be found AT THE END OF THE VOLUME.

The size of the volume has been appreciably reduced, without sacrificing the value and scope of the contents.

The editorial article will deal very completely with the important subject of—

SCREEN-PLATE THREE-COLOUR PROCESSES, and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The 1908 ALMANAC will contain as frontispiece a colour print by the Autotype Co., dry-mounted by the Adhesive Dry Mounting Co., Ltd. Amongst other attractive features it will be found a specimen of three-colour printing by Sanger-Shepherd Colour Printing Co. and examples of three-colour work of Hood and Co., Ltd., Middlesbrough.

Our publishers desire us again to caution our readers against postponing the booking of their copies of the ALMANAC.

### PUBLISHERS' NOTICE.

The publishers beg to inform agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.



shape of which corresponds with that of the plates employed. On looking through it the view is seen through a diaphragm, and by drawing out the tube the angle is more or less curtailed. The sliding tube has marks on it which show what amount of subject will be included on the plate by a lens of any given focus. Say, for example, we are using a half-plate camera with an eight-inch focus lens, if we draw out the tube to the mark for eight inches, we then see at a glance what will be included in the negative. Other marks will show what we shall get with lenses of longer or shorter focus as the case may be. In this simple instrument we see directly how the picture composes, and by viewing the scene through it at different points we can tell where the camera should be placed to get what we desire, and what focus lens should be used. Thus we can avoid repeated shiftings and refittings of the camera, and also dispense with trials of different lenses one after the other.

### PREPARATIONS FOR THE WINTER.

At the eve of winter the question naturally arises as to what there are not a number of preparations for the winter season which are best made before its more immediate approach. One of the first things which should be seen to is the roof of the studio. It may or may not be in a thoroughly watertight state; if it is not, it is better to carry the repairs while the conditions are favourable. Nothing much more annoying than to find that the rain has had its way through the roof and dropped on to some lovely accessory, or perhaps ruined a good background. Annoyance is not tempered by the knowledge that the trouble might have been avoided had a coat or two of paint and a little putty been applied to the outside of the studio beforehand. The photographer will be wise now to examine thoroughly the outside of the studio, and if they show signs of cracking away from the sashbars to see it hacked out and fresh applied after a coat of paint has been laid on the bare parts. If this is done a subsequent couple of coats of paint will make the roof safe against rain. It is well, while this work is in hand, to keep in mind that melting snow will often find its way through where rain will not. If the weather will permit of the old putty being removed and the work done afresh, the next best thing, perhaps, is to paint over the sashbars and old putty carefully with gas tar, to which a little tallow has been added. This is very repellent of water, and enters well into the cracks. It should be applied as hot as possible, as it is then very fluid and penetrating. While this work is being done the outside of the glass should be cleaned, for, in large towns especially, it is often coated with a very non-actinic film that cuts out a deal of light which cannot well be afforded during the winter months.

Another important matter for consideration is the warming of the studio and dark rooms. Undoubtedly hot water is the most cleanly, and in the end the most economical source of heat, since one fire will do for the whole series of rooms. Furthermore, by regulating the temperature of the furnace the fire can be kept continually burning with a small consumption of fuel, so that the place can be kept at a genial temperature through the night for the next morning. On the other hand, if the fire is not kept in all the time it must be lighted an hour or two before the heat is required, as the water takes a long time to circulate through the pipes. Also, during a hard frost, it is necessary that the fire must be kept alight; otherwise there is the danger of the water freezing in the pipes.

Gas as a source of heat is very cleanly, and at the same

time very convenient; but it is by no means economical unless one is content to have the products of combustion in the studio, and they are by no means either pleasant or healthy if inhaled for any length of time. If a flue is provided to draw them off much of the heat is carried away with them. The most economical stove, if one does not mind the fumes in the place, is, probably, what is known as the "Chancel," made by Fletcher and Co. at a very moderate price. It lies flat on the floor, and gives off a good heat. As the laps of the glass in most studios are generally open, the fumes can escape between them, so that they are not so very unpleasant. If a tray of water is placed underneath or beside the stove much of them are absorbed by it.

Closed and semi-closed stoves of the slow combustion type are, perhaps, the most generally used in studios, and, on the whole, are probably the best. They give out a good heat, require but little attention, and are very economical in use. Charged with fuel in the morning they will last the day through, and if again charged at night and the dampers regulated they will keep alight throughout the night. If the fire is made up on Saturday night even, and the dampers nearly closed, it will last till Monday with but a small consumption of fuel. These stoves are suitable for coke or coal, or a mixture of the two. A drawback to some of them is that the fuel is consumed to a very fine ash, and a good deal of dust is created when it is raked out, unless that is carefully done. Heating apparatus of this type is very moderate in price. A plain stove, sufficient to heat a good-sized studio, say, about 25 ft. by 12 ft., costs only about five-and-twenty shillings. More ornamental ones, of course, cost more. Messrs. Smith and Wellstood, Ludgate Circus, have a great variety, some of which are very ornamental, yet not at all costly. It goes without saying that all these stoves require a flue-pipe, and if there is not a chimney near into which it can be connected the pipe must be carried through the roof of the studio. When that is done it is advantageous to have the pipe as long as it can conveniently be, say, by carrying it up at a slant instead of vertically, as then most of the heat passing up it will be radiated in the room. In connection with pipe stoves, it should be mentioned that the insurance companies do not look upon them with any great favour, and therefore one should not be installed without notice being given to the company, or the policy may be invalidated.

Another matter for consideration is the warming of the dark room, for if that is cold things do not work well. There will be a difficulty in getting full detail in the shadows and density in the negatives if the temperature is much below 60 degrees. The indoor temperature should be 65 deg., or 70 deg. is better in cold weather. A small Bunsen gas stove near the floor will keep the room and its contents at a comfortable heat; but if this method of warming be adopted, the stock of plates and paper should not be kept in the room, or they may suffer from the fumes given off. In place of gas, a paraffin stove may be used. If it be kept clean and the wick rightly trimmed no unpleasant fumes need be given off; yet in the event of the stove burning badly the fumes from it are not likely to be injurious to either plates or papers. An ordinary paraffin lamp, with a three-quarter or one inch wick, if left burning all night in a small dark room, with the door shut, will keep it, the dishes, and solution at a working temperature. It is always better that the developing dishes and the different solutions be kept constantly at a proper temperature than to have to warm them up every time they are required for use. When the latter plan is adopted it not infrequently happens that an error is made in the opposite direction.

## THE EXHIBITION OF PORTRAITURE BY ARTIFICIAL LIGHT.

THE collection of work gathered together in the little gallery at the offices of "The British Journal of Photography" illustrates very comprehensively the various aspects of artificial light portraiture. To mention the systems of lighting represented would involve a list of considerable dimensions, for several lamps are used in various ways, for example, with direct light, or with reflected light only. The examples are produced with magnesium flash, open arc, enclosed arc by various makers, Morgan filtered light, Adamson super-incandescent, and the mercury-vapour lamps, and the educational value of the exhibition has been rendered much greater by indicating in the catalogue the system and method of using it which has been employed in each case. One is first of all impressed afresh with the fact that, after all—as, of course, every one would expect—much more depends on the man than on the lamp. Where one is familiar with the daylight productions of any of the workers, the same characteristics are to be seen in these artificial light examples, a pretty clear indication that the distribution of the light is under control and that matters are bent to the worker's will. Ten years ago such a collection, gathered from so large an area, would have included examples showing harsh lighting and heavy shadows. The prints before us, with scarcely an exception, show neither the one nor the other defect. Not only have the mechanics of the use of artificial lighting methods been mastered, but the tools are sufficiently under control in most cases to admit of the production of artistic effects of light and shade.

The Schroeder flashlight apparatus is represented by some fine examples from Herr R. Dührkoop, of Hamburg. The negatives might be regarded by a technician as tending to under-exposure, but so cleverly is the arrangement of lights and darks managed that the effect is one of great richness and strength. The shadows are exposed enough to avoid large masses of even tone, and, as the area of shadow is large in each case, the gradation present is amply sufficient to produce transparency. No. 105, "Duft," is a novel portrait of a girl, apparently an excellent likeness, yet interesting apart from any question of acquaintance with the sitter. A number of other examples by able Continental workers are also produced with the Schroeder magnesium flash lamp.

The well-known Todd-Forret magnesium flash, which hails from north of the Tweed, is appropriately represented by a specimen by John Moffat, of Edinburgh. This is a large stage group of a couple of dozen figures, in which there is perhaps some heaviness of the flesh tones, suggesting a tendency to under-exposure.

Other examples by John Moffat are studio portraits by the Adamson super-incandescent lamp, and some fine work, particularly a delicate and vivacious child study, from Medrington's, of Manchester, is also taken under this lamp.

The mercury-vapour, as one of the later comers, holds its own well. Some of the work is done by the Cooper-Hewitt, and some by the lamp made by Schott, of Jena, and for which Mr. A. W. Isenthal is the British representative. J. Mallia, of Oxford Street, W., shows three large specimens of feminine portraiture, which are undeniably effective, even if rather too dramatic for ordinary private portraiture. The specimens by C. David Kay, formerly at the Regent Street Polytechnic School of Photography, and now head operator in a Dublin studio, show that with the mercury lamp it is possible to secure great delicacy of modelling and excellent rendering of draperies. George R. Henderson, of Hebburn-on-Tyne, has one or two mercury lamp portraits of such well-known men as Pete Curran,

M.P., and "Sub Rosa," in which last the flesh modelling rendering is excellent. The Dover Street Studios and Adolphe Langfier, of Wigmore Street, W., exhibit work which shows that the lamp is as suitable for strong effects on the hand as for delicate child studies on the other.

Quite a little crowd of workers use enclosed arcs, either supplied by the Westminster Engineering Company or Jandus lamp. Much has been done by the use of this for popularising it for portrait work, and Mr. David Kay's special show what may be accomplished by a student, presumably learning the use of an artificial light installation. The portraits of Mr. C. H. Hewitt, of the Polytechnic School, should be noted for the delicate rendering of fleecy drapery, which looks though a puff of wind would stir it. The tonal relation of flesh, and drapery is also very pleasing. Mr. J. C. Leon has an excellent set of portraits produced with reflected light while some very fine pictures by Scott's Studios, Ltd., of Regent Park, N.W., are done with the Morgan system with additional Westminster enclosed arcs. Mr. W. H. Baylis, of Eccles, David Kay both show some large work taken direct, the latter portrait of S. G. Kimber, Esq., F.R.P.S., being a characteristically good likeness. Andrew W. Dron, of Brondesbury, uses the Westminster Arc with reflected light only, and with both reflected and direct light, and his results amply justify either method of arrangement, while the admirable work by H. Edmonds, Ltd., of Holland Park Avenue, W., done with Westminster Arcs arranged on the artist's own system, are sufficient to convince Mr. Hull an authority on the question of installations. Pictures by Short and Wood, of Ramsgate, and by J. J. Webb of Bradford, with Westminster and Jandus enclosed arcs respectively, are good commercial work.

The Boardman system of open arc is represented by an extensive display of work from the well-known studios of A. Ellis and Walery, of Baker Street. If it is remarked that the pictures are indistinguishable from the best daylight productions of the studio from which they emanate nothing further is necessary as an indication of their quality. The Elite Portrait Company, of High Holborn, show a couple of specimens of work with the same type of lamp, the portrait of The Hon. Bruneau being noteworthy on account of the very effective concentration of light near and on the head. Polsky Brothers, Whitechapel, exhibit a couple of effective costume portraits which are straightforward commercial work.

The specimens of work done with the filtered arc are light on Morgan patent system are by Morgan's Aberdeen studios, amply demonstrate the excellence of the method.

Work by Turner and Drinkwater, of Hull, and by Speake Ltd., of Bond Street, W., by arc lamps, particulars as to maker or arrangement not being given, are in both cases what we should expect to see from the workers who have produced them. Beautiful technique showing a complete mastery of the manipulative details, the sympathetic handling of the subjects bespeaking the feeling of the photographer, and the general arrangement of line and massing of lights and shades indicative of artistic training and temperament.

Some examples of work done with the latest claimant for popular favour, the Jupiter flash electric lamp, are also exhibited, being produced by various Continental workers.

The collection as a whole is one which every worker using artificial light or contemplating its installation should make effort to see and carefully study. The exhibition opens to-day, November 1, and will remain open daily from 10.30 till 4.30 to the end of the month.



## SOME NOTES ON THE JUPITER ARC LAMP.

THE German arc lamp which is being placed on the British market by Messrs. J. J. Griffin and Son, of Kingsway, presents many interesting features, and the present moment, when the exhibition of artificial light portraiture at the "B.J." "little galleries" is just opened, is a very opportune one for calling attention to its novel points, and the advantages which may accrue from its use.

The lamp differs from ordinary arcs in that it is a flash lamp (not to be confused with the magnesium flash). The carbons are rapidly separated at the instant the current is allowed to pass through them. The mechanism by which this is effected is ingenious and yet simple, and it is possibly more interesting to an electrician than to the photographer, who will wish to be acquainted with the photographic capabilities of the instrument. Suffice it, then, to say that the light is of extreme actinic power while the duration of the flash is estimated by the makers at 1-40th of a second. Most readers will be familiar with the flash which frequently illuminates the tunnels of the underground electric railways, or the flash from overhead wires of electric tramway systems when there is a break in the contact for a fractional part of a second. This is very similar to that intentionally produced by the "Jupiter" lamp. The intense actinic power, coupled with the extremely short duration of the flash, gives the studio worker certain advantages with naturally some slight compensating disadvantages, and to summarise these is the purpose of the present article.

### The Boon of Rapid Exposure.

Any studio portraitist who sets naturalness before conventionality, and who is anxious to break away from the stiff and "posed" portrait traditions, will welcome a method of work which should enable him to chat with his sitter over a few curios, a portfolio of etchings, or any other object of interest, and to make his instantaneous exposures at those moments when there is a happy combination of pleasing expression and satisfactory line. How often these occur for a fraction of time, to disappear the instant the photographer endeavours to take a cessation of movement for his exposure, none know so well as the experienced studio portraitist. With a suitably constructed reflex camera, too, on a very rigid stand, children's portraits may be done whenever a suitable pose or grouping presents itself, raising the mirror and instantly giving the flash for the exposure. In this way the picture may be kept in focus up to the moment of an exposure, which is too brief to show any average movement. It will, of course, be readily understood that the sitter must not be allowed to move too far away from the lamp, or there will be some likelihood of the shadows being under-exposed and heavy, but it is fairly easy to control the movements of a child at play, so that the variations in position shall not be more than a distance of three feet from any determined spot, and the light is sufficiently powerful to allow of as much variation as this.

The question will occur to the experienced portraitist, is a very rapid exposure suitable for securing either pose or expression? The snapshot not infrequently shows us the well-known effect of a man tripping across the street, and if this is so with often the exposure of 20th second, what kind of attitude may we expect with 1-40th sec.? It is, in the first place, not very likely that the movements of the sitter will be so violent as those of a man walking quickly even, and in any circumstances where high-class work is being produced, there are a number of throw-outs, it will not be surprising if a new method of procedure also has its rejected negatives. In regard to expression there may be rather more difficulty, for the best likenesses are often those in which a fairly full exposure gives a blend of

expressions. A very rapid exposure often tends to give one phase of the features only, and as this will occur with those subjects who are most vivacious, and whose charm we recognise, subconsciously, as consisting largely in their constantly changing aspects, the flash portrait may fail to please us. This, however, is theory merely, and we all know how often practical experience runs counter to theory, so that before any definite opinion can be formed, a large number of these flash portraits must be taken, and the views of qualified critics obtained on them.

### Some Tests of the Jupiter Lamp.

In some tests recently made one point of special interest cropped up. Some exposures showed the eyelids down, and as the flash is so rapid it was scarcely probable that the eyes had closed because of the flash. With a flash of longer duration this might occur. The explanation given by an experienced worker who was present, and one which is most likely the correct one, is that a blinking of the eyes had been photographed actually in progress. Persistence of vision is usually given as being the sixth of a second, and as we are not conscious when looking at anything of the occasional blinking of our eyes, the blink is less than this. About a twenty-fifth of a second is perhaps the approximate duration of a wink, and assuming that this is so, it would be possible to photograph the sitter while the eyelid was down over the eye if the blinking of the eyes and the flash of the lamp synchronised. This is an important point, and the operator must be an observant man, and must make his exposure immediately after he has observed the eyes blink.

The lamp is a convenient one to handle, and is well designed from a mechanical point of view. The arc is placed in a shallow basin shaped reflector, the direct light being diffused by means of a frosted glass shade. Round the reflector are placed eight ordinary incandescent electric lamps for general illumination and focussing purposes, and these give a comfortable light for working by. In front of the light is a large frame on castors, covered with butter muslin, and this gives a large area of diffused light, and consequently a soft and delicate illumination of the head and figure. Naturally a good sized reflector is needed for the proper lighting of the shadow side of the head.

For large groups where a little extra illumination may sometimes be requisite, the lamp may be used as an ordinary arc, and an exposure of, perhaps, a couple of seconds given, this being finished up with the usual flash to complete the exposure.

The basin shaped reflector carrying the arc may be raised or lowered on the metal stand by means of a little winch handle, and the inclination or tilt of the lamp is altered by a flexible connection from a small handle to an endless screw. The whole stand is very rigid without being unnecessarily heavy, the upright support being stayed to the base on castors by means of three chains, which are made taut by a novel method. As at present made, the lamp is flashed by means of a pneumatic release, another one being used for the shutter on the lens, but an obvious gain would result if one pressure on one ball only were to both release the shutter and produce the flash. Perfect synchronisation should result, and the shutter would not be likely to remain open long enough for lighting from the focus lamps on the sitter to impress the plate.

It only remains to add that the exposures made with the lamp on plates of about 200 H. and D., a quite ordinary speed for everyday studio work, were developed in a standard metal hydroquinone developer, and came up quite like normal daylight exposures.

"THE BOOK OF THE LANTERN."—A most exhaustive catalogue of lanterns, cinematographs, and accessory apparatus has been issued under this title by the Service Company, of 292 and 293, High Holborn. The volume runs to close on 200 pages, and is very fully illustrated. Its postage must amount to pretty nearly the sixpence for which the Service Company will send it, to say nothing of the cost of production. No user of lantern or cinematograph apparatus, we would say, can afford to be without such a comprehensive list. The price of the catalogue will be deducted from the amount of the first purchase.

CANVASSERS' METHODS.—A writer to the "Glasgow Evening Times," after uttering a warning as to the fraudulent nature of the "free enlargement" business, goes on to say, "About three months ago one of these gentlemen walked into my house and coolly took a photograph out of its frame and quite as coolly put it in his pocket, notwithstanding the protestations of an old woman who was the only occupant of the house at the time, and who was unable to prevent him. Since then I have called at their place of business several times to try to recover the photograph, but without avail. In fact, I got a great deal of insolence, and was not very politely shown to the door."

## ARTIFICIAL LIGHTS IN PHOTOGRAPHY.

(An abstract of recently published Papers by Baron von Hübl.)

THE first application of the electric light to photographic purposes was probably the experiments of Silliman and Goode in 1840<sup>1</sup>, when they photographed a medallion on a daguerreotype plate, but the first portrait was probably taken by Aubree, Millet, and Leborgne.<sup>2</sup> After this date numerous applications of the light were made, but it has only been within the last few years, since the great advance in photo-mechanical work, that its use has become general, and not only for illuminating the subject to be copied, but also for printing; Bedford<sup>3</sup> was apparently the first to use it for printing purposes.

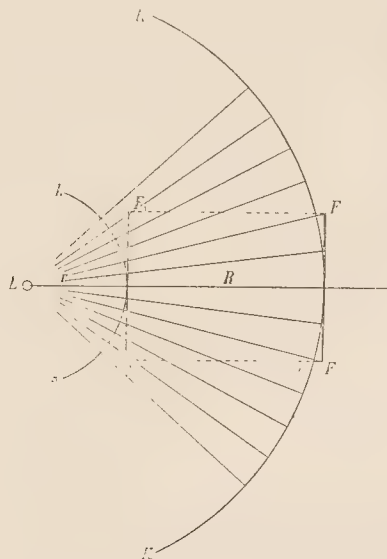


FIG. 1.

It is quite unnecessary to trace its development, except to recall the advances in the shape of the enclosed arc (1895<sup>4</sup>), and the flame carbons, which are of much more recent date.

The following notes upon this subject are abstracted, with additions, from a series of articles by Baron von Hübl, in "Das Atelier des Photographen," and it is proposed to deal with the various appli-

I.

The first point to consider is the distribution of the light, in terms of its visual or chemical properties, and whilst we assume the light source to be a point it is not theoretically so; but for all practical purposes and when compared to the broad extent of a studio or daylight, we may assume that it is a point. The disadvantage of our point as a light source is that the distribution of the light is practically confined to a circle or a series of concentric circles, as shown in Fig. 1, in which  $L$  is the source of light, and  $k$  the inner circle and  $K$  an outer one, this being less illuminant naturally than the inner, and in proportion to their extent of surface. The surfaces of two spheres or circles, being as the square of their diameters,  $K$  is practically nine times less brilliantly illuminated than  $k$ .

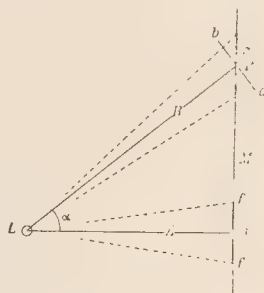


Fig 2

When we come to deal with plane surfaces, as we do in photography and printing, the above law does not hold good. As will be seen by reference to Fig. 1, that at  $F$ , a plane surface is illuminated by  $4 \times 4 = 16$  beams, whilst if the distance is reduced one-third and the plane placed at  $F^1$ , it will be illuminated by  $10 \times 10 = 100$  beams; therefore the ratio is practically as 1:6 in the case of the circle. It is obvious, too, from a consideration of the figure that the decrease in illumination is greater towards the margins, as here the beams of light are spread out, and strike the plane at a greater angle.

In printing we have always to deal with extended surfaces, and therefore of interest to study briefly the law governing the distribution of the light over such surfaces.

Let  $L$ , Fig. 2, be the luminous point, from which proceed the directions rays of the intensity  $I$ , and let the plane surface

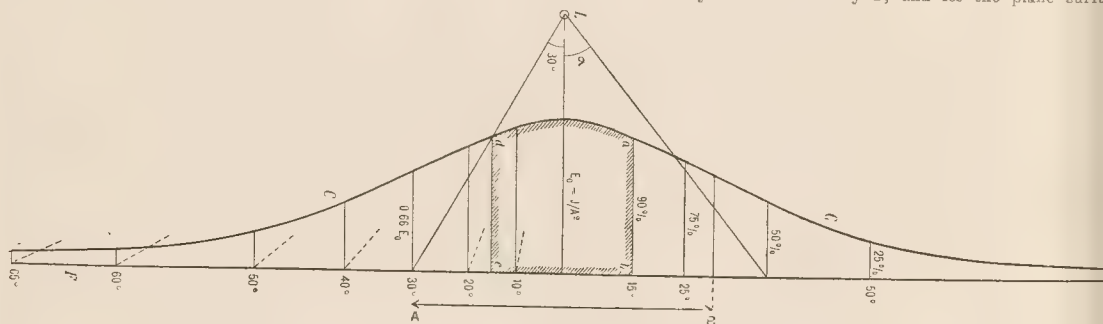


Fig. 3.

cations, the advantages and disadvantages of the electric light, and mainly the arc, and the mercury-vapour lamp.

In dealing with this subject it is essential to differentiate sharply between visual luminosity and chemical luminosity, between the use of the light for photographing and for printing, and the reproduction of black and white and coloured objects.

<sup>1</sup> "Daguerrian Journ.," 1851, pp. 139, 334.

<sup>2</sup> "Daguerrian Journ.," 1852, p. 57. "Comptes Rendus," Vol. 33, p. 501.

<sup>3</sup> "Photo. News, 1861," p. 279.

placed at a distance  $A$  from the light source, then the point which the rays fall upright, will be illuminated with the intensity

$$E_0 = \frac{I}{A^2}, \text{ and for an object at } P \text{ at a distance } R \text{ the illumination is } E = \frac{I}{R^2}.$$

The angle  $\alpha$ , which  $P$  forms with the normal to the plane, is called the "angle of radiation," and is  $R \cos \alpha = A$  or  $R = \frac{A}{\cos \alpha}$ .



therefore the illumination of a plane placed at an angle to the normal is  $E_0 \cos^3 \alpha$ .

But this only applies when the surface  $f$  is at right angles to the incident rays, and has the position  $a$   $b$ ; but it is inclined to these at an angle  $\alpha$ , so that the beam of light is spread over a greater surface, and the illumination decreases in inverse ratio to the enlargement of the surface. The illumination of the plane  $f$  is therefore

$$\frac{E}{e} = \frac{I}{A^2} \cos^3 \alpha.$$

From these considerations it is obvious that the intensity of illumination is greatest in an upright direction from the light source, and decreases towards the edges in concentric circles, and in the ratio of the third power of the angle of radiation.

If the illumination  $E_0$  in the middle is taken as unity, that for all points at an angle  $\alpha$  (that is, all points on a circle the radius of which is  $M = A \tan \alpha$ ) is  $e = \cos^3 \alpha$ .

The values of the cosines and tangents can be easily found by reference to any collection of mathematical tables.

Practically when printing a negative, 20 x 20 inches square, at a distance of 20 inches from the light-source, the margins receive 75 per cent. and the extreme edges only 55 per cent. of the light that falls upon the middle. This point is rendered much clearer when the intensities are graphically represented. In Fig. 3 let  $L$  be a source of light placed at a distance  $A$  in front of the plane  $F$ . The

incident rays illuminate  $O$  with the intensity of  $E_0 = \frac{I}{A^2}$ , and

each point of the plane illuminated by rays at 10, 20, 30, etc., degrees, will from the above calculation be illuminated in an intensity of 0.94, 0.83, 0.66  $E_0$ , etc. If these values are drawn at right angles to the plane  $F$ , we shall obtain a curve  $C$ , which is called the "curve of illumination."

From a consideration of this figure it is very clear that the illumination of a printing frame decreases very rapidly with increasing "radiation angle," and if a difference of illumination, amounting to 10 per cent. between the centre and margin, is the maximum allowable, the printing frame must lie within a light cone of about 30 degrees. In printing from half-tone negatives these conditions must be fairly closely adhered to, that is to say, the distance of the light source must be about double the length of the frame. This is obviously a very extravagant use of the light, for the whole of the light incident on  $F$  is represented by the surface of the "illumination curve"  $C$ , and for printing the negative only the fraction  $a$ ,  $b$ ,  $c$ ,  $d$  is used. The light emitted from  $L$  can illuminate a hollow sphere of 34 inches radius, that is, can illuminate a surface of nearly 8 square yards as brightly as a frame of 12 x 16 inches, the area of which is only 192 square inches.

With less exact work it is possible to use an angle of 40 degrees, but in no case is it possible with a point as source of light to evenly illuminate any extended surface, therefore several printing frames should be used at once.

In printing from line or in blue printing the conditions are more favourable, and one can use a light-cone of 60 degrees—that is, the portion of the curve lying between  $A$  and  $B$ —without any troublesome difference in illumination. The distance of the light source may then be the length of the frame, so that the intensity of the illumination, in comparison with the previous case, is increased fourfold.

#### The Use of Several Light Sources.

We have seen that one point of light cannot evenly illuminate an extended plane, and if the printing frame is placed near the light the differences are increased, whereas if the frame is moved further away in order to obtain more even illumination it becomes too weak, and the greater part of the light is unused.

In order to obtain a homogeneous plane field of light of greater extent it is necessary to use several lights. Let  $L$  and  $L_1$  represent the two lights, and  $F$   $F$ , Fig. 4, the illuminated plane, then the two curves  $C$  and  $C_1$  represent the distribution of the illumination at any point. The total illumination of each point is then obtained by adding the individual illuminations; thus the point  $a$  is illuminated by  $L$  with the intensity  $a$   $b$ , and by  $L_1$  with the intensity  $a$   $c$ ; therefore the total illumination is  $a$   $b$  and  $a$   $c$  =  $a$   $d$ . In this way we obtain the dotted curve  $C_2$  as the total illumination. The distance  $L$   $L_1$  can be so chosen that combined illumination becomes

practically homogeneous for an extended surface. This is, as shown in the figure, the case for the distance  $L$   $L_1$ . To do this the two lights must be at right angles to the plane  $F$   $F$ , and so that each is opposite that point at which the other light forms an angle of 50 degrees.

The distance  $D$  between the two lights is so chosen that  $D = A \tan 50$  degrees, that is,  $D = 1.2 A$ , when  $A$  is the distance between the lights and the plane  $F$   $F$ . If the lights are further separated there appears between them a minimum of illumination. If, on the other hand, the distance is decreased a maximum of illumination appears. If, as has already been assumed, a difference of illumination of 10 per cent. is permissible, then  $D$  may equal 1.5  $A$ .

In this way one obtains an evenly illuminated strip of 1.5  $A$  in length, and 0.5  $A$  in breadth, so that to evenly illuminate a square four sources of light are required. This combined illumination is always used for negative work, and when a light is placed on each side of the camera with a separation of 39 inches, and a distance from the copy of about 30 inches, the illuminated field is 39 inches long and 19 inches wide, and four such lights illuminate a square yard.

For illuminating printing frames this arrangement is not so satisfactory, for Fig. 4 shows that, beyond  $L$   $L_1$ , the intensity of the

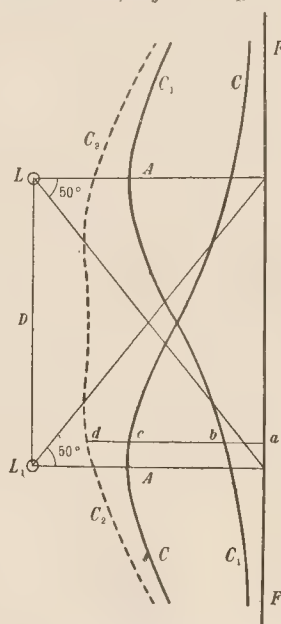


Fig. 4.

curve  $C_2$  rapidly falls off, so that it can only be used for very large work, such as blue printing, etc.

Another method of evening the illumination is either to keep the printing frame or the light continuously moving. As a rule, after the necessary exposure the frame is turned 180 degrees, and very large frames are turned 90 degrees after every quarter of the time exposure.

#### Reflectors.

The light that streams from the back and the sides can be utilised by means of reflectors. The most efficient is the arrangement used in searchlights, but it is costly and easily disarranged.

Polished reflectors of any kind are useless, since, on account of their incorrect shape, they throw zones of different intensity and lines of light, which are noticeable in the print. Matt white reflectors should alone be used. A ray of light falling on such a surface is not reflected in any particular direction but in all; in fact, matt reflectors act as a second source of diffused light, intensify the illumination of the light source itself, and, from their size, produce a relatively even field of light. The larger the reflector the more evenly it distributes the light over the plane, but the more the light that falls at

the sides is unused. When there is even an illumination as possible is desired, the reflector should be about the same size as the surface to be illuminated.

The shape of the reflector is not of much moment, as long as it is given a curved shape, and naturally one would conclude that a hemispherical one would be the most satisfactory; but as an arc does not emit light upwards and downwards, a half-cylinder is quite as effective.

All white or enamelled substances gradually turn yellow under the great heat, and in a short time reflect only the less refrangible rays, which have little influence photographically. As a rule, reflectors are much over-rated, and their chief use is to protect the operator from the blinding rays of light.

#### Photo-Chemical Luminosity.

An ordinary photometer, as used for measuring the visual luminosities, gives us no indication of the photo-chemical luminosities, for in the former case it is the less refrangible rays which are used in measuring. These have no effect in ordinary work, such as negative making and printing. As an actinometer Von Hübl uses a strip of collodio-chloride P.O.P., fastened to a dark grey paper. This he exposes to the light till the two are of uniform tint, using a green glass to obviate the difference in colouring. That this method is not free from objections is obvious, but as the variations in an arc are always so great and the method is used for practical and not theoretical photo-chemical investigations, we can dismiss these objections as of little moment.

#### STEREOSCOPIC BOOKS AND MAGAZINES.

It does not seem to have occurred to anyone—at all events the idea has not been put in practice—that the mirror stereoscope, invented by Professor Léon Pigeon, of Dijon, is admirably adapted for use in conjunction with specially illustrated books or magazines.

Scientific, technical, and educational works, or books of travel and adventure, as well as high-class pictorial magazines, would gain enormously in interest if illustrated with a series of stereograms, bound in with the text on stiffer pages. The method in which the mirror stereoscope could be made a permanent part of the book is shown by Fig. 1. A light metal frame, larger than the pages, is hinged in the centre of the cover, and in this frame is pivoted a thin wooden panel having a silvered metal mirror let into it at the top.

When it is desired to turn over a leaf in order to look at a fresh picture, the panel with the mirror is swung up, by pressing with the fingers on the top; the leaves will then pass through the frame in

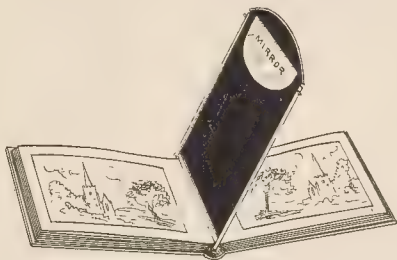


Fig. 1.

either direction, as shown in Fig. 2. Small stops or projections are placed at intervals round the inside of the frame so that the panel will only rise at one side, and is checked in the correct position when permitted to fall.

As regards the angle at which it is requisite for the pictures to be held, no difficulty will be found. The right side of the book is allowed to rest flat on the table, the mirror panel being supported by the right hand, and the left side of the book is raised until the two views coalesce. This can be accomplished in a few seconds, and, once tried, the adjustment is thereafter made instinctively and without trouble. The thin panel and mirror will lie flat in the book when closed, while the frame being larger than the pages will come outside them.

In all probability it would be held that the foregoing idea is covered by the original patent of the inventor of the stereoscope, although this particular application does not appear to have sug-

gested itself to him. The possibility of having a library of useful and instructive books filled with stereographic illustrations and each carrying their own stereoscope is, at any rate, well worth trying. Consider, for example, how interesting an astronomical work would be if illustrated with stereographic star maps; or the value to the medical student of a treatise embellished with stereoscopic pictures clearly portraying the exact position of every muscle and tendon. Such books would necessarily be expensive, but they would certainly find a ready sale. Within limits, the books and pictures could be of any

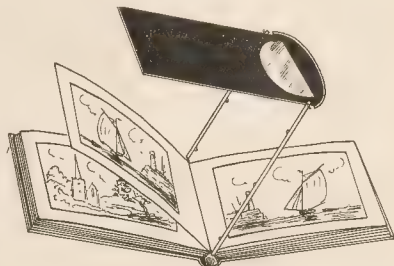


Fig. 2.

desired size or shape. The insertion and binding of suitable photographs, collotypes, or half-tones should present no real difficulty in these days of publishing enterprise.

An even simpler method than that previously described would be to have the mirror on a loose panel, which could be held in the hand; but this plan is not so convenient. The height of the panel would not be suitable indiscriminately for various sizes of books, nor would the adjustment be so easy or exact.

A. LOCKETT.

#### THE SOCIETY OF COLOUR PHOTOGRAPHERS.

##### AN ECHO OF THE EXHIBITION.

THE first annual exhibition of the Society of Colour Photographers, which was held at the house of "The British Journal of Photography," from September 30 to October 26, proved an undoubted success. The increased interest which is being taken in colour photography was evidenced, not only by the fact that the exhibition was visited by several thousand persons from all parts of the United Kingdom, together with a number of visitors from other parts of the world who are at present staying in London, but also by the fact that the most adverse conditions of weather failed to damp the enthusiasm of those who took the occasion of visiting a collection quite representative of the latest introductions and achievements in colour photography. The visitors' book contains, amongst many pages of signatures, those of Miss S. A. Acland, A. L. Adams, A. W. W. Bartlett, R. Child Bayley, Francis T. Beeson, Gerald Bishop, T. Bolas, Arthur C. Brookes, Warwick Brookes, Edwin T. Butler, D. Cameron-Swan, E. H. Carpenter, Gordon Chase, E. Clifton, A. Langdon Coburn, Frank Colebrook, F. Martin Duncan, Howard Elliott, Alfred Ellis, Frederick H. Evans, E. W. Foxlee, W. Friese Greene, S. Herbert Fry, Harold Furniss, W. Furze, John H. Gear, E. Greenwood, A. Horsley Hinton, Chas. E. Houghton, H. Edmunds Hull, Chapman Jones, Dr. B. Jumeaux, S. G. Kimber, Rev. F. C. Lambert, Harold W. Lane, J. McIntosh, A. Mackie, Hector Maclean, Thomas Macwalter, Ernest Marriage, Dr. C. E. K. Mees, Ward Muir, A. J. Newton, Arthur Payne, Otto Pfenninger, Paul Ponge, John H. Powrie, G. E. H. Rawlins, J. W. P. Rawlins, P. R. Salmon, E. Sanger-Shepherd, Edgar Scamell, George Scamell, Edgar Senior, Dr. S. E. Sheppard, James A. Sinclair, Edmund J. Spitta, A. E. Staley, W. Thomas, T. C. Turner, Miss Agnes B. Warburg, J. C. Warburg, H. Snowden Ward, Miss Florence M. Warner, Major-General J. Waterhouse, Alfred Watkins, J. B. B. Wellington, Alfred Werner, and Sir Henry Trueman Wood.

##### NEXT YEAR'S EXHIBITION.

At the annual meeting of the society, held towards the close of the exhibition, it was arranged that a second exhibition should be held, also at the house of the "British Journal," in the early summer of next year; and it is hoped that the success achieved by the first will be largely surpassed by the second, not only on account of the stimulus and encouragement which the recent success must have given to the



ent members of the society, but also from the fact that, by what this young society has already achieved, many other workers may be induced to take advantage of the privileges conferred on those who associate themselves with it. The sec., Mr. Henry J. Comley, Surrey House, Stroud, Glos., will be glad to give information as to the work, aims, etc., of the society to any who may apply to him at the above address.

## Patent News.

*process patents—applications and specifications—are treated in the Mechanical Notes.*

The following applications for patents have been received between October 14 and 19:—

**AIR APPARATUS.**—No. 22,697. Aerial photographing apparatus. George Raymond Lawrence, 52, Chancery Lane, London.

**GRASSES.**—No. 22,799. Camera to produce stereoscopic negatives. Franz George Reinke, 37, West Nile Street, Glasgow.

**LIGHT DEVELOPING.**—No. 22,844. Improvements in and relating to daylight developing apparatus for the development of photographic and the like films and paper negatives. Sidner Herbert Bath, Holly Cottage, West Street, Carshalton, Surrey.

**MATOGRAPHS.**—No. 22,874. Improvements in or in connection with light cut-offs for cinematographs and the like apparatus. John William Harris, 30, Park Row, Leeds.

**PERIMETERS.**—No. 22,995. Improvements in colorimeters. Jan Zeppezanik, 6, Bank Street, Manchester.

**LENSES.**—No. 23,020. Improved shutter for photographic lenses. Henry Arthur Byers, Fife House, Kingston-on-Thames.

**GELATINE.**—No. 23,030. Improved preparation of gelatine. William Henry Perkin and Whipp Bros and Todd, Ltd., 47, Lincoln's Inn Fields, London.

**PAPER.**—No. 23,118. The use of transparent paper or similar or textile material for the production of prints and photographs and of colouring them. Gustav Palmer Harding, 53, Sunderland Road, Forest Hill, London.

## COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**SILVER PHOSPHATE EMULSIONS.**—No. 9,855, 1907. The invention is an improvement on that of Patent No. 9,993, of 1902, in which silver phosphate and silver chlorate with the silver salt of an organic acid are used, the two latter being soluble, whilst the phosphate of silver is insoluble. In order to produce greater sensitiveness this mixture is now used in excess, that is to say, such a quantity of the phosphate is incorporated that the whole quantity of silver is obtained or precipitated in the form of insoluble phosphate of silver, chloric acid and an organic acid being also present in the emulsion. The emulsion is made as follows:—

In presence of the known colloidal substances, preferably gelatine, a considerable excess of alkaline phosphate, preferably phosphate of sodium, is mixed with nitrate of silver. It has been found best to use double the quantity of alkaline phosphate, which would be necessary to convert the silver nitrate into silver phosphate. To this mixture chlorate of potassium and citric acid are added, and for the purpose of rendering the photographic emulsion more resistant, it may be desirable to add further a small quantity of chrome alum. Owing to the great excess of alkaline phosphate the whole amount of silver in the emulsion must be present in form of insoluble phosphate.

Experiments have proved the emulsion to be so sensitive that it may be used also for enlarging purposes and even for negative-making. The best developer for this emulsion is a simple aqueous solution of metol. The pictures show great intensity of brilliancy and very nice tones, and furthermore great permanence. By adding sulphite of sodium to the aqueous solution of metol the rapidity of development is so increased that it takes place nearly instantaneously, the development in this case being a chemical one. York Schwartz, 3, Eden Strasse, Hanover, Germany.

**SCREEN-PLATE COLOUR PROCESS.**—No. 6,098, 1907. The invention relates to the process of preparing a three-colour filter-screen for direct colour photography. By means of suitable printing apparatus, the primary colours are arranged upon the medium or backing intended to receive the sensitive layer or else upon the sensitive layer itself, preferably in the form of very fine lines. These lines are arranged in such a way that the primary colours lie one above the other and crossing each other, whereby an extraordinarily regularly distributed multicoloured linework is secured.

In Figs. 1—3, *a* is the support—e.g., a glass plate intended for

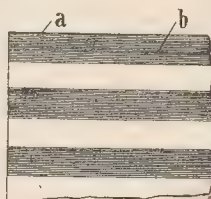


Fig. 1.

the reception of the sensitive coating. The compound line-work *b*, in the primary colour red for instance, is impressed upon this plate. The line-work is extremely fine, and the several lines are spaced off from each other at regular distances. The lines may be straight or curved ones, and they may also be composed of regular or irregular geometrical figures (for instance, circles or triangles, or the like—Figs. 4 and 5), arranged in a series of

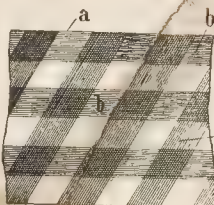


Fig. 2.

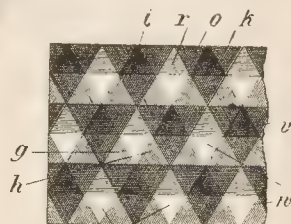


Fig. 3.

straight lines, preferably running parallel to each other. The plate provided with the compound line-work, in the red primary colour for instance, is now turned preferably through an angle of about 60 deg., whereupon, as may be seen from Fig. 2, the second primary colour *c*, blue for instance, is imprinted on the plate by means of the same printing or pressing device. At the point where the two colours overlap or are superimposed violet will be produced as a compound colour. Now, if this plate be again turned through an angular movement of about 60 deg., and be printed as shown in Fig. 3 with the third primary colour, or

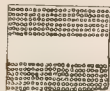


Fig. 4.

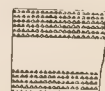


Fig. 5.

in other words with yellow, then the upper surface of the plate will be covered by a series of equally large and uniformly distributed triangles, which are tinted in eight colours owing to the various combinations of the individual colours. The following colour effects will be secured according as to the manner in which the several colours are individually superimposed:—

Red triangles *r*, yellow triangles *g*, blue triangles *b*, at points where two series of lines cross each other, green triangles *i*, orange-coloured triangles *o*, and violet triangles *k*; between these lines perfectly colourless triangles *w* and grey or black triangles which are produced by the crossing of all three lines.

Instead of printing with red, yellow, and blue, orange, green,

and violet may be used, whereby red, yellow, and blue will again appear at the points of intersection.

Without departing from the principle of the invention, the mosaic, provided it be very transparent, can also be applied upon the panchromatic layer or coating, which should always be done in cases where use is made of non-transparent supports—e.g., photographic papers. In such cases it is advisable to first of all apply to the photographic coating a thin transparent coating (gelatine, collodion, and the like), upon which the mosaic is impressed. The development of the picture can be effected right through this mosaic, which may however be avoided by stripping off and turning the coating prior to development.

The conversion of the negative into a positive, or of the positive into a negative, can easily be effected by this process, provided the coloured mosaic be placed upon a very slightly sensitive photographic coating—for example upon a print-out or copying layer—and if upon this coating there be applied a panchromatic emulsion adapted to be easily stripped. As the coating of print-out or copying emulsion is almost non-sensitive in comparison with the panchromatic emulsion little effect can be produced therein during the exposure to light. The panchromatic coating will be fixed as a negative if a positive be copied, thereupon the plate is exposed to the light in such a way that the negative appears on the printing-out or copying coating as a positive, whereupon the negative is stripped off and the positive present underneath is treated further—i.e., developed, toned and fixed or the like.

It may be pointed out that the colour of the chloride of silver coating (orange yellow) is a splendid substitute for the yellow filter usually required for such processes. Jan Szczepanik, 48, Valerie Strasse, Vienna.

**THREE-COLOUR CAMERAS.**—No. 22,310, 1906. This invention has for its object a camera in which a number of plates are exposed automatically in succession for predetermined periods. The plates with their colour-screens are carried in ordinary plate-holders which are inserted in grooves in a disc-shaped carrier pivoted at the rear end of the camera.

This disc is acted on by a spiral spring so that it tends to revolve, but it is normally held stationary by a bolt which engages with one or other of a number of catches on it. The bolt is operated periodically by a pin on a cam shaft driven by clockwork. In order to prevent shock when the disc is arrested by one of the catches striking against the bolt a brake whose rotary part is also actuated, the cam shaft may be provided to act on the disc just before the catch reaches the bolt.

The cam shaft has upon it a number of cams, one for each plate, and these cams are adjustably mounted on the shaft so that their relative positions can be varied to alter the time of the exposures. The cams act on levers which operate a spring bolt controlling the shutters. There is one shutter for each plate, and they have in them notches of different depths which engage with the bolts and are so arranged that when the bolt is withdrawn a short distance the first shutter falls but the others are retained in an elevated position, and when the bolt is further withdrawn a short distance the second shutter falls, the remainder being retained and so on, the bolt after each motion being prevented from returning by its nose being in contact with the side of one or other of the shutters.

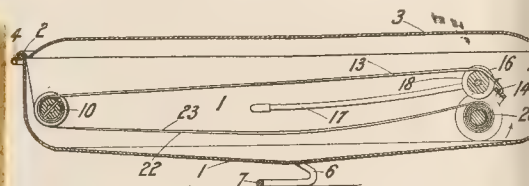
The cam shaft performs a complete revolution for the three shutters, and each lever is provided with a spring tending to force it against its cam independently of the other levers, but these springs are weaker than that of the bolt, and the cams are of different diameters, so that as each cam comes successively into operation the bolt carries one of the other levers out of contact with its cam. John Snell Chenhall, Eggfrickland Road, Compton, Plymouth.

**CHINA-SURFACED METAL.**—No. 21,698, 1906. The object of the invention is to provide a substitute for opal or porcelain. The suggested material consists of a thin plate of steel, aluminium, or other suitable metal, or alloy, with a fused facing of vitreous china or other suitable substance, as a substitute for opal or porcelain; and of one of the celluloid class of preparations or other substitute for ivory. The plates intended as substitutes for opal or porcelain and paper may be rendered white in the

same manner as with opal or porcelain itself, or by the fused facing itself. The plates to be used in place of ivory may have an opaque facing of the celluloid or other substance, or have a semi-opaque facing upon a white ground, the facing in both cases being fixed to the metal after the manner of the fused facing. The necessary pitch of whiteness is obtained by an under surface of oxide of zinc directly by the fused facing, or otherwise. The "matt" surface required for painting on may be obtained by regulation of temperature in the facing, by sand-blast, or acid, and can be varied in texture to meet varying needs both with opal porcelain and the ivory substitutes. William Buist Pickers, 35, Agamemnon Road, West Hampstead, N.W.

**BLIND SHUTTERS.**—No. 1,468, 1907. The invention consists of a blind shutter of the type of that in Patent No. 16,593, 1905, with new adjustments to stop the movements of one or both curtains without the use of toothed wheels or similar butt mechanism. Instead, clutches are placed between a fixed abutment and roller-axle, these clutches having a certain amount of free or idle movement. Preferably these clutches consist of concentric discs provided with abutments and adapted to be rotated relatively to each other until their abutments come into contact with each other. The amount of rotation which can be imparted to the roller before its movement is stopped, depends on the number of discs placed between the roller and the fixed abutment. The extent of the rotation can, therefore, be regulated by regulating the number of clutch-discs used. Optische Anstalt Carl Goerz, Aktiengesellschaft, 44/46, Rhein Strasse, Friedenau, Berlin.

**FILM-DEVELOPMENT APPARATUS.**—No. 524, 1907. The apparatus consists of a closed vessel in the interior of which a spool of film can be fitted. A travelling carrier for the film roll is provided within the receptacle, and towards the end of the latter, remote from that to which the end of the film is secured, is disposed a roller or guide around which the film roll is drawn so as to unwind the film from the spool. The roll is drawn out to round the roller and back towards the starting point. The unwinding of the film is of course effected after the tank has been closed and the film can then be developed by successively passing in the necessary solutions through a suitable opening, a part of the process being on well-known lines. The tank



conveniently of such a shape that the film is unwound and drawn out round the roller in a horizontal direction, a support which is conveniently removable or which may be folded up out of the way being provided to enable the receptacle to be rocked or oscillated to ensure the solutions coming intimately in contact with the film.

In a developing machine of the present type it is desirable in unrolling the film it be laid upon its supports instead of being drawn across them, and it is also desirable if possible to dispense with a spacing apron such as has heretofore been employed where the film has been wound upon a reel. In the present invention, by providing separate transverse supports between which the film is extended by suitable means, the free end is fastened and the spool or roll then drawn over the support between them in such a way that it will be thoroughly exposed to the liquid in the container without liability of damage in the process of unrolling. Kodak Limited, Clerkenwell, London, E.C.

**ADDRESS WANTED.**—Hall and Co., 65, St. John Street, Coventry, ask us to say that a remittance and order for samples has been sent them from a Mr. E. Turner, giving an address at "Albion House, Burr Lane," but omitting to state the town. Mr. Turner is desired to write again.



## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Local Matting of Smooth Prints.

I give a dodge which I believe is quite new (writes Mr. R. Williams in "The Practical and Pictorial Photographer"). From the print which is made on smooth paper a tracing is made on tracing paper with white ink to show the exact portions which are to be matted. Now take a sheet of rough "sand" or "glass" paper, over this lay a sheet of carbon paper, and over this the tracing. Follow the white line with a blunt point, such as the end of a bone knitting needle. This gives a black line on the back of the sandpaper. Cut out along this line. The print, after fixing in alum, is hardened and dried. It is now steeped in tepid water, laid on a sheet of zinc face up. Over this is fitted the cut-out sandpaper sheet, and over this comes another zinc plate. The two metal plates with papers between are now put into an office screw-down copying press, and a good tight screw-down given. This forces the sandpaper unto the print in certain parts and keeps other parts smooth. Great care will be required in separating the sandpaper from the print. To reduce the shiny surface of a carbon print it may be rubbed with a trace of finely powdered pumice stone applied with the finger tip.

### Exposures with Two Light Filters in Combination.

Two filters were taken (says a writer in "The Photographic News"), and tested with a certain orthochromatic plate in order to find their multiplying factor, adopting the well-known method of exposing a plate in successive strips, and then noting which strip was of the same opacity as a negative properly exposed without any filter, the plates, of course, being developed together for the same length of time. The filters proved to be a six times and a three times. They were then placed together and another test made, the other conditions being unchanged. The multiplying factor proved to be 8. It would thus appear that where the colour of the two filters is alike, the depth only varying, and where the multiplying factors are not high, it is fairly safe to *add together* the factors for the two filters and use this as the factor for the combined filter. The greater the absorption of the first filter the less will a second filter increase the multiplying factor. The dirtier the yellow—that is, the more black there is in it—the higher will the factor be for the combined filter.

### High-Lights in Portraits.

When the professional retoucher is working up a negative (writes Mr. A. J. Anderson in "The Amateur Photographer") he follows a fixed scale of intensities in his high-lights. This is manifestly wrong, for the relative brilliancy of the high-lights on the various features depends on the texture of the skin, and this varies with different faces. A shiny skin will give stronger high-lights than one which has the bloom of the peach, for the shiny skin will reflect the light brilliantly, whereas the soft skin will diffuse much of the light, softening the high-lights, and lightening up the shading. The same holds good with regard to the various features; the skin of the nose is usually closer in texture and more tightly drawn than the skin of the other features, and consequently the high-light along the ridge of the nose is usually the strongest high-light, but this is not the invariable rule; the high-light on the forehead of a scientist, or the high-light on the clean-shaven face of a masterful soldier, might well prove the principal high-light in the picture.

### Copying Autochromes in the Camera.

An Autochrome positive (writes Mr. R. Child Bayley in "Photography") was fastened up over a hole cut in a board, and behind it was placed a mirror reflecting the cloudy sky. In order to secure as brilliant a result as possible, the space intervening between the Autochrome and the camera front was covered over with a focussing cloth, so that no light reached the lens except what had come through the Autochrome. The general arrangements, in fact, were the same as those employed in the ordinary way when making lantern slides by reduction, except that as it was not practicable at the moment to tip the whole apparatus up to face the sky, and as a white reflector tended to prolong the exposure unduly, a mirror at an angle of 45 deg. was employed instead. A preliminary trial of

the light showed that the Watkins meter turned towards the sky at the mirror itself, darkened to the standard tint in 45 sec., and by exposing a plate in strips, it was evident that an exposure of about half-an-hour would be correct. The lens was used at  $f/8$ , and the degree of reduction was such that the original 7 in. wide was reduced to a width of  $3\frac{1}{2}$  in.

## New Books.

"Photograms of the Year, 1907." (London: Dawbarn and Ward, Ltd.). 2s. nett and 3s. nett

We welcome this annual record of pictorial photography because of its far-reaching catholicity. Nowhere else is it possible to find, between one pair of covers, such an exhaustive selection of the work of all civilized countries. Our own journals give us, more or less successfully, and in dribbles, a liberal reproduction of the two London public shows; but those papers do but repeat each other after all. He who takes them all gets no wider idea of the year's work than he who sees but one. "Photograms" gives about 200 pictures, of which fifty only, roughly speaking, are from the "Royal" and "Salon," and therefore already known to the public. The printing of the plates is, for the most part, highly creditable, and much above the average of the photographic papers and the Royal Photographic Society's catalogue. Where it fails is in those sheets that have received faint grey and coloured inks. On the whole, a black ink is the most just to the tones of a picture, even if the original be in colour.

Mr. H. Snowden Ward leads off the letterpress with graceful compliments to his predecessor in criticism, Mr. A. C. R. Carter, and modestly assumes that retiring gentleman's duties. The first noticeable result of this change is a satisfying absence of bias and prejudice in all references to the rival exhibitions of Regent Street and Pall Mall, and no gross misstatements, such as we were constrained to point out last year.

Mr. Ward's idea of an art-critic's obligations are not exactly coincident with those recently discussed by art critics themselves in "The Academy," where it appeared that the critic should be the artist's exponent to the public. Mr. Ward considers that his duties lie in the way of being the mentor of the artist. In his case that course is no doubt the most expedient, since the majority of photographers are more in want of a gentle pilot than of a prophetic showman. He goes so far as to raise a new question for universal discussion: "Are photographers artists?" and answers it "with a distinct, emphatic negative as regards the immense majority." Indeed, his article may be called a tirade to the demerit of amateur photography generally; but in particular he is timorous of treading on a corn here or there. This amiable tolerance of the individual is perhaps a little multiplying to his broad fist-swinging when general matters are in question. Yet where a cap will fit it will no doubt be worn, and that without chafing, and it may be that Mr. Snowden Ward, in his wisdom, has chosen the more excellent way.

A distinguishing and interesting feature of "Photograms of the Year" is the various criticisms of the year's work abroad, contributed by men of standing in the respective countries. These contributions are perhaps a thought less light and airy than those of the last issue, but one or two are excellent reading even to a layman. M. Demachy's easy English is always a delight. He laments the "negative" event of the absence of the Photo-Club Salon this year, prophesying its appearance bi-annually in the future. He deals very largely with what he calls the trichrome plates, a nice distinction from "autochrome," and he shows very cleverly how the numerous tries at colour transparencies by no means invariably deserve the prefix auto. With truth and wisdom he says: "We must resign ourselves to the inevitable atrocities that the over-confident amateur is going to thrust upon us. I have already met with a certain number of eyesores of that description, in comparison with which the coloured advertisements in the sixpenny magazines are soothing." Speaking of oil-printing, he informs us that the Paris Photo-Club Committee intends to organise for next February a very select one-process show for oils, and he hopes that England—the birthplace of Rawlins—will send something good.

F. Mathies-Masuren, writing of Germany and Austria, records a diminished interest in German art-photography, attributable perhaps to the high standard maintained by judges, and on account of which

many amateurs find their work inadequate and their labour in vain. After all, this is a good fault on the part of the judges. In this country we can testify to the high quality of what does succeed in passing the juries, and there seems to be enough of that. Per contra we are informed that in Austria there is perhaps not so much advance on previous technical and artistic achievement, but an eager and united activity, and "a lively interest in the welfare and good fame of their clubs." This is somewhat as it is in England. Yet of what avail is club-life if technical and artistic achievement does not advance? Herr Mathies-Masuren further states that "the amateur in Germany cannot hold his own against the foreigner; but the very reverse may be asserted of the professional."

Spain, according to M. Mendez Leon, appears to be a trifle backward, since it is in the enthusiastic stereoscopic stage still. At an exhibition of the Royal Photographic Society of Madrid, there were nearly 2,000 examples, 600 of which were stereographs! It appears, too, that competitors for the Diploma of Honour forfeit all their prints, which remain the property of the organisers of the competition. The result is that all amateurs who value their prints above the Diploma of Honour keep them and forego the competition. "Oh, what a happy land is England!"

We are sorry to miss Mr. Roland Rood's sprightly article upon America. That upon the Western States, by F. J. Clute, and that by Sidney Carter upon Canada are somewhat categorical, and, therefore, of not such interest as a general article would be to readers who do not know the work of individuals upon the other side of the globe. The most stirring thing in the Western States is certainly the fact that a gentleman in Washington is engaged upon a work of twenty volumes upon North American Indians. The price is to be £600 a set, and only 250 sets will be done, so we are glad to be able to make this early announcement to our readers, who, we feel sure, would be sorry to let such an opportunity slip.

Edwin J. Welch treats of Australia in an article of excellent reading and of amusing style. The prevailing characteristic of Australian photography is "grooviness," he says, adding that the British and American publications do not convey the impression that Australia possesses a monopoly of it. In professional matters he laments the "cutting rates": "The advertising columns of the daily papers carry the announcements in glaring type that two photographers in one of the States are offering 'One dozen cabinets in the latest style of art, superbly mounted and finished, and one beautiful enlargement on bromide paper, 18 in. by 22 in., handsomely framed in a costly moulding, for the sum of 7s. 6d.'" He continues: "The studios referred to are in the first flight, and I am constrained to acknowledge without any reservation that the work turned out at each place is really good." Mr. Welch has some diverting remarks upon the lady amateur, of which, he says, there are plenty, "all more or less lovely and collectively charming, but extremely sensitive as to criticism."

We cannot close this review without highly recommending the book as a worthy archive for the photographer's library and a thing of beauty and a joy for ever for the visitors to his drawing-room; hence his necessity for two copies.

"The Burlington Art Miniatures of the World's Great Masterpieces." The Fine Art Publishing Company, Limited, London, E.C.

We have received the first number of this publication containing ten samples from the King's private collection of paintings. The prints are in the Mezzogravure process, about 5½ in. by 4 in., and are contained in a well designed and attractive little box-form portfolio. The numbers are to be issued fortnightly at the price of 1s. 6d. each, and the series is to be completed in 20 number with 200 prints, every subscriber to the whole set receiving free of cost a substantial cabinet holder for the complete series. As regards the reproductions we can only describe them as excellent. The first number includes a series of six portraits by Lawrence, Van Dyck, Holbein, Rembrandt, Gainsborough, Rubens, and Delaroche that form very suggestive studies to the portrait photographer. Succeeding numbers will include the Wallace Collection, the National Gallery, the Louvre, the Luxembourg, the Tate Gallery, the Walker Art Gallery, and numerous other British, American, and Continental Galleries of world-wide repute, and the complete collection of 200 pictures should therefore contain a large proportion of subjects of value to photographers. We should strongly recommend all desirous of enlarging their ac-

quaintance with pictorial masterpieces to secure this collection of reproductions. The whole series will only cost 30s., and the example are so good as to be worth collecting for their own sake, quite apart from the practical value that they should possess for pictorially inclined photographers.

## Dew Apparatus, &c.

The "Memo" Stylo. Made by Mabie Todd and Co., 79 and 80, High Holborn, London, W.C.

To the outdoor photographer this conveniently small stylograph pen should be a most useful companion since its size allows of its being carried in the waistcoat pocket protected from the risk of loss to which the longer fountain pen is exposed. The "Memo Stylo



writes with the smoothness which the makers have led one to expect in the "Swan" pens, and is a most satisfactory substitute for the pocket pencil. Its price in black, mottled, or red vulcanite is 2s. 6d. The illustration shows its actual size.

## CATALOGUES AND TRADE NOTICES.

**SOME HINTS ON ENLARGING.**—Under this title a very attractive booklet of thirty-two pages has been prepared by Messrs. Houghtons Ltd., 88-89, High Holborn, W.C. It supplies quite sufficient information to enable a beginner to commence enlarging work, and describes a variety of the most convenient apparatus, including a series of lanterns which permit of the worker's own camera being used instead of a more expensive complete enlarging lantern. Messrs. Houghtons offer single copies of the list to our professional and amateur readers; dealers should apply to them as to obtaining a supply for the counter. The bold coloured cover of the booklet should be a valuable means of drawing attention automatically to enlarging facilities.

**CANVASSER FINED.**—Job Lewis, canvasser, of Seymour Street, Euston, was charged, on remand, with stealing twenty-five photographs, of the value of £1 5s., the property of Isaac Agulay. The prosecutor said that he was ill in bed, and prisoner offered to fetch a doctor. He went, and had not been seen since. In passing from the bedroom he could have gone through the studio, and could have had access to the photographs, which were missed the same afternoon. Mr. d'Eyncourt fined prisoner 20s. and 10s. costs.

**MUNICIPAL PHOTOGRAPHY.**—The following letter, over the signature of George H. Cowlshaw, appears in the "Sheffield Daily Telegraph": "During the process of demolition of old Sheffield buildings for street improvement, I often regret that our corporation have no official photographer, so that pictures should be preserved of old buildings of interest. Many now are lost to sight which are to memory dear. A lot of old shops of interest in Westbar and Shalesmoor, an old nail shop in Pond Street, the old baker's shop in Baker's Hill where we used to get the old coloured spice animals, and lots of old places could be named, some of them with very fine moulded doorways. I hope some abler pen than mine will take the matter up, and let something be done before it is too late."

**ACETYLENE PORTRAIT LIGHT.**—According to a report in the "Kent Argus," the acetylene light has been successfully installed in the studio of Mr. Louis G. Carpenter, of 88, High Street, Ramsgate. The arrangements have been carried out by Messrs. Bray, the well-known firm of gas implement makers. The installation consists of thirty burners, of 200 candle-power each, giving a grand total of 6,000 candles. The light is not in the least trying to the eyes, giving a soft yellowy light, and can be moved in any direction, according to the photographer's wish, and has a distinct advantage over the electric variety, with its blue penetrating light. A number of photographs taken with the new apparatus thoroughly convinces one that it does all that it is claimed for it, the details being brought out magnificently, notably if the sitter is wearing white.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, NOVEMBER 1.

Amateur Photographic Club. "Amateur Photographer 1907 Prize Slides."  
London Photographic Association. "Passe-Partout Mounting." Jas. Milne.  
Co-operative Society Camera Club. "Enlarged Negatives on Rotograph Negative Paper."

MONDAY, NOVEMBER 4.

South London Photographic Society. "Figure Study." E. T. Holding.  
London Photographic Society. "Tabloid Chemicals." Messrs. Burroughs, Wellcome & Co.  
London Photographic Society. "Colouring of Lantern Slides." F. E. Fearnside.  
London and Forest Hill Photographic Society. "Retouching." W. Michel.  
London Photographic Society. "Isochromatic Photography with the Wellington Iso Plates." H. Wade.  
Cambridge Camera Club. "Enlarged Negatives on Rotograph Negative Paper."

TUESDAY, NOVEMBER 5.

London Photographic Society. "Autochrome Plates." Demonstrated. T. K. Grant, F.R.P.S.  
London Photographic Society. "Photography: Its Possibilities, from a Popular rather than a Technical Point of View." L. A. Edmonds.  
Hill and District Camera Club. "Rotary Carbograph Paper." Rotary Society and District Photographic Association. "An Evening with Pictures." W. Baerhaw.  
London Photographic Society. Council Meeting.  
London Photographic Society. "Colour Photography," including the "Lumière Autochrome Process." H. Denison and F. W. Branson.  
Manchester Amateur Photographic Society. Members' Slides.  
London Photographic Society. "Photographic Chemicals."

WEDNESDAY, NOVEMBER 6.

London Photographic Club. "Bromide Printing and Toning." W. H. McLaughlan.  
London Polytechnic Photographic Society. "Rotary Carbograph Paper." Rotary Photographic Co.  
London Camera Club. "Flashlight Portraits." E. C. Alcock.  
London Camera Club. "Kallitype." J. M. Sellers.  
London Camera Club. "Flower Photography." W. H. Atkinson.  
London Suburban Photographic Society. "Stories and Glories of Westminster Abbey." E. W. Harvey Piper.  
London Technical College Photographic Society. "Iford Lantern Plates." Algernon Brooker.  
London Photographic Society. "The Reproduction of the Photograph by the Half-Tone Process." T. Cuthbert Day, F.R.S.  
London Amateur Photographic Society. "Holland and Normandy." Rev. Henry W. Dick.  
London Middlesex Photographic Society. Lantern Slide and Print Competitions.  
E.R. Mechanics' Institute. "Photographic Chemicals."  
London Photographic Club. "Mounting." W. Brush.

THURSDAY, NOVEMBER 7.

London Amateur Photographic Association. "Genre and Figure Studies." T. Lee Syms.  
London and District Camera Club. "Rotary Carbograph Paper." Rotary Photographic Co.  
London Photographic Association. "Pigment Printing." A. W. Hill.  
London, Farsley and Calverley District Photographic Society. "Mounts and Mounting." L. Dickinson.  
London Photographic Society. "Bruges." The President.  
London Photographic Society. "Practical Lantern Slide Making." R. H. Lawton.  
London Camera Club. Lantern Evening.  
London Club. Smoking Concert.  
London Photographic Society. "Rotary Carbograph Paper."  
London and Institute Camera Club. "Iford Lantern Plates." Algernon Brooker.  
Manchester Amateur Photographic Society. "In a Tyrolean Valley." James Shaw.  
London Photographic Society. "Time Development." Philip Whitehouse.

WISHAW PHOTOGRAPHIC ASSOCIATION.—The sixth annual exhibition of this society will be held from December 31, 1907, to January 4, 1908, inclusive. There will be seven open classes, including a novice class, and one also for associates of the Scottish Photographic Federation. Plate and bronze salvers will be awarded in each class. The judges will be Dr. Richmond and R. Clouston Young, R.V.S. The closing date for entries will be December 18, and the last day for receiving pictures December 25. Entry forms and further information may be had from the secretary, R. Telfer, 138, Glasgow Road, Wishaw, N.B.

THE BRISTOL PHOTOGRAPHIC CLUB.—The hon. secretary, Mr. Geo. Masonsmith, opened the winter session with a racy account of a stor trip in the southern counties, illustrated by a large number fine lantern slides.

CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.—At a meeting, held on October 23, Mr. Mackinney in the chair, Mr. W. Green, of John J. Griffin and Sons, Limited, gave a demonstration of "The Leading Principles in Velox Manipulation."

SOUTH SUBURBAN PHOTOGRAPHIC SOCIETY.—Lecturing last week, Mr. E. T. Holding dealt with "Figure Work," and gave quite a

number of practical hints as to how it is done. Photographic technique, he pointed out, may be easily mastered by anyone, though the sense of the beautiful necessary to the pictorial photographer must be innate, and cannot be acquired. The successful amateur photographer was, in fact, the enthusiast who can see beauty, and, without the technical skill to draw it himself, resorts to the lens to draw it for him. He would recommend the study of modern pictures rather than of old masters, for pictorial photography was essentially modern, and modern art was the mother of it. This study should be undertaken, not for the purpose of imitation, but for the purpose of suggestion. His advice was to create, not to imitate.

SOUTHAMPTON CAMERA CLUB.—On Monday last, October 28, Mr. E. Seymour lectured on "Floral Photography."

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—At last Monday's elementary meeting "Tabloid Development" was demonstrated by the hon. secretary, Mr. Gideon Clark, who stated that he had used the Burroughs, Wellcome products in his own photographic work for many years past with every satisfaction. A snapshot, which received only 1/50 sec. at f/11 on the same day, was successfully developed by "tabloid" pyro-soda, a severe test, showing the efficacy of freshly-made solution. Some lantern slides, both of black and warm tones, were also made with excellent results.

## Commercial & Legal Intelligence.

AGENT'S BANKRUPTCY.—James Stroud Nunn, formerly dealer in photographic materials and manufacturers' agent, 11, Queen Victoria Street, E.C., attended before Mr. Registrar Brougham, sitting at the London Bankruptcy Court, on October 25, for his public examination, upon a statement of affairs showing liabilities £893 3s. 11d., of which £775 3s. 11d. were returned as expected to rank, and no tangible assets. Mr. G. W. Chapman attended as Official Receiver. It appeared that the debtor began business as a dealer in photographic materials and manufacturers' agent in July, 1906, and traded under the style of James S. Nunn and Co., at 11, Queen Victoria Street, E.C. Another person agreed to finance the business to the extent of £1,000 on the security of future book debts and the stock to be acquired. It was also understood that the business should subsequently be formed into a company, and, as soon as he began to draw against the £1,000, the question of the promotion became pressing. In January the company—called James S. Nunn and Co., Limited—was formed, with a nominal capital of £4,000, divided into £1 shares, of which 2,000 were allotted to his wife as his nominee. He became chairman and manager of the company at a salary of £250 a year, but up to the present he had received no remuneration. The only part of the business that prospered was the photographic branch, and, as capital was required to develop that department, Satino, Limited, was formed, in February, with a nominal capital of £500 in £1 shares, to acquire that department. James S. Nunn and Co., Limited, were paid £328, in £1 shares, of Satino, Limited, and a debenture of £500, representing the absolute value of the stock, he handed over to Satino, Limited. The debtor became a director of the latter company at a salary of £2 a week. The examination was ordered to be concluded.

NOTICE OF DISSOLUTION.—The firm of J. Lizars, Opticians, 251, High Holborn, London, of which Robert Ballantine, Arthur Ballantine, Hew Ballantine, and A. H. Bellefontaine were the partners, has been dissolved by the retiral of the said A. H. Bellefontaine from the firm. The business will be carried on as formerly by the remaining partners at the same address, and under the same name.

CHARGE AGAINST A PHOTOGRAPHER.—At the West London Police Court last week, Henry Spencer, 53, described as a photographer, of Laurel Gardens, Hanwell, and Arthur Joyce, 40, a canvasser, of Marlborough Road, Walford, were charged on remand with being concerned with another man not in custody, in stealing and receiving sixteen £5 Bank of England notes, belonging to John Wake, of 268, Latimer Road, Notting Hill. Mr. Ley prosecuted for the Treasury, and Mr. Pierron defended Spencer. It was stated at the previous hearing that Mr. Wake made the acquaintance of Spencer in December, 1906, through the latter advertising for some

one to put money into a cycle company (British Cycle Manufacturing Company), and he (Wake) alleged that the company into which he did put some money was a bogus one. Joyce was acting as Spencer's clerk. In September Mr. Wake was living at 25A, Eynham Road, Hammersmith, and he alleged that a roll of bank notes was stolen from his portmanteau. Detective-sergeant Burrell stated that on arresting the defendants he was given a statement by Joyce, who declared that at Spencer's instigation he cashed the notes at different places—chiefly post offices—in Gravesend, Chatham, and Rochester, and the sergeant further stated that in the possession of Spencer he found the counterfoils of two postal orders, and on the backs of some of the notes (which had since returned to the bank) were the numbers of the postal orders. Evidence was given by Horace Joyce, the twelve-year-old son of the prisoner Joyce, to the effect that they used to live at Windmill Street, Gravesend, and that last September Spencer called at their house and got the witness to show him the way to the post office, where he (the witness) saw him purchase some postal orders. Among other witnesses was a clerk from a bank in Chatham, who was called to prove that one of the bank notes said to have been cashed by Joyce with a tradesman was paid into the latter's account. The witness produced a copy of the entry in the bank's books. Mr. Ley thereupon observed that no doubt such evidence might be objected to as inadmissible. By an Act of Parliament (continued Mr. Ley) which was specially passed for the benefit of bankers, it was granted as a privilege to banks that a photographic reproduction of an entry would be sufficient as evidence, but it was a growing practice among some banks to furnish a mere copy of entries. Mr. Lane, K.C., agreed and refused to admit the witness's evidence, observing that he would be obliged to attend the court a second time so as to furnish proper evidence. The accused were again remanded.

**CANVASSING FRAUDS AT CHISLEHURST.**—At the Bromley Petty Sessions last week Joseph Lemoine, 28, of West Kilburn, canvasser, was charged on remand with attempting to obtain various sums from servant girls by means of a worthless photo-coupon, at Walpole, Manor Park, Chislehurst. Particulars of the charge appeared in the "B.J." for October 18. Helen Anderson, a domestic servant at "Nizels," Kemnal Road, Chislehurst, said on Saturday, October 5, the prisoner came to the house and said he was canvassing for Lintotts in Bond Street. He also stated that they had opened a shop at 130, High Street, Bromley, and then said he would do some cabinet photographs for witness like those produced at the rate of 6s. 6d. per half dozen, with a large one given in. He filled in the coupon produced, and witness then gave him 5s. 6d. She did not have her photograph taken, but on Monday afternoon, October 7, witness and two of the other girls at "Nizels" went to 130, High Street, Bromley, the business premises of Mr. Harman. They saw there Mr. Harman's assistant, Mr. Dudman, who said that nobody was canvassing for his employer. On Saturday night, October 12, she attended at the Chislehurst Police Station, and there identified the prisoner from amongst eleven other men as the man who had agreed to take her photograph. Annie Turrell, another domestic servant at "Nizels," Chislehurst, the residence of Mr. Travers Hawes, J.P., said on October 5 the prisoner called at the house and offered to take her photograph on terms similar to those mentioned by the previous witness. She also went to Bromley on the following Monday and then discovered that the prisoner's story was untrue. Detective-sergeant White said at 3 p.m. on Tuesday, October 15, he went to 118, New Bond Street, occupied by August Walker, a photographer. He examined two rooms at the top of the house and found that they were not occupied by Messrs. Lintott. There was no such firm as Messrs. Lintott carrying on business as photographers in New Bond Street at the present time. Prisoner was cautioned in the usual way. He elected to be dealt with summarily and pleaded guilty. In a statement handed in to the Bench for their consideration he said he had been induced to act in this manner in consequence of family affliction. He had never been in trouble before and asked for leniency for the sake of his wife and children. In future he would lead a straightforward life. The Chairman said the Bench had very carefully considered what course to take in this case. It was impossible, for them to shut their eyes to the fact that these offences were not committed on the spur of the moment. It was a most carefully

planned trap to get people to advance money to him. At the same time they took into consideration the fact that the prisoner had clean sheet so far, otherwise the Bench would have had to do far more seriously with him. The order of the Bench was that should go to prison for one month in the second division.

**ARTISTIC PHOTOGRAPHIC COMPANY, LIMITED, LONDON, W.**—Registered October 14, for £1,000 seven per cent. debentures, of £2,000 authorised; no trustees; charged on the business assets present and future.

**UP TO THE CANVASSING FRAUD.**—In the Stockton County Court last week the Middlesbrough Fine Art Company sued William Colpitts for 10s. 6d. Joseph Stones' plaintiff's agent, said defendant gave an order for an enlargement, and the 10s. 6d. was the frame. Defendant said the photo-enlargement was free advertisement, and, thinking that the trick would be to get price of the enlargement in the frame, he made plaintiff endorse order as a free enlargement only. The photograph was not delivered, but was left at a neighbour's house. His Honour told defendant plaintiff must not do that kind of thing, and gave judgment for defendant with costs.

## News and Notes.

**THE TICKA POSTCARD COMPETITION.**—An enormous number of entries were received for the competition inaugurated by Messrs. Houghtons Limited in connection with the "Ticka" camera. Humorous postcards, designed by Mr. Charles Harrison, were issued through dealers and others, and the public invited to suggest titles for them. The competition closed on September 30, and a cheque for two guineas for the best title for each picture has been forwarded to the following competitors: A. H. Tapper, Ealing; W. L. F. Wastell, South Woodford, Essex; M. L. Carter, Tuf Park, N.; Miss S. Browne, Windsor; Major H. Blyth, Tower Merioneth; E. V. P. Simpson, Manchester; Harry Cross, Halifax; A. J. Freeman, Thatcham, Berks; Ernest Stansfield, Rotherham; D. Kennedy, Manchester University; A. Porrett, Harrow; A. B. Oddie, Norwich.

**THE AUTOCHROME DEMONSTRATION AT THE R.P.S.**—Mr. McIntosh, the secretary of the Royal Photographic Society, writes: "I expect a very large attendance at the demonstration of the Autochrome process, to be given by Mr. Thos. K. Grant on Tuesday, November 5. I shall take it as a favour if you will announce your readers that members of the society only can be admitted to the meeting-room before 8.5 p.m. After that time visitors will be admitted as far as the accommodation will permit. Your readers may be interested to know that the attendance at the New Gallery during the annual exhibition has been much in advance of all previous years. The numbers for 1905 were 12,196, for 1906 15,229, for 1907 22,240. These are exclusive of the attendances at the society's private view, and press view, which would raise the total for 1907 to 24,000."

**ILLINGWORTH CHRISTMAS POSTCARDS.**—Suitably inscribed postcards in all the grades of their paper, "bromide," "Zigo" self-toning, "Zigas," are issued by Messrs. Thomas Illingworth and Co. in shilling packets of twelve cards.

**AUTOCHROMES OF NATURE SUBJECTS.**—At the Blenheim Club on Thursday last week, a numerous company of members and friends assembled to hear Mr. Martin Duncan describe his experience with the use of Autochrome plates in nature photography. Mr. Duncan commenced by saying that, although he had worked nearly a dozen years in the colour process, it was not until he tried the Lumière method that he was able to obtain the delicacy and fidelity of colouring which were a necessity to the naturalist-photographer. He had therefore lost no time in applying the new Autochrome plates to the photography of insects and other subjects. He believed he was the first to employ the plates for this purpose. Mr. Duncan then explained the theory of the Autochrome and Warner-Powrie processes, and exhibited a negative spectrum, taken on the latter process, which appeared to be as good an example of its kind as that shown at the recent exhibition of the Society of Colour Photographers. The lecturer then proceeded to exhibit a series of Autochrome records, recording many striking examples of colour mimicry in animal



dition to a number of colour photographs of such living subjects as caterpillars, moles, and butterflies. The exposures had usually run into fifteen to thirty seconds, but by choosing a time when the animals were torpid in sleep, Mr. Martin Duncan had been highly successful.

**A WEEKLY CONVERSAZIONE AT GRIFFIN'S.**—Messrs. John J. Griffin and Sons announce that they have now arranged for a conversazione to be held at their Kingsway House, every Thursday evening, from 7 to 9. Admission is, of course, free to all who are interested in photographic matters. The following is the programme, which will largely varied from time to time:—(1) Exhibition of micro-photographs and other specimens in real colour photography on Autochrome plates, accompanied by lecturette. (2) Demonstration with the oil-gum process and lecturette. (3) Exhibition of new "Autokon" enlarger. (4) Exhibition of photographs illustrating Mr. Howard Farmer's new method of regulating tone values.

**THE LATE MR. A. L. HENDERSON'S WILL.**—Mr. Alexander Lamont Henderson, of 277, Lewisham High Road, S.E., who died on July 5 at Bad Nauheim, Germany, left estate of the gross value of £4,492 5s. 9d., of which the net personalty has been sworn at £1,156 5s. 10d. The testator left £2,000 for the purchase of an annuity on the joint lives and the life of the survivor of his daughter (Mrs. Thomasina Inglis Grey) and her son (Wm. Henderson Grey), to the latter of whom he left his photographic apparatus; and he bequeathed

A sum sufficient to produce an annual income of between £5 and £10 upon trust to found a prize to be awarded annually by the London and Provincial Photographic Association, of Tudor Street, E.C., whom failing, by the Royal Photographic Society, for the most useful discovery in, or essay upon, photographic chemistry in the year.

Four ceramic frames of photographs, as to one each to the London and Provincial Photographic Association, the Royal Photographic Society, the Edinburgh Photographic Society, and the Photographic Society of Ireland.

His lantern slides and catalogued exhibits (but not Royal photographs taken for the late Queen Victoria, which it is forbidden to publish) to the Church Army.

A replica in terra-cotta of his bust by Albert Toft to the London and Provincial Photographic Association.

He left the pin presented to him by the Emperor of Austria, his presentation chemical balance, and his bust by Albert Toft to his daughter, Thomasina Inglis Grey, to devolve as heirlooms; and, in respect to several other bequests, he left his real estate in Scotland and elsewhere to Mrs. Grey for life, with remainder to her son, William Henderson Grey, and his personal estate to her absolutely.

**"VELOX" COMPETITIONS.**—The prize-winner in the September competition are announced by Messrs. Griffin to be as follows:—First prize, £2 2s., E. Vanandel, Finchley, N.; second prize, £1 1s., Thomas Stevenson, Addlestone. Consolation prizes of 5s., J. A. Pitchforth, Addersfield; W. Wood, Hamilton, N.B.; W. H. Thompson, Northampton; E. Henstall (Miss), Nottingham; Thomas Chester, Burnley; Beaumont, Newcastle-on-Tyne; W. Clegg, Burnley; Miss M. Rholomew, Beckenham; B. Perks, Teddington; W. H. Withey, London; F. Foster, Scarborough; L. G. Castle, Cheam, Surrey. It should be noted that the competition is strictly for those who have never won a prize before.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—The annual dinner took place on Thursday, the 24th, at the Hotel Boulogne, when T. E. Freshwater presiding, after which a programme of excellent music was greatly enjoyed. The toast of "The King and the Royal Family" fell to the lot of the chairman, as did also that of "The L. and P." "The Visitors" was given by Mr. Benson, and replied to by Messrs. Wate and Sharp; whilst to Mr. Ernest Human (the hon. secretary and recorder) fell "The Press," and to Mr. S. Herbert Fry that of "The Chairman."

**CONVASSER'S QUALIFICATIONS.**—A long-delayed charge of wife snatching came up for disposal at the Dundee Police Court last week. May 26 last John McGregor, canvasser, assaulted his wife by pressing her throat and pushing her through the window. He was found, and has since been working as a photographer's canvasser in Perth.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO. 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photomans at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- B. A. Jones, 1, Academy Street, Warrington. Two Photographs of the Laying of the Corner Stones of Orford New Church.
- J. Hodson, 153, South Parade, Cleckheaton, Yorks. Photograph. Snapshot of Halifax Tram Conductor's Funeral, killed in the Sowerby Tram Accident on October 15.
- Mrs. M. E. A. Powles, St. Oswald's, Griffe, N.B. Photograph entitled: "Our Lady of America." Photograph entitled: "Sunshine, Wind and Water."
- S. J. Porter, 21, Victoria Parade, Torquay. Coloured Photograph entitled: "Off to the Baby Show."

**PROCESS WORK.**—I want to become acquainted with reproduction work for magazines and books, but have not the vaguest idea how it is done. Could you recommend a book giving elementary information?—REPRODUCTION.

Better get "Photo-mechanical Processes," by W. T. Wilkinson (Hampton and Co., 4s.).

**BACKGROUNDS.**—1. Would you oblige by giving instructions how to mix paint for flatted oil background scenic; also for distemper (dark grey) plain. 2. What is the most economical way to make gold chloride for sulphocyanide bath?—J. J.

1. Full working instructions for making backgrounds were given on page 82 of the issue for February 1, and on page 155 of that of March 1, to which we must refer you. 2. Place half a sovereign in a porcelain vessel and pour on it half a dram of pure nitric acid mixed with two and a half drams of pure hydrochloric acid and three drams of water, and heat, but do not make it boil. If this does not dissolve the whole of the gold, more of the acid mixture must be used. Then evaporate to dryness on a water bath. Unless you employ a large quantity of the chloride of gold, and take great care not to waste any in the manufacture, you will find it far more economical to purchase it.

**B. DOS SANTOS LEITAS.**—Instructions as to the process have appeared in our issues of September 15, 22, and 29. Further articles will appear, and we shall deal more fully with the process when the plates are on the market, which will be in a few months' time.

**COLOUR CAMERA.**—In König and Wall on "Photography in Natural Colours" a clockwork camera made by Perscheid, of Berlin, is mentioned. Could you inform me whence I could obtain further particulars of this camera, which is designed to automatically change the plates, screens, etc.?—GEORGE A. KNAPP.

Full details could no doubt be obtained from the makers, MESSRS. Hoh and Hahne, of Leipzig.

**HANDS AND WIGDER.**—The Tress Co., 42, Oxford Street, London, W. We cannot say as to the bromide papers.

**ARTIFICIAL LIGHT.**—Would you kindly give me some information on the following subject:—1. I have a room 14 ft. 6 in. by 11 ft. which I am desirous of fitting up as a studio with artificial light. Is the room large enough? I cannot get electricity, so would have to use incandescent light. How many burners would be required to take successful full-length portraits by? 2. Is it possible to obtain as soft effects with this as with daylight?—J. H. W.

1. The room is really too short to take satisfactory full-length portraits in. It will do very well for three-quarter lengths, or bust portraits. Ten or a dozen burners will yield a fair light. The more there are, the shorter will be the exposure required. The exposure depends upon the number of burners and the distance they are from the sitter. 2. Yes, if the light is judiciously

arranged, as see the article on the present exhibition at our offices.

**COPYRIGHT QUERY.**—A few months ago I photographed a bookstall by consent of the clerk in charge, after which I sold to the employees thirty-four copies at 1s. each. Since then the firm have published the picture in leaflet form, and issued some thousands as an advertisement. Will you kindly inform me if I have any claim upon them, as it was not sold for publication, and my name was not printed on the leaflet? If I copyright now can I stop the distribution?—H. J. W. BRAY.

If you received nothing for taking the photograph the copyright in it belongs to you. If you register the copyright in it now you can restrain the issue of further copies.

**J. A. WOOD.**—You can get enamel metal developing dishes up to 24 x 19 in. from any large dealer, like Fallowfield, Houghton, Kodak, or Marion. See these firms' lists. We should advise you not to use an enamel-coated dish for gold toning.

**G. DAVENHAM.**—1. We cannot say. The book is of American origin, and the blotter also, we expect. Why not try the result of a reply postcard to the author, care of his publishers, or apply to an American supply house such as Geo. Murphy Inc., 57, East Ninth Street, New York?

**POSTCARD OFFENCE.**—Some little time ago I was out with my camera and I took the enclosed photograph. As you see the couple in the foreground are arm in arm. By way of a joke I spotted the negative, and it appears as though the lady had her arm around the gent. On Saturday last, the 19th inst., this was published as a postcard view. On the Monday following the lady came round demanding me to destroy the cards and not publish any more. At first I did not admit that I had put the arm on, but asked her if the cards were published without the arm would there be any objection. She replied that there would be no objection whatever, providing the arm was taken away. This I promised in the long run to do. The next day the gentleman came round with the same argument and demanding an apology. I asked him the same question as the lady, and he replied that he also had no objection to it being published without the arm. Then I took him and showed him the negative in the printing frame and pointed out that I had already taken the arm out. I also gave him a note expressing my sorrow and regret that I had published it in that manner and promised him (in writing) not to print any more with the arm on. This apology, he said, was to show the parents of the lady that the plate had been faked up in that manner.

I thought then that was the end of it, but now he comes round demanding the negative to be broken. He says he has been to a solicitor, and he gives me one day's notice to break the negative. Now, may I ask, what is my position? Can they stop me from publishing the cards (with the arm removed, of course)? Have I brought myself within the reach of the law in any way?

I have done all they asked of me, short of breaking the negative, and as they both said there was no objection to it being printed as originally taken.—H. S.

As in the first instance you faked the negative in the way you did it is not surprising that the parties felt much annoyed when the prints were published. Since it held them up to ridicule by those who knew them. Pictures holding private persons up to ridicule are libellous, and the ones sent might, under the circumstances, possibly be held as such in a court of law. We think your best way will be to do as the parties demand—destroy the negative. To say the least of it, it was bad taste on your part to take advantage of what you say was only a joke.

**MARIOTYPE PROCESS.**—I shall esteem it a great favour if you will inform me where I can procure a pamphlet or book, or any information upon the Mariotype process. If such process has been published in the JOURNAL perhaps you could give me the date? It has occurred to me that in conjunction with the carbon process (with which it is somewhat similar in some respects) it might be used beneficially, especially Mariotype, by pressure.—J. T. EASTON.

M. A. Marion's paper on the Mariotype process, read before the Photographic Society, will be found on page 242 of our volume for 1873. No other details of the working of the processes have

been published since, that we are aware of. The processes now came into practical use.

**SAFE-LIGHT FORMULA.**—On page 803, "B.J.," Mr. Payne gives formula for a green safe-light solution for Autochrome plates and concludes by saying, "Dilute this solution with 25 parts of water." If some error has not crept in, it would be interesting to know why the formula should not read—water (or 325 parts).—R. P. G.

Mr. Payne writes:—"It was my intention that the instructions should have been read as follows: 'Dilute this (bulk) solution with 25 parts (of equal bulk) of water.' It would have been more clear if I had written: 'Dilute one part of this solution with 25 parts of water.'"

**RETOUCHER.**—You have a very fine, close stipple, but far too mechanical, and applied in exactly the same manner to old and young. Be as fine and delicate as you please for women and children, but for men, young and old, vary your touch. Show more grain, but let it be softly blended, and not picked out in hard regularity. With very old faces, be exceedingly light on your lead, and do not work too closely. Half the character has been taken out of the bearded man's forehead with over-working. Your edges of light and shade in each study require softening. The freckled youth should have been treated to a much softer and bolder grain—your effect is hard and white, and lacks finishing. In other respects your work is very good—far above average—and if you take our remarks to heart there is no reason why you should not shortly seek a situation in a first-class firm. We never suggest or attempt to fix stated salaries—that you must ascertain through answering our advertisements and making the best terms you can.

**W. H. D.**—(1) The lens is as good as you can get for such portable work. (2) The Tress Company, 42, Oxford Street, W.

**DEVELOPMENT.**—(1) What formula do you recommend for standard development for extremely rapid exposures? (2) Is pyro-sol advisable under such circumstances?—SNAPSHOT.

(1) 1 in 200 rodinal. (2) Not so suitable as rodinal.

**W. FIELD.**—It is not a copyright question, but one of libel. As we do not know the circumstances of the accident we cannot say if the company's plea that they were not to blame is sustainable. If you think it is, you had better withdraw the enlargement, which certainly implies negligence on the part of the driver. The matter hinges on this. So far as copyright is concerned, you can dispose of that, and wash your hands of further responsibility.

**MATERIAL FOR SHOP WINDOW.**—Can you tell us of any material (preferably green) suitable for floor of window that will not flake in the sun? We have tried velveteen, baize, and several other stuffs, but all turn to a dirty brown in the sun during the course of a few months. We require something that will have a good class appearance.—SHOW-CASE.

We know of no material suitable for the purpose, the colour of which will not change, more or less, by prolonged exposure to strong sunlight. If you go to a high-class upholsterer's and mention what you require they may possibly be able to supply you with something with a stable colour. However, if you have good woollen fabric, and its colour fades, you can have it dyed Greens, as a rule, are not very permanent colours.

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## The British Journal of Photography

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## SUMMARY.

Mr. C. H. Hewitt, in an article on the use of enclosed arcs in studio portraiture, gives a good deal of useful information to those using up this form of artificial lighting. (P. 840.)

Some further notes on the same subject emanating from Mr. Howard Farmer deal with electrical matters and the photographic efficiency of the enclosed arc. (P. 842.)

Further abstracts of Baron von Hübl's papers on "Artificial Lights" appear on page 844.

We regret to record the death of Mr. John A. Hodges at the age of forty-six. (P. 845.)

Part of the musical programme at the R.P.S. dinner last week has been read the letter from a correspondent on page 854. Amongst the correspondence are letters dealing with an anti-frill dish for Autochromes and with Rodinal developer. (P. 854.)

Precautions in reversing and intensifying Autochrome plates appear on page 839.

Mr. C. L. A. Brasseur, in "Camera Work," appears to suggest that the ratios of three-colour filters require alteration under different weather conditions. (P. 843.)

Colour-photography figures in two notable society reports this week, namely, Mr. T. K. Grant on the "Autochrome Plate," at the Royal (page 851), and Mr. Henry J. Comley on "Three-colour Carbons" at the Southampton Camera Club. (P. 852.)

A reversal process, similar to that used with Autochrome plates, is recommended by Mr. C. R. M. Parr for making enlarged negatives direct. (P. 846.)

A method of focussing depending on the coincidence of two divided parts of an image has been patented. Other patents of the kind include a developing tank and enamel process. (P. 846.)

Some notes on the practice of matt carbon printing appear on page 838, and will be concluded next week.

## EX CATHEDRA.

### Baryta Coating.

In a recent paper before the "Union Nationale des Sociétés Françaises," M. R. Guillemot has been recording his experience in the preparation of the raw paper employed for bromide and P.O.P. emulsions. Epitomised, M. Guillemot's experience amounts to the use of absolutely pure and white gelatine of medium hardness, and of a sulphate of baryta prepared from the carbonate (not the by-product from the manufacture of hydrogen peroxide). He finds that the proportion of gelatine to baryta in the coating should be from 10 to 8 parts of gelatine to 100 of baryta, the former for matt papers and the latter for glossy. He finds that other constituents than these two are of no advantage for the preparation of a paper intended to carry a bromide emulsion.

\* \* \*

### A. L. Coburn and the Autochrome Plates.

If we are to believe the views alleged to have been expressed to an interviewer by Mr. Alvin Langdon Coburn, the Autochrome process in pictorial photography is to fulfil the eminently useful purpose of dividing the sheep from the goats, or perhaps we should say of providing a definition of sheep and goats respectively. A correspondent of the "Liverpool Courier" prints in the issue of that paper of October 31, what purports to be a conversation with Mr. Coburn, in the course of which the latter explained why he and others, who, it appears, represent the "photographic" school in pictorial photography (other schools being "jugglers" and "crazy-quilters") are able to see possibilities in the process. The "unfakeable" Autochrome plate, laments Mr. Coburn, is not for those who remedy an ill-exposed plate by manipulating an oil print, or who, in building up a picture, juxtapose a farmyard from Kent, a Scottish sky, and a mountain from Wales. In short, the Autochrome is for the "straight" photographer, and no "faker" is to have part or lot therein. Mr. Coburn has photographed George Bernard Shaw, and has produced a number of results quite beautiful in their colour schemes. When we inspected these the other day we had it from Mr. Coburn that he deviates from the Lumière procedure.

\* \* \*

### Colour Harmonies and Colour Contrasts.

So much has been dinned into the photographer as regards these matters in their application to the mounting of photographs, that it should only be necessary to emphasise the similar dangers which he runs in his essays in colour subjects. As a rule the beginner is well advised to seek his effects in harmonies of colour. He is safer in taking that course than in attempting the more difficult task of obtaining a contrast of colours which is not discordant. There is equally harmony in contrast. Paradoxical as the phrase sounds, a walk in a London suburb on a Sunday afternoon will supply a score of instances of

discordant contrasts in the promenading feminine attire. The photographer who aims to succeed in genre or portraiture in Autochrome work—a most promising use of the new plates—can find no better opportunity of studying the massing, harmonising, and contrasting of colours than in the ballets which a house of entertainment such as the Alhambra puts on its boards. An hour spent in witnessing the constant change of characters and costumes will give the practical portraitist plenty of ideas as to the colours he can and cannot place together before the camera when making a study in colour.

\* \* \*

#### Bleached Shellac.

The Journal of the Franklin Institute contains a paper on the analysis of shellac, by H. Endemann, that is somewhat technical, but contains at least one item of information of practical moment to photographers. It is stated that bleached shellac, prepared by bleaching with hypochlorite of soda, contains chlorine, one sample retaining as much as 1.26 per cent. chlorine. Bleached lac is frequently used as a negative varnish, and sometimes as a mountant, and whilst it is not certain that the chlorine is free to do any damage to the negative or print, it is certainly not a desirable companion for a photographic silver image. While we have never heard of any trouble due to the use of bleached lac, it is, of course, quite possible that it may have led to some detrimental effect that has been attributed to something else. We must, therefore, regard it as somewhat under suspicion until rather more definite information is obtainable.

\* \* \*

#### For Whom Photography Sufficeth Not.

The camera is usually charged with the responsibility for the existence of the arm-chair type of person, traveller, novelist, or historian, and therefore it is interesting to hear of instances in which its records of scenes and customs have been considered not good enough for even such ephemeral work as modern fiction. Miss Beatrice Grimshawe, it appears, has made a small sensation in the South Sea Islands by appearing there in company with a tea-kettle, a looking-glass, and a typewriter, in order to get the right local colour into her series of Pacific stories. The islanders were more puzzled by the apparition than by a photographer's under the focussing cloth. Their first impressions put it down to an evil spirit, which, as the "Pall Mall Gazette" remarks, might be regarded as not very wide of the mark, since it ultimately proved to be a lady novelist.

#### MATT CARBON

In spite of undoubted permanence, beauty, and adaptability carbon has not yet come into its own. Doubtless the process will become even more popular when the slightly glossy or "carbon" surface is more generally rejected in favour of the matt surface, which is equally easy to produce.

During the vogue of albumen paper, when portrait brown and portrait purple tissues had to be used to make the process at all saleable, the surface from flexible support, resembling as it did that of the then universal process, was an advantage rather than a drawback. Nowadays, however, with the improved taste of photographer and public alike, the perfect matt produced by direct transfer from opal plates is much more desirable.

We think that for the beginner the flexible support is easier to work, but any one thoroughly well up in manipulation will soon be equally or more successful on rigid supports. Apparently the only disadvantage against opal is the idea that the shadows look leathery. We have not the same depth and transparency as those on a flexible support. In the case of an ordinary good professional negative, with no clear glass portions, we do not think that this idea is correct, although naturally carbon, as with other processes, a glossy surface is more flattering to a poor under-exposed negative than is a dead matt. The rigid support has not the same range of usefulness as the flexible, since the latter must be used for final transfer on to rigid bases, such as wood, ivory, or opal, or on to a flexible base of a coarse texture, such as canvas and rough drawing paper. This, however, matters little, since these materials are unusual in ordinary work.

In working with opal supports to the greatest advantage it is necessary to have a little special apparatus, consisting of zinc racks, with grooves, to hold the plates particularly, and tanks in which rack and plates can be entirely submerged by the solutions. With these the photographer will find opal supports are quicker, easier, and more certain than paper ones. Waxing itself is more satisfactorily done, flexible supports being liable to buckle thus cracking the prepared surface. Opal must be more fully treated, however. It is necessary to wax and print only one plate at a time, and that well away from others, since the plates sometimes slip suddenly, and will chip or break entirely any plate they strike. The only trouble one has when waxing opals is that the print has a tendency to refuse to leave the new plate. It is advisable to pre-

### THE BRITISH JOURNAL OF PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL OF PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

Among other alterations and improvements which have been made in the forthcoming volume, the publishers beg to announce that:—

All three indexes (text, advertisement, and trade addresses) will be found AT THE END OF THE VOLUME.

The size of the volume has been appreciably reduced, without sacrificing the value and scope of the contents.

The editorial article will deal very completely with the important subject of—

SCREEN-PLATE THREE-COLOUR PROCESSES, and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The 1908 ALMANAC will contain as frontispiece a card printed by the Autotype Co., dry-mounted by the Adhesive Dry Mounting Co., Ltd. Amongst other attractive items will be found a specimen of three-colour printing by Sanger-Shepherd Colour Printing Co. and examples of three-colour work of Hood and Co., Ltd., Middlesbrough.

Our publishers desire us again to caution our readers against postponing the booking of their copies of the ALMANAC.

#### PUBLISHERS' NOTICE.

The publishers beg to inform agents that it will be as well to place their orders for copies immediately, as this issue is always booked before publication, and a second edition will not be printed.



plates by waxing and polishing two or three times using ordinary turpentine, white solution, perfectly satisfactory for flexible support, is not so for opal. A solution of

Beeswax .....	30 grs.
Yellow resin .....	100 grs.
Benzole .....	20 ozs.

to be used. Since the benzole evaporates very quickly the plate may be rubbed with this mixture and immediately polished. The rapid evaporation makes it unnecessary to prepare the plates long before they are required, minutes being a sufficient interval. It will be found necessary to prepare the plates every time a transfer is made; after six waxings the plate will be sufficiently imitated to allow of quite four or five transfers before waxing, and even this may be dispensed with as the wax gets old. When required the plates should be placed in rack all in one way, plunged into tank of cold water, and moved

up and down once or twice to remove any airbells on the surface. It is advisable to put the rack so that the matt surfaces of the plates will always face one way in the tank, preferably towards the worker. This is recommended, as it is difficult to tell the right side of the opal when wet, but if the above precautions are taken the matt side will always be placed uppermost on squeegeeing board from force of habit. The tissue may be put into the water immediately the plates are covered, there being no necessity to wait as with flexible support. When the first piece of tissue is soaked sufficiently the opal is laid on the board and flooded with water; the tissue is then taken by opposite corners and laid diagonally in contact, the corners held in the hand are dropped, and the squeegee used somewhat heavily, taking care, however, not to tear tissue. Under no circumstances should the plate and tissue be brought into contact under water; dust will certainly get imprisoned between the surfaces, no matter how clean the water appears.

[Some notes on the further procedure must be reserved for next week.]

## AUTOCHROME ITEMS.

### Green Stains on Autochromes

so familiar green stain produced when the edges of an autochrome begin to frill is commonly attributed to the readiness of the green dye. We have, however, heard it suggested that it is more likely to be due to the running and washing of the blue and red dyes, which suggestion assumes that fringed parts are green owing to the presence of the green grains. Testing this matter, it appears that the first suggestion is more nearly correct. If an abraded screen is put under the microscope and a drop of water is placed on the screen the rapid solution of the green dye can be readily observed. This seems to be the most soluble of the three dyes, the red also speedily washes out, while the blue does not appear to be affected by water, though it is soluble in alcohol. If an emulsion is stripped from an Autochrome, a dip in alcohol will enable the waterproof film covering the starch to be rubbed and rolled off with the finger. This film is dissolved by the alcohol, though apparently it is not soluble. If a starch film is then immersed in water a green solution is rapidly produced, and the microscope will show that the starch is soon quite washed out, while the red is very nearly so. However, the starch film is immersed in alcohol a blue solution results. A little green is also washed out, but this may be due to the water present in the alcohol. A mixture of alcohol and water attacks all three dyes, but the blue does not dissolve at all readily, while the red takes some time to disappear. It appears, then, that the green stain must be due to the running together of the green and red dyes. When the green predominates, and so in place of the three colours we have green and blue only.

### Reversing Autochromes.

Many proposed alterations in the procedure of making autochromes there is, at any rate, one that we find to be useful. Gravier does not keep the reversing solution of permanganate and sulphuric acid ready mixed, but adds the other solution just before use. Quite independently of Gravier's suggestion, we have also arrived at the conclusion that the freshly mixed solution is far more satisfactory. A mixture of permanganate and acid after long keeping will not give the silver image, but it does not by any means act in the usual fashion of the fresh solution. With a very stale solution the whole image is covered with a brown scum, and generally

sprinkled over with specks that are not readily removed, but with a freshly mixed solution a clean result is obtained. We have, therefore, adopted the practice of keeping separate solutions of permanganate and sulphuric acid, and we do not mix them until just before use. It has been stated by some that the stain produced by the reversing solution is of no consequence as it disappears in the redeveloper. We are, however, doubtful if the heavy deposit produced by a very stale solution does completely disappear. In any case the specks of manganese compound do not do so at all readily, and the attempt to remove them by wiping often results in damaging the film. The scum referred to can be wiped off readily with cotton-wool, but the specks remain. With fresh solution there is no necessity to wipe the film at all; there is therefore less risk of damage, and time is saved.

### Intensification of Autochromes.

Intensification of Autochromes with the silver intensifier sometimes produces bright metallic specks over the image that cannot be completely removed. There are two causes of this, and both can be avoided by taking a little care. The stock solution of silver invariably precipitates metallic silver if kept for a little time. This deposit falls to the bottom of the bottle and, if not disturbed, does no harm, but if a nearly empty bottle is drained into the measure when preparing the intensifier, or if the deposit is stirred up by refilling the bottle just before use, the silver particles get into the intensifier and on the plate. The precautions that should be taken are obvious. The bottle should be cleaned out before refilling, and it should neither be shaken up before use nor drained right out to the last drop. The other source of silver specks is the use of dirty measures, etc. The measure employed should always be cleaned before re-use, and the neck of the silver bottle should be wiped free from dust and silver deposit. In fact, the matter of cleanliness cannot be overdone when dealing with silver intensification. If it is desired to intensify after fixing, the plate should be washed for a few minutes to free it from hypo, and then be immersed in water just tinted pink with plain permanganate for about twenty seconds. If the solution loses its pink colour more washing is required, but if the pink is retained intensification can be proceeded with after about half a minute's washing. After intensification the usual clearing and fixing baths are used, and the plate is given its final washing.

### Residues from Autochromes.

Autochrome workers are very apt to forget that one of the solutions used contains silver residue well worth preserving on account both of its quantity and of the automatic way in which it can be saved. The silver intensifier deposits a very small proportion of its silver on the image, and there is no need to waste the remainder. If thrown into a large bottle and left for a few hours the silver is deposited without the assistance of any additional reducing agent, and it is also deposited in a fairly clean condition. If half the fluid contents of the bottle is carefully decanted each day in the course of a few weeks a very respectable quantity of silver will be collected. This is a matter that should

not be overlooked by professionals inclined to take up the commercial production of Autochrome portraits. As regards other solutions, the hypo solution is used more or less as a simple clearing bath. It is not a fixing bath in the ordinary sense, can contain only an infinitesimal proportion of silver; therefore it is not worth consideration. The reversing bath contains silver, but only in very minute quantities. The silver removed from an Autochrome can only be a small fraction of quantity that the fixing bath takes from an ordinary negative while the residue obtained is mixed with a large proportion of manganese compound. It is therefore hardly worth preservation, though the used intensifying solution certainly should be saved.

## THE ENCLOSED ARC FOR STUDIO PORTRAITURE.

SOME idea of the importance of electric lighting of studios for portraiture may be gathered from the great variety of systems which have been adapted to the requirements of the portraitist. The only illuminant which is not quite commonly used is acetylene, excluding, of course, the comparatively feeble oil-lamp. Incandescent electric, open and enclosed arcs, pressed incandescent gas, and both high and low voltage mercury vapour lamps are all available, in many cases in such a form that the photographer has nothing to do but buy the lamp and at once commence exposing plates with it. This "complete outfit" idea is at once a strong and a weak point. To the worker who does not thoroughly grasp the essential principles of artificial light work, or, in other words, who does not know exactly what he ought to have and how to get it, the "ready for work" lamp saves trouble, relieves him of a certain amount of responsibility and worry, and usually ensures that the cost of the installation shall not exceed a known sum. On the other hand, the area, height, and shape of studios vary so much that what may be satisfactory in one building will not work so well in another, and the photographer who, with a clear grasp of his requirements, can fit up an installation specially adapted to his own studio and his own individualistic style of work will often gain a good deal in efficiency, and perhaps save something in cost.

The enclosed arc, as it exists commercially, for example in the "Westminster" lamp, possesses this advantage, then, that with its resistance and the necessary length of cable, it is a complete source of light which may be placed anywhere in the studio, giving a highly concentrated light, which the photographer must distribute properly for the effects he desires to obtain. The more control can be obtained over the distribution the better, and it is in many ways an advantage to start with what is practically a point of light. To say this of the enclosed arc lamps is not to disparage other forms of illumination. Each has advantages and attendant drawbacks, and here, as in all other matters, there can be no best in a general way, although in any particular set of circumstances the *summum bonum* may rest with one type.

### Systems of Arc Illumination.

With regard to the distribution of the light there are two methods—reflection and diffusion. The direct light may be received by some white surface of considerable area and thrown back in the direction of the sitter, or it may be allowed to pass through some translucent medium, as engineer's tracing linen or mineral paper or ground glass, being refracted in so passing, and thus so scattered as to produce a softer illumination. Reflection should always be employed, or else a considerable waste of light occurs. In some cases all direct light is cut off from the sitter by a small opaque plate of metal, only the reflected light from the large white surface being available for lighting the portrait. Both methods may be employed in con-

junction—that is, between the arc and the sitter some diffusing medium is placed, and on the opposite side of the lamp from the sitter is fixed a reflecting screen. In this way the maximum of illumination is obtained. A method which has been found quite satisfactory in practice will be given below.

It must be remembered that, though in a well-constructed studio for daylight work it is not only possible but very desirable to work without any auxiliary reflector for softening the shadow side of the head (that is, none other than a quite neutral paper on the studio walls), in artificial light portraiture such a shadow side-reflecting screen becomes practically essential. Size, colour, and nearness to the sitter of this shadow side-reflecting screen must to some extent be determined by the strength of the direct light, the character of the diffusing medium employed, and the area of the principal reflector of the lamp itself. To prevent any confusion, the term "lamp reflector" will uniformly be applied to the white surface behind the lamp, which throws back the light in the direction of the sitter, and is thus, so far as the portrait is concerned, either the whole or a part of the principal source of light. The other reflector for lightening the cast shadows will be uniformly referred to as the "shadow side-reflecting screen."

### An Artificial Light Studio.

The simplest possible arrangement, and one admirably suited to a studio of the "lean-to" type, is that shown in the diagram on next page.

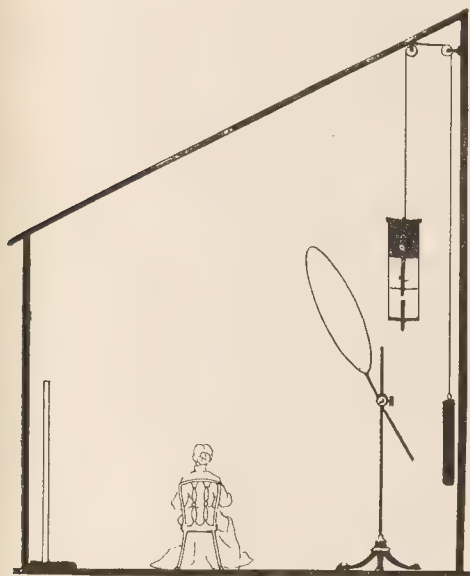
Here the enclosed arc lamp is suspended near the wall of the studio by a flexible wire cord over two pulleys, and is balanced by a counterpoise weight. A thin steel wire cord should be used so that the difference in weight between the two sides is immaterial when the lamp is raised or lowered. If the pulleys are slightly stiff this difference is compensated by friction. The wall behind the lamp should be covered with cartridge-paper of as white a character as possible, and as this gets soiled with age it may be coated with dead white distemper. The area of the papered wall, i.e.—the lamp reflector—may go as high as possible, come down to within 5 ft. of the floor, and extend laterally from a point level with the sitter's chair for about 8 ft. in the direction of the camera. The lamp may be hung centrally at this 8 ft. A large greenish blind should be made to draw down over this white-papered wall so that the strong reflection from it may not interfere with daylight work. Alternatively the lamp reflector itself may be a white blind, but it will require painting from time to time, and may be liable to crack as the paint accumulates in thickness. Between the arc and the sitter an ordinary translucent head screen may be placed, as shown in Fig. 1, and there is a better material for covering this than thin engineer's tracing linen. Paper is apt to be broken with the least touch, and fabric, such as cheese cloth or butter muslin, is in danger of



catching fire, whereas tracing cloth is saturated with, possibly, gelatine, and is comparatively non-inflammable.

### A Comparison of Daylight and Artificial Light.

Let us see, now, how this arrangement compares with the daylight method with which photographers are already familiar. A very common daylight arrangement is to have thin muslin blinds or curtains, or frames of wood fitted to the window and covered with mineral paper, and over these opaque blinds of dark blue or green blind holland. The whole of the light may be cut off where not wanted, and one of the muslin blinds or paper-covered frames may be removed when a more direct and



concentrated beam of light is required to produce the "tipped high lights." With the suggested enclosed installation, the large area of white wall forming the lamp reflector provides the softened general illumination, while the more concentrated beam is provided by the direct rays from the lamp filtered or diffused by the tracing-linen head-screen. By raising or lowering the lamp by means of the counterpoise weight this more concentrated beam may be directed on to the head from a higher point or from a lower, as it is felt more top or more side light is necessary for the adequate lighting of the head under consideration.

If the light is wanted more from behind or more from in front of the sitter three courses are open to the operator. First, the lamp may be so arranged that it will slide on a rod nearer to the background or further away from the background. This is at best a somewhat clumsy device, and not to be recommended. Second, the sitter may be moved forward or backward, which is simpler and less worrying to both sitter and operator than the moving of a swinging lamp. Third, and simplest of all, where the studio is of adequate width, say 12ft. or 14ft., the camera may be moved nearer to one side or the other of the building. Thus, if the light is wanted rather more in front of the sitter this effect will be produced by moving the camera nearer to the wall against which the lamp is hung, the sitter, if a full-face portrait is being taken, turning the head towards the camera. If the light is wanted rather more from behind the head, the camera is moved a little towards the opposite side of the studio. In actual practice almost any modification re-

quired can be obtained in this way without the need of shifting the lamp at all, except to raise or lower it.

As in almost all cases the lamp is to the front of the camera, some efficient form of lens shade is an absolute necessity. If this is so arranged that no light reaches the lens at all, except that which forms the image on the plate, so much the better, and the makers of the better forms of studio camera might surely design such a lens shade, worked by an extension-rack and pinion, so that the rectangular opening in front of the lens could be moved forward or backward to correspond with the movement of the focussing-screen nearer to or further from the lens.

### Reflecting-Screens.

Turning now to the shadow-side reflecting-screen, we may consider what the requirements are in this direction. As suggested above, we find in daylight studios a much greater volume of diffused light throughout the room, and if the walls are of a neutral shade there is much reflected light from all directions, which softens the shadows of the portrait. With electric lighting this general diffused light is absent, and it consequently becomes necessary to adopt other means for softening the shadows. What is wanted is really a sort of artificial wall which may be placed in any position relatively to the sitter and the lamp so that the reflected light for softening the shadow side of the head may be as much under control as the direct light. The best form of shadow-side reflecting-screen is an eight-foot background-frame on its castors, covered with a square of grey calico. This screen may then be kept a fair distance from the sitter, and false reflexes in the eyes to a great extent avoided, whereas a small screen would have to be placed much closer, and would give false reflexes or blind spots in the eye—really a small reflected image of the screen on the surface of the eyeball.

The best position for this shadow-side reflecting-screen is not on the opposite side of the head to the source of direct light, but so that the light and shadow sides of the face are properly blended. This implies an oblique position slightly to the front of the sitter, the screen, in fact, being so placed that the lens will just look past its edge. Of course, ordinary everyday full-face or three-quarter face lightings are referred to, and if these can be properly lighted the experienced daylight worker will have no difficulty in making such modifications as will give him anything he requires in the way of fancy lightings.

### An Exposure Question.

Two points connected with exposure may well be mentioned in any consideration of electric lighting. Slight variations in the distance between the sitter and the lamp will produce considerable differences in exposure. Thus, if one second is the requisite exposure when the head is 6ft. from the lamp, an increase of distance to 8ft. 6in. will necessitate an exposure of two seconds, the exposure varying as the square of the distance. Thus, 8½ft. squared gives 74, which is rather more than double 36, the square of 6. Two feet six inches is not a great distance to move a sitter when arranging a fresh pose, and the point needs constant watching if exposures are being reduced to the minimum.

Further, the greater the distance from the sitter the longer the exposure, assuming the same size of image—that is a 2in. head with a 16in. lens will require a longer exposure than a 2in. head with a 16in. lens will require a longer exposure than a 2in. sitter to lens. In daylight work it is customary to give possibly half the exposure for a full-length or three-quarter length that would be necessary for a head and shoulder portrait, but with electric light practically the same exposure will be necessary in both cases.

It should be remembered, however, that with a good enclosed arc lamp exposures may be very short indeed, a quarter of a

second at F. 5.6 with a 200 H. and D. plate being an ordinary timing. These figures will hold good with the "Westminster" lamp. There is thus no need, as a general thing, to cut down exposures unduly, and the latitude of the best modern dry-plates

is such that if reasonably full exposures are given, there is little danger of going wrong even if the distance from sitter to lamp or sitter to camera does slightly vary from one exposure to another.

C. H. HEWITT, F.R.P.S.

## ENCLOSED ARC LAMPS IN THE STUDIO AND PROCESS SHOP.

[The following notes by Mr. Howard Farmer, issued as a circular by the Westminster Engineering Company, Victoria Road, Willesden Junction, N.W., supply advice on technical electrical matters which is often sorely needed by photographers commencing or contemplating the use of an enclosed-arc installation.—Eds., "B.J."]

WHEN equipping a studio for copying or process work, in which electricity is the source of illumination, by far the most important item in the success of the studio will be the details of the electric light installation. The first aim of a business man will be to avoid unnecessary expense in the equipment, and with this end in view there will be a tendency to order each pair of lamps with their individual and attendant fittings, such as switches, resistances, etc., of the least expensive type. But a consideration of the conditions which prevail in photographic work will show that this is not a good policy.

In the studio the current may be switched on and off every few minutes, and necessarily in a hurried and even violent manner; therefore switches which are good enough for ordinary lighting purposes may be broken or loosened in all their parts in a week or two if used for photographic work.

### Switches and Adjustable Resistances.

It follows from this example that the switches selected should be such as are capable of withstanding hard wear and rough usage. In ordinary lighting lamps a non-adjustable resistance is included, which absorbs a portion of the electric energy, and if the photographic work is confined to small copies (not more than 12 or 16 inches) and to black and white subjects only, it may be satisfactory on the score of simplicity and uniformity to adopt the same method, but if large drawings have to be copied or colour work is included in the requirements a very great advantage will be found from using a resistance fitted with a regulating switch. By means of this apparatus the best possible results can be obtained from the lamp, and far greater economy and efficiency will be obtained. The regulating switch enables the operator to cut out some of the resistance after the lamps have started, and thus secure for his exposures the advantage of the extra power obtained by the longer arc. In actual practice the increased efficiency and economy gained by this arrangement is equal to a second pair of lamps—that is to say, the operator secures an illumination of his copies when required equal to four lamps instead of two. From this it follows that not only should strong switches be specified, but also that they should be fitted with a graduating resistance of five or six steps. The wiring should in all cases be amply large to allow for increase of current when necessary without risk or unduly heating the wires. A further advantage of the adjustable resistance is that it gives a very convenient and instantaneous means of equalising the illumination on the two sides of the copy.

### Lamps and their Photographic Efficiency.

It is, however, when we come to the lamps themselves that we find the greatest differences in economy. It is not overstating the case to say that the difference between two makes of lamps, equal to one another as regards their illuminating power and using the same current, may be such that the exposure with one may be as much as eight times longer than the other—that is to say, each exposure with the inferior lamp costs the proprietor eight times as much for current as the better one, and this without including the loss due to the delay of the whole establishment or the alternative of providing additional complete equipments with their necessary complement of space and operators.

The explanation of the difference in the efficiency of the lamps lies chiefly in the fact that the rays efficacious in ordinary photography are the violet and ultra violet, neither of which have any value as illuminants. The violet rays, indeed, are worse than useless as illuminants, and they give an objectionable cold and violet hue to

objects generally, and to the human features and complexions specially; therefore, as far as illuminating purposes are concerned, the aim of the lamp designer is to suppress these violet rays as much as possible, and it follows also that the design of lamps for photographic purposes requires special study on the part of the electrician.

During the past few years one of the firms of high repute who have paid special attention to these requirements is the Westminster Engineering Company, Ltd., of Victoria Road, Willesden Junction, to whom the photographic publishing and engraving trades are under a deep obligation for the improvements in lamps, and the greatly increased efficiency in working thereby attained which have resulted from their efforts.

With the open type short arc the intensity of the radiation in different directions is very uneven, and in any one direction variable, the two effects together giving rise to serious elements of difficulty and uncertainty in working. With the long arc these defects are, comparatively speaking, absent. From these various considerations it is obvious that the enclosed arc for all photographic purposes is a greatly superior type to the open arc lamp.

For copying or making screen negatives from small originals—black and white, their small lamps, No. 110c or No. 111c, with reflector fitted, and with fixed or variable resistance, will be found reliable and sufficiently powerful for quick exposures.

For copying large originals and direct screen colour work the large lamp, No. 114 type, should be employed, with a variable resistance, the best conditions being with a direct current voltage of 200 to 250 if possible.

By taking advantage of the co-relation which exists between the different rays, carbons are now constructed which transform a maximum of the available energy into red and yellow rays, green rays, violet rays respectively, and in colour work these special carbons are employed for the blue printer, red printer, and yellow printer respectively. For the purpose of changing the carbons readily, it is important that the lamps should be strong and flexible in the mounting parts and the enclosing system simple and accessible. Here again the "Westminster" lamp, with its plain cylindrical glass loosely resting on the lower flange, together with the tubular spring clip for the upper carbon, and single screw for the lower, gives the maximum of simplicity and reliability.

As each colour record is taken separately with a light which gives a proper spectrum record for that colour, so long as the proportion of exposures are correct, it is of no importance that the original looks altogether wrong to the eye with either of the carbons when illuminated singly by them.

Average exposures for screen negatives with lamps working on direct current with 240 volts, 11 amperes, 16 inches from the copy.

	Stop.	Exposure.	Carbons.
Black and White Wash Drawing			
with Wet Collodion .....	F/90 .....	3 min. ....	Plain
Ditto. Ditto. ....	F/45 .....	30 sec. ....	hard solid

### Water-Colour Drawing with Albert's Emulsion.

	Stop.	Exposure.	Carbons.
Blue Printer.....	F/128 .....	10 sec. flash .....	Flame red
Ditto.....	F/128 .....	3 min. on copy .....	Ditto
Red Printer.....	F/128 .....	15 sec. flash .....	Ditto
Ditto.....	F/128 .....	4 min. on copy .....	Ditto
Yellow Printer.....	F/90 .....	4 min. ....	Plain
Ditto (wet collodion).....	F/45 .....	30 sec. ....	Hard solid

### Portraiture.

For portraiture the most suitable lamp is the No. 114, carried on



a suitable stand or suspended from an overhead carriage, depending upon the arrangement of the studio. One lamp is quite sufficient, with a reflector behind, and a suitable diffusing screen between the subject and the light, movable reflecting surfaces being arranged on the opposite side. The reflecting surfaces may be made of white blotting-paper or other highly reflecting matt materials.

The diffusing screen may be made of ordinary white tracing linen

stretched over a light hoop and carried on a movable and adjustable stand.

Exposures will be found to vary with the distance of the lamp from the subject and the current used. With the lamp 6 feet distant and taking a current of 15 amperes on 200 to 240 volt circuit, the exposure with  $f/6$  will be from  $\frac{1}{2}$  of a second, of course depending on the plate used.

HOWARD FARMER.

## WEATHER CONDITIONS AND COLOUR PHOTOGRAPHY.

A paper in Mr. Stieglitz's quarterly "Camera Work."

AMONG the many problems connected with that of taking photographs in natural colours is one the solution of which, though of extreme importance, has received but scant attention from investigators. I refer to that peculiarity that, while certain photographs must represent the objects in the colours in which they are seen at the time of taking, a great many others must be made to represent the objects as they would appear if illuminated by white light. Reproductions of landscapes and exteriors belong to the first category, while reproductions of paintings, art objects, etc., belong to the second. Portraits, also, generally belong to the second, but, for reasons to be later developed, they, as well as mural paintings and frescoes, may, in some cases, be classed in the first category.

A moment's reflection will show the reason for this classification. It is evident, even to the most unobservant person, that the colour of a landscape varies enormously at different hours and on different days. These differences in colour are not only those due to the progressive absorption of the different light rays by the increasing thickness of the atmospheric stratum as the sun sinks lower and lower, but are also due to local atmospheric conditions. It is clear that a colour photograph of such a landscape must be a faithful interpretation of the conditions existing at the time of the taking of the photograph.

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THE "RAJAR" CAMERA offered monthly by Messrs. Rajar, Ltd., of Moberley, Cheshire, for the best print on "Rajar" P.O.P. has been awarded to L. H. Taggart, Douglas, having been judged the best received during October. The paper on which the print was made was purchased from Mr. Aspell, Bucks Road, Douglas.

NORTH LONDON PHOTOGRAPHIC SOCIETY.—The second annual exhibition of this society will be held at the Islington Public Library, Manor Gardens, Holloway, N., on December 5, 6, and 7. There

be able to modify the quality of the light reaching the plate so as to make it the equivalent of white light.

If this be judged too glaring, it can, as will be shown later, be mellowed to any extent.

Exception has purposely been made to the colour-reproductions of frescoes, mural paintings, etc. These, in justice to the painter, must, if possible, be reproduced in their setting and in the light in which they are intended to be seen.

### Atmospheric Absorption of Light.

The following figures, deduced from the formula given by Lord Rayleigh in the "Phil. Trans." of Royal Society, 1887, show how important are the variations in the quality of the light at different hours of the day.

Assuming that sunlight before traversing the atmosphere is made up of 1,000 parts of each colour, the amount of the different colours transmitted through varying thicknesses of atmosphere will be as shown in the table, the figures 1, 2, 3, 8 being the relative thicknesses of atmosphere traversed, and 90deg. to 30deg., etc., indicating the elevation of the sun above the horizon.

	1. Atmosphere or 90°.	2. Atmosphere or 80°.	3. Atmosphere or 19°30'.	8. Atmosphere or 7°30'.
Red at B .....	945	855	795	550
Orange at C .....	910	835	760	480
Yellow-orange at D .....	865	785	655	325
Green at E .....	805	645	520	170
Blue at F .....	735	545	405	85
Violet at H .....	510	250	120	0

As will be noticed, sunlight in traversing 1 atmosphere loses about 9 per cent. of the red and nearly 49 per cent. of the violet; when it traverses 2 atmospheres, it loses 15 per cent. of the red and 75 per cent. of the violet; and when it traverses 8 atmospheres, a little before sunset, it has lost 45 per cent. of the red and 100 per cent. of the violet. At 32 atmospheres, the sun being at the horizon, the yellow, the green, and the blue and the violet are entirely absorbed.

The above table is for normal absorption. It is clear that there is an additional variation due to local atmospheric conditions, such as clouds, rain, haze, etc.

Such being the working conditions of the colour-photographer, it follows that instruments must be used to measure, quickly and accurately, the quality of the light at the time of the taking of the photograph, and must, moreover, have means in his lens to quickly make such corrections as may be necessary to ensure faithful reproduction of an object as it would appear in white light.

C. L. A. BRASSEUR.

will be two open classes—one for "pictorial photography," in which three bronze plaques will be placed at the disposal of the judge, Mr. Furley Lewis, F.R.P.S., and the other for "colour photography," any subject in either prints or transparencies, though preference will be given to the former, the award being one bronze plaque. Entries close November 25, and entry forms, which are now ready, may be obtained from the hon. secretary, Mr. C. H. Madden, 12, Dagmar Road, Stroud Green, London, N.

## ARTIFICIAL LIGHTS IN PHOTOGRAPHY.

## II.

[An abstract of recent papers, by Baron von Hübl, in "Das Atelier."]

## Various Kinds of Arc Lamps.

The arc light is caused, as is well known, by the passage of an electric current between two carbon points which do not touch (Fig. 5). In consequence of the high resistance of the air, very great heat is produced. According to Thompson,<sup>1</sup> the temperature is about 6,840deg. F. At this temperature the carbon points glow, become vaporised and burn, particles are torn off, and fly to the opposite pole, and there is thus formed a glowing bridge of light. The temperature of the two poles is not the same. That of the positive (+ in Fig. 5) is the hotter, and is therefore more quickly destroyed than the negative.

After a short time there forms in the positive pole a depression or crater, *a*, which corresponds to the hottest part, whilst the negative pole burns away to a point. The positive crater emits a very intense light, in comparison to which the negative pole is comparatively dark.

The arc of light is of different lengths and brilliancy, according to circumstances. In the ordinary arc it is short and not very luminous, whilst with some of the newer types of lamps it is much longer and of great brilliancy, so much so that the crater light is scarcely perceived.

The length and brilliancy of the arc can be increased by increasing the current or by addition of certain substances to the carbons, which, at the temperature of the carbons, are vaporised, and form a good conducting bridge. Such carbons are known as "effect" carbons, the arc formed between them as "flame arcs."

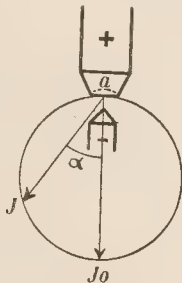


Fig. 5.

There are two types of arc lamps, one with a short arc, in which the positive crater emits the light. This is the ordinary arc lamp; those with long, brilliant arcs are called "flame" or "high-tension" lamps.

If ordinary carbons are used the arc always emits a light very rich in blue, violet, and ultra-violet rays, and as it is these rays which are photo-chemically active, it is clear that lamps with long arcs are the most efficient in photography.

## The Ordinary Arc Lamp.

In the ordinary arc lamp, working at about 45 volts, the arc itself is scarcely visible, and is of little value for printing. The light is emitted from the crater, *a* (Fig. 5). A curved surface of this nature acts like a luminous surface.

The radiation of the light from the crater is partially stopped by the negative carbon; even at *mm* (Fig. 6) the decrease of the light caused by the shadow of the negative pole is seen, whilst at *nn* there is complete darkness. The radiation of the light is thus considerably contracted, and the intensity curve corresponds not to the circle, *K*, but shows the shape of the curve, *C*. The strongest light is thus radiated downwards at an angle of 40deg. to 50deg., whilst in an horizontal direction the intensity is nil, if the small radiation from the negative pole is neglected.

The extension of the light rays corresponds to a body moving round the axis of the carbons. If, as shown in Fig. 7, a plane, *FF*, is illuminated parallel to the lamp axis, the "illumination

curve" is *KK*. To obtain this, the variation of light from intensity curve, *C*, the "radiation angle" has to be multiplied  $\cos^2 \alpha$ , as mentioned in the previous article. If the plane is tilted so that it is at right angles to the rays at 40deg. in the position shown by the dotted line, *F<sub>1</sub> F<sub>1</sub>*, the "illumination curve" becomes *K<sub>1</sub> K<sub>1</sub>*.

It will be seen that these curves are always very sharp, in consequence of the obstruction to the radiation by the negative pole. In the position *FF* the curve is flatter, but the brightest rays, at an angle of 40deg., are only partially utilised, as they fall at an angle on the surface. In the position *F<sub>1</sub> F<sub>1</sub>* there is a more intense illumination, but the curve is deeper.

For these reasons the ordinary arc lamp is but little fitted for printing. The position of the crater constantly changes, so that the illumination is uncertain. An alternating current lamp is much better, as flat craters are formed on both carbons, which radiate

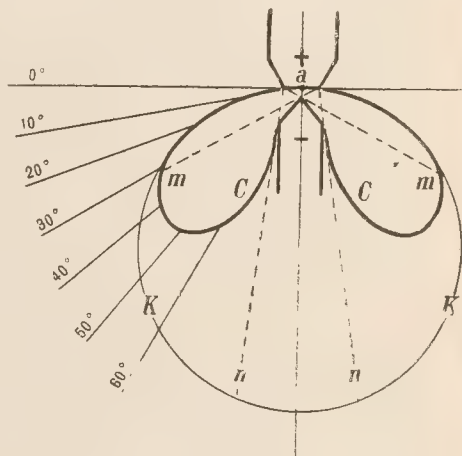


Fig. 6.

the light equally upwards and downwards. The output of light is, however, small, for this lamp gives scarcely half the light of a continuous current lamp for the same amount of current. For these reasons these lamps are not suitable for printing.

The almost invisible arc emits principally the ultra-violet rays, which, however, are of scarcely any importance in printing, as they are almost completely absorbed by the glass. With the size of the lamps or the strength of the current, the length of the arc increases, and therefore also the quantity of the ultra-violet rays, as is shown by the following experiment: In the most intense rays of an 8 ft. 24 ampere lamp, at a distance of 20in., a strip of collodion paper was exposed till of the same depth as its "tint." The following times were required:—

8-ampere .....	364 seconds.
24-ampere .....	56 seconds.

Strips of the paper were then covered with a sheet of as colourless glass as possible  $\frac{1}{4}$  in. thick, and exposed under otherwise similar conditions. The following were the times of blackening:—

8-ampere .....	423 seconds.
24-ampere .....	87 seconds.

From these numbers it is obvious that the light of the small lamp contained only 14 per cent. of ultra-violet, which was absorbed by the glass, whilst the large lamp contained 30 per cent.

A part of the rays emitted by the arc—obviously the ultra-violet—are received after passing through the glass, a fact which explains the extraordinary superiority of the large lamps, for the increase of the current to three times has raised the photo-chemical power

"The Manufacture of Light." By Silvanus P. Thompson. 1906. Page 41.



x and a half times, or, if the ultra-violet rays are not considered, five times. The brightness of the light increases very quickly with the increase of current, but not in strict proportion.

From the above figures we may also conclude that with the small lamps, at 20in. distance, about four times as long is required to print as with diffused daylight, whereas with the large lamps the time is somewhat less.

A sheet of collodion paper, in the position *FF'* (Fig. 7), at a distance of 10in., gave an oval of about 84 square inches in area. The printing frame should always be placed with its longer side parallel to the axis of the lamp, and several frames should be used once so as to use up the whole of the rays emitted. The use of reflectors to concentrate the light upon one frame is, as has already been pointed out, of but small value. An experiment with a white enamelled, half-cylinder reflector proved that the time of exposure was shortened only 10 to 15 per cent.

The above figures also show that the use of several lamps to

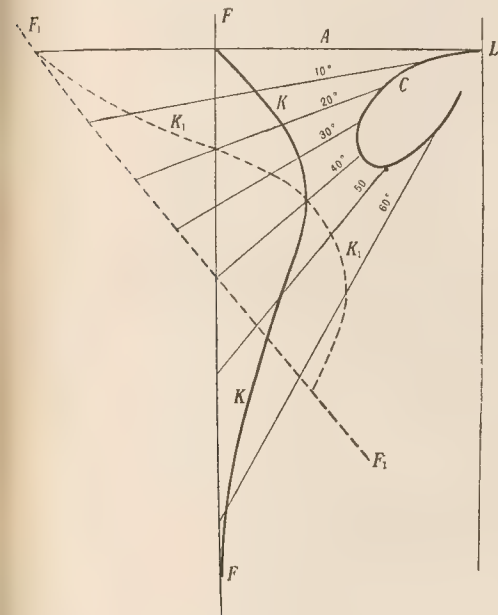


Fig. 7.

obtain equal illumination over a larger field is very extravagant, or with three small lamps of 8 amperes only half the action of one 4-ampere lamp is obtained.

A searchlight will, as has been stated, give a more extended field, but a much simpler arrangement consists of a white, cone-shaped reflector, with rounded bottom, in which the carbons are placed horizontally and with the crater turned away from the mouth, as shown in Fig. 8. Lamps of this kind have been used for years in the Imperial Military Institute at Vienna. The lamp is run with 100 amperes, and gives, at a distance of 40in. from the poles, a perfectly homogeneous field of 46in. diameter. In spite of the amount of current used, it is not so extravagant, as will be seen from what follows.

With the same current, four lamps of 25 amperes could be run, of which each, at a distance of 10in., will blacken about 84 square inches of paper, and at a distance of one yard, sixteen times this area, or 1,340 square inches. With four lamps, therefore, about 200 square inches can be printed. With the 100-ampere lamp a circle of 46in. diameter is covered, or about 110 square yards. With the 25-ampere lamp the blackening to standard, at a distance of 20in., takes 87 seconds; therefore, at a distance of 40in., 384 seconds. With the 100-ampere lamp, under similar conditions, the time was 95 seconds. If the time for the blackening be divided by

the area, we obtain the time required to blacken the area unit (one square yard)—that is, if all the rays are directed to the area.

We thus obtain for the four 25-ampere lamps,  $348 \div 384 = 0.91$  seconds, and for the 100-ampere lamp  $95 \div 110 = 0.86$  seconds. So that both arrangements are approximately the same as regards cost, and the four small lamps are only advantageous when their light is used on several sides.

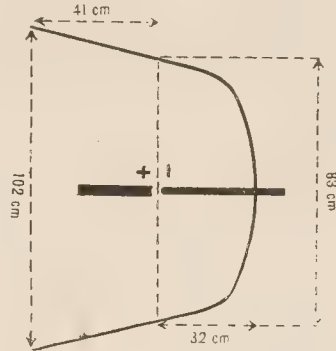


Fig. 8.

It is interesting to note the large quantity of ultra-violet rays which the 100-ampere lamp emits. With the naked light the collodion paper blackened to the standard in 41 seconds; under similar conditions, with the interposition of a sheet of glass, 95 seconds was required. The light contains therefore, almost 60 per cent of ultra-violet rays, which are lost by printing through glass.

#### DEATH OF MR. JOHN A. HODGES.

Another well-known worker in the photographic world has passed away in the person of Mr. John A. Hodges, whose death took place at Ealing on October 25 at the early age of 46. Mr. Hodges was an enthusiastic and active photographic worker, and his writings, both in article and book form, bore the stamp of emanating from one thoroughly acquainted with his subject. He was also one of the most able exponents of the pictorial lantern-slide, of which he possessed a large collection, illustrating the most beautiful portions of English and Welsh scenery, and these, together with his services as lecturer, were for many years freely placed at the disposal of societies. Mr. Hodges for some years discharged the duties of hon. secretary of the Royal Photographic Society, and was a constant exhibitor at its exhibitions, and although for some time past various causes have prevented his taking an active or prominent part in photographic matters, his unfailing courtesy and ready help will long be remembered by those with whom he was for many years associated. We tender our sincere sympathy to Mrs. Hodges in her bereavement.

**AIDS FOR THE ARTIST: HOW TO IMITATE THE BEST JAPANESE PAINTERS.**—Some knotty lines (trees); congested sky and vernal earth; two or three chance splashes (birds); one or two diagonal-eyed figures of uncertain sex; name the mixture "Garden Scene in Tokio."—From the "Globe."

**HOUGHTON'S QUARTERLY.**—The current issue of Messrs. Houghton's gratuitous publication for amateur photographers is largely occupied with a demonstration of the optical qualities of the "Ensign" Anastigmat. This takes the form of a series of photographs by Mr. H. W. Bennett, who, as an expert in architectural photography, may most certainly be regarded as a conscientious worker not predisposed to take a roseate view of his optical tools. Mr. Bennett reports most favourably on the "Ensign" Anastigmat, and in proof of his statements permits Messrs. Houghton to reproduce several photographs of difficult subjects taken with the lens listed for a plate a size smaller than that actually used. A copy of the "Quarterly" may certainly be recommended to those anxious to take advantage of Messrs. Houghton's offer of the lens at a reduced price—an offer which remains open until November 30.

## ENLARGED NEGATIVES DIRECT.

(From the Journal of the Birmingham Photographic Society.)

Owing to the distressing loss of quality in enlarged negatives made from a small transparency, I have for some time been experimenting with several methods of reversal. Members who have used the Autochrome process may have tried the method of producing a positive from a negative set out in Messrs. Lumière's instructions for that process, and if so they will have found that it does not work satisfactorily with ordinary plates, probably owing to the coating being much thicker than that employed on the Autochrome plate.

However, here is a method published by M. Balagny, which I have used with complete success, both for plates and negative paper.

The original negative is enlarged on to an ordinary slow plate, and developed with—

A. Amidol .....	15 grs.
Sodium sulphite .....	80 grs.
Ammonium bromide 10 per cent. ....	2 drs.
Potass metabisulphite .....	5 grs.
Water .....	5 ozs.

Development is stopped when the image shows through at the back of the plate.

Assuming a good positive has been obtained, it is washed for five minutes, backed with a piece of wet black paper to prevent halation, and exposed to daylight for 30 seconds, or 6 inches of magnesium ribbon is burnt one foot from the plate.

All subsequent operations are conducted in the dark-room, in a good yellow light. After exposure the plate is bleached in—

B. Potass bichromate .....	75 grs.
Nitric acid .....	30 minims.
Water .....	5 ozs.

and after the action is complete immersed in—

C. Sodium sulphite .....	1 oz.
Potass metabisulphite .....	15 grs.
Water .....	5 ozs.

This solution will clear the bichromate stain from the film in about five minutes, when the plate is well washed and redeveloped in—

D. Amidol .....	15 grs.
Sodium sulphite .....	80 grs.
Potass metabisulphite .....	15 grs.
Water .....	5 ozs.

till the image is black enough, and, finally, it is fixed and washed in the usual way.

CECIL R. M. PARR.

**CHRISTMAS POSTING.**—Messrs. Raines and Co., of Ealing, present to photographers in this issue a table of times for the posting of letters and book packets in time to reach practically any part of the world by Christmas or New Year. The table should be of value to our professional readers in enabling them to observe punctuality in the supply of photographs to be sent abroad; it should also suggest the advisability of looking after business of this kind.

**THE AUTOCHROME PROCESS IN AMERICA.**—For Mr. Alfred Stieglitz's tireless energy the Autochrome process—so we see from the current issue of "Camera Work"—has provided a new channel. For several months of the past summer Mr. Stieglitz has been in Europe, where, with Mr. Steichen and Mr. Frank Eugene—both staunch photo-secessionists—he has prepared a collection of Autochrome transparencies. Within forty-eight hours of landing in New York he had issued a letter to the American Press, inviting them to visit an exhibition of these Autochromes at the "Photo-Secession" Little Galleries. In "Camera Work," No. 22, Mr. Stieglitz is surely guilty of letting the cat out of the bag when he explains that it was Mr. Steichen who gave the cue to a certain photographic journal as to the possibilities in the process. The cue, says Mr. Stieglitz, was taken, and the result—we quote Mr. Stieglitz—was a journalistic "flare of trumpets." We are glad to learn that a special supplement to "Camera Work," dealing with the Autochrome process, is in preparation. It may describe certain new practice of the process worked out by Mr. Frank Eugene, and will contain reproductions of Mr. Steichen's Autochromes of Lady Hamilton, Mr. Bernard Shaw, Mrs. Alfred Stieglitz, and a portrait group taken on Mr. George Davison's house boat. Mr. Stieglitz is not the man to turn back from a task until he has spent all his might on its highest accomplishment, and therefore this special issue of "Camera Work" should be of unusual interest. We ought to say that it is obtainable only from Mr. Stieglitz, at 1,111, Madison Avenue, price 18s. the single copy.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been received between October 21 and 26:

**CINEMATOGRAPHS.**—No. 23,396. Improved cinematograph apparatus. Thomas Walter Barber, 82, Victoria Street, Westminster, London.

**VIEWING APPARATUS.**—No. 23,478. Improvements in the form of apparatus for viewing photographic and other transparent daylight and artificial light. Crossley St. John Broadbent, Railway Road, Darwen.

**COLOUR PHOTOGRAPHY.**—No. 23,615. Improvements in colour photography. Edgar Clifton and Arthur Ernest Wells, 1, 1, 1, Street Buildings, Liverpool Street, London.

## COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**LENSES.**—No. 17,624, 1907. The claim is for a spherically and optically corrected objective with astigmatic flatness of picture, consisting of four lenses of two kinds of glass, two of which, a double convex and a double concave lens, are cemented together and are arranged before the diaphragm; the two of a negative and a positive meniscus separated by an air space being arranged behind the diaphragm, the positive lens having each time a higher refraction and less dispersion than the negative. Rudolf Steinheil, 17, Theresien Höhe, Munich.

**DEVELOPING TANK AND DIPPERS.**—No. 21,975, 1906. The claim is a vessel provided with ledges, *b b*, in which rest plate-holders of the form shown in fig. 2. The holder has projections, *i i*, which rest on the ledge *b*, and allow of a slight motion

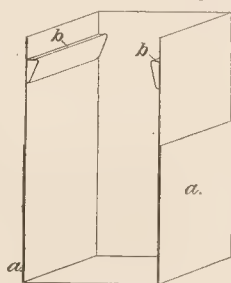


Fig. 1.

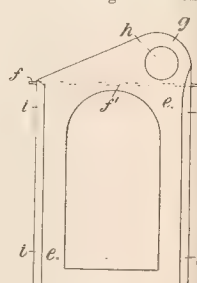


Fig. 2.

imparted to the plate. In fig. 2 the plate is slipped into grooves, *i i*, and the dipper is removed by the handle *g*. William Laurence Parkinson, of 3a, Imperial Chambers, Dale Street, Liverpool.

**FOCUSING.**—No. 22,238, 1906. The invention consists in a method of focussing, not by observing the sharpness of an image on a screen, but by observing the coincidence of two (divided) images of an image.

As shown in figures 1 and 2, there are fixed at the top of camera two small concave mirrors I and II of a diameter of 2 centimetres, and approximately in the plane of the sensitive plate. They are fixed on one common narrow strip or slit *X*, which is upright when the mechanism is in use, and may be turned down on the camera when the mechanism is not in use. These mirrors are of approximately equal focal lengths with the lens of the apparatus. There is arranged on a level therewith a third concave mirror III of about 4 centimetres in diameter which is secured to the lens and moves therewith towards the sensitive plate and towards the mirrors I and II. This third mirror comprises two halves, a top and bottom one, which are capable of relative motion on a vertical axis, so that one half is parallel to the mirror I, and the other half is parallel to mirror II. The focal length of these two semi-mirrors is about one-half of that of the lens of the camera. The mirror III



attached to an arm Y (figure 2) which, when not used, may be turned down in front of the lens.

An observer viewing the mirror III from O (figure 1) sees in the top-half of the mirror III the image of the objects projected thereon from I, and in the bottom half the image projected thereon from II. The mirror III is arranged at such a distance from the mirrors I and II that when focussing the camera for an infinite distance an infinitely remote perpendicular line appears to run continuously in the top and bottom halves of the mirror III. Each less distant perpendicular line appears, however, to be broken off, and the two halves are wider apart the closer the object is. If, however, the lens is placed farther from the sensitive plate, and at the same time the mirror III, from the mirrors

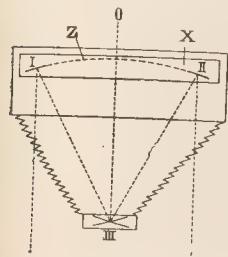


Fig. 1.

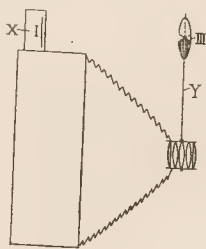


Fig. 2.



Fig. 3.

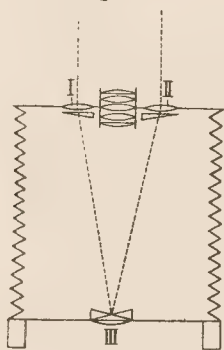


Fig. 5.

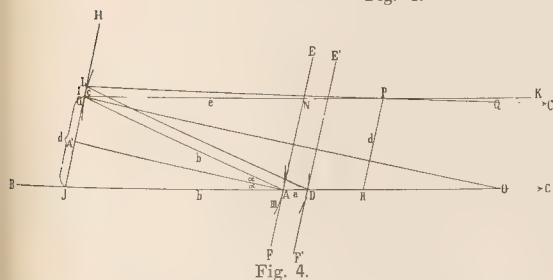


Fig. 4.

I and II, an infinitely remote perpendicular line will now appear to be broken off, whilst the image of a nearer positioned perpendicular line is continuous. The coincidence of the two images of the same object always takes place, provided that the device is accurately adjusted, when the image is simultaneously sharply focussed on the opaque plate. That which applies to perpendicular lines also applies to any other line which intersects the dividing line in the middle of the mirror III, except that the relative displacement of the two line portions is not so great. Focussing is not possible on lines which run parallel with the dividing line on III, as such lines only appear to run into each other. If an object only consists of horizontal lines, the camera would have to be turned somewhat in order to be able to focus with the mechanism. Figure 3 shows the focussing of three differently remote trees. The apparatus is in focus for the tree 2, while the tree 1 is in front of, and the tree 3 behind the accurately focussed tree.

The focussing of an object is effected in a very simple manner in that the lens is screwed until the object to be photographed appears continuous on the top and bottom halves of the mirror III.

The conditions for the proper function of the described arrangement are clear from figure 4, which represents a diagrammatical horizontal section through the half of the focussing mechanism.

The observer B looks in the direction of the optical axis B C on the concave mirror III. The inclination of this mirror towards the optical axis is arbitrary; it may be assumed that the line A<sup>1</sup> A which is perpendicular to the surface of the mirror forms with the optical axis the angle  $\alpha$ . The effect of the mirror can be assumed as replaced by that of the plane mirror E F perpendicular on A<sup>1</sup> A; in this case the concave mirror serves only to magnify the field of sight. A perpendicular lying on the optical axis is then viewed as running continuously from B, when it again appears on the optical axis after double reflection on mirrors I and III. It may be assumed that this condition should be fulfilled for the two extreme points, namely, for the focussing of  $\infty$  and for the nearest point for which the focussing shall be efficient; the last-named point may be positioned at C. Be it assumed that C is remote from the lens to the extent of  $n f$ , that is  $n$  focal lengths from the lens. The mirror III assumes the position E<sup>1</sup> D F<sup>1</sup> when focussing the lens on C. In this instance the distance

A D =  $a$  is equal to  $\frac{1}{n-1} f$ . In order that the focussing for  $\infty$

may be accurate, the ray B A, which is reflected to A G, must be reflected from mirror I to K, so that K G is parallel to C B. K G will then be reflected to G A and to A B. It follows therefrom that  $\angle K G A = \angle G A J = 2\alpha$ ; and G O the bisecting line of the angle K G A, perpendicular on the mirror I at the point G and H J, the tangent on the concave mirror I at G. If A J =  $b$ , G A =  $b$  as triangle, G A A<sup>1</sup> is in congruity with J A A<sup>1</sup>, and also A O = A G =  $b$ . After the displacement of the mirror III to E<sup>1</sup> D F<sup>1</sup>, the ray B D is reflected to D L, so that D L is parallel to A G. D L is reflected from mirror I to L Q. L Q intersects G K at P. The extension of P Q must meet C; if this is the case then also the ray emitted from C after the reflection at L and D has the direction D B. As A G and D L are parallel rays, they intersect after the reflection on the concave mirror I at the focal point of the latter. Therefore P G = the focal length of the concave mirror I, which may be designated  $e$ . If L G =  $c$  and G J =  $d$ , one has  $a : b = c : d$  because the triangles, G A J and L J D, are similar to each other. Further, if P R is drawn parallel to H J, and R C is marked  $l$ , in the similar triangles L G P and P R C :  $c : d = e : l$ , from this results:  $a : b = e : l$  or  $a : l = b : e$ . On assuming that

$l = C A = 10f$ , then  $a = \frac{1}{9} f$ ,  $a : l = \frac{1}{9} f^2$ . Therefore for

the points between  $\infty$  and C, the condition that the focussing is correct is  $b : e = \frac{10}{9} f^2$ .

Strictly speaking, the focussing is not accurate for all points located between C and  $\infty$ , because the focal point of the concave mirror I and the front focal point of the lens do not coincide with each other. The difference with respect to the accurate focussing is, however, always so slight that it does not exceed

the value of  $\frac{1}{250} f$ , and is therefore of no practical importance

in the case where the distance of the objects to be focussed is not less than about nine times the focal distance, which is quite sufficient for hand cameras. The focal length of I should be approximately equivalent to that of the lens, so that the image appears in the same reduction as on the plate.

The whole focussing system may also be carried out in such a manner that prismatic convex lenses are employed instead of the inclined concave mirrors. The two image forming lenses must then be in the plane of the lens, and the divided lenses uniting the image in the plane of the sensitive plate. This construction is somewhat more awkward than that with concave

mirrors, but has the advantage that it yields accurate results for all ranges provided that the front focal points of the focussing lenses are located with that of the lens or object glass of the camera in the same plane perpendicular to the optic axis.

If it is not necessary to focus the image when the holder of the photographic plate is inserted in the camera, for instance, in larger stand cameras, the two image-producing lenses I and II (figure 5) may also be arranged directly against the lens or object glass, and the lens III, taking up the image, may be substituted for the opaque glass plate. The lenses I and II must then, of course, be covered for photographing. Dr. Walther Thorner, 118, Wilhelmstrasse, Berlin.

**PHOTOGRAPHS ON GLASS AND PORCELAIN, ETC.**—No. 1,928, 1907. The invention relates to a process of preparing ceramic enamels. A support is covered with a layer of bichromated fish-glue, the dried layer exposed under a negative, developed, hardened with a tanning agent, and fixed.

The developed image is treated, prior to fixing, with a solution of hydroquinone, which causes a deep black coloration of the image on fixing, when the tanned image is dipped for some time in a solution of logwood extract. The same effect is obtained by dipping the developed image for some time in a mixture of the hydroquinone solution and logwood extract.

It is well known that it is necessary to mix the chromatised fish-glue with a saccharine substance in order to prevent it from becoming brittle on fixing. As such saccharine substance, a concentrated decoction of malt, such as a dark beer rich in malt, is preferred, as malt has proved to give a high degree of tenacity to the bichromated fish-glue when a mixture of both is exposed to the action of heat.

A solution is prepared composed of 400 ccs. fish-glue, 40 to 60 gms. of bichromate of ammonium, and 700 ccs. of dark beer which is rich in malt. The support of metal, glass, or porcelain is covered with a layer of the above solution, and dried preferably by means of "a centrifugal."

After drying the support is placed with its sensitive layer under the negative, exposed, and after exposure washed with water to develop the image. After development the support, with the image adhering thereto, is placed in a tanning bath consisting of an aqueous solution of from 5 to 10 per cent. of hydroquinone. Finally the support and adhering tanned image are fired in a closed furnace (muffle, covered hearth and the like), as by this way a more uniform and a more brilliant black is obtained than by firing on an open fire. Alfred Hans, No. 14, Rubensstrasse, Friedenau, near Berlin.

**CHANGING BOXES.**—No. 480, 1907. The invention consists of a changing box comprising an inner and outer case, slotted guides, pin-supported sheaths, extractor and springs, stop-blocks, spring-stops, removable door, dummy sheath and flexible shutter, in which all "plates" but one are drawn out, as described with the aid of eighteen diagrams in the specification. George Russell Nicholls, 48, Crescent Road, South Norwood Park, S.E.

**REFLEX CAMERA HOOD.**—No. 2,912, 1907. The claim is for a hood or box-like casing comprising a top wall which is adapted to be connected by a hinge to the camera box, opposite side walls, an end wall provided with a sight opening, and a bottom wall connected by a hinge to the end wall, and light-excluding means connected with the opposite edges of the bottom wall, movable therewith when the bottom wall is swung relatively to the end wall, and applicable to exclude light from opposite side spaces between the side walls and the bottom wall. Julius Daniel Garfield, No. 26, Beech Street, Springfield, Massachusetts, U.S.A., and Charles Bauer Harris, 39, Madison Avenue, Springfield.

**CAMERA STAND.**—No. 12,481, 1907. The invention consists of the combination with a camera tripod of a detachable socket, with telescopic tubes and rods, clamping means to the sockets and tubes, and means such as feather and groove to prevent the rotation of the telescopic tubes. Edmund Healiss Harrison, 282, Croxted Road, Herne Hill, London, S.E.

## New Trade Names.

**PUREX.**—No. 296,271. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. James Ballantyne Hannay, Greenford Colour Works, Greenford Road, Greenford Green, Harrow, Middlesex, Manufacturing Chemist. Sept. 12, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Lighting the Portrait.

In arranging the lighting to suit the individuality of the sitter (writes Mr. A. J. Anderson in an excellent series of articles in "The Amateur Photographer"), I can only suggest two general principles: a strong, masterful face demands, as a rule, a somewhat strong scheme of lighting. A strong scheme of lighting is usually obtained by blocking up part of the window, or otherwise concentrating the light; a soft scheme of lighting may be obtained by placing the sitter at some distance from the window and fairly close to the reflecting screen, or by breaking and softening the light with a thin muslin curtain hung across the window. But a strong scheme of lighting should be followed by a generous exposure, and a somewhat short development in a diluted developer, lest the contrasts should be crude and coarse; and a soft scheme of lighting requires more vigorous development in order to obtain sufficient strength in the high lights. If the sitter has a sloppy character, shown by a slack mouth, and a chin that might have been carved out of a turnip with one sweep of the knife, the case is hopeless; but if the sitter has a well-formed character, each little depression and ridge and modelling on the chin, cheek and forehead means something, and the photographer should not be content until he has found a lighting that will bring out this modelling. With personal friends the habit of observation will enable us to notice some position, some lighting, in which both pose and lighting bring out the best and most characteristic qualities of their features, and they can often be photographed in the identical position; but with strangers, only practice and the seeing eye, combined with intuition, will empower us to depict character. Above all things, the portrait photographer must learn to see shading on a face, and this is quite an acquired power.

## New Books.

"Camera Work," No. XX. New York: Alfred Stieglitz. 4dols.

Our luxurious American contemporary sounds and sustains a triumphant note in its twentieth issue. It sings the praise of photography; the praise of colour work and the Autochrome essays of Messrs. Steichen, Stieglitz, Eugene, and others; praise of Lumière and of Bayley; praise of the Columbia University, which has "recognised" pictorial photography; and of Mr. Clarence H. White, who is to lecture upon it; and, finally, praise in *excellis* of Mrs. Käsebier. It ends, however, upon a melancholy and despairing note directed towards journalistic criticism generally, when it is disposed not to join in the psalm. As a whole, the letterpress is scarcely up to the not over-exalted literary standard of previous numbers.

The ten plates, on the other hand, are no less fine than their fore-runners. Mr. George H. Seeley, who, by-the-by, comes in for a good share of the plentiful praise, has six plates of undoubted, but unequal, merit. We learn that he is young and new to the work and that great things are expected of him. This expectation of great things from newcomers is a doubtful policy, more often than not puffing up with a little brief importance a worker who might develop more safely and surely if he were not breathlessly watched. Whilst we accept Mr. Seeley's work as showing something of an individual purpose, we commend to him, at the same time, the second half of the creed of Mrs. Käsebier as given in these pages: "The artist must be on his guard against being led into artificial channels." The "guard" we may add, is seldom large or strong enough for the purpose. Mr. Seeley's "Firefly" has a decorative strength and beauty of tone that makes it the best of his plates here shown. It is a head wearing a coronet, a throat, and a hand holding the firefly, presumably. The rest of the accessories are beyond recognition by a commonplace Londoner. If photographers would only realise the gain of interest and strength that comes of having a "motive" in their compositions, they would escape much of the adversity so sorrowfully deplored by Mr. Keiley. The three plates by Mr. Stieglitz are strong upon that very account. They are not in the nature of a silly puzzle that is not worth puzzling over. They delight because they are sane and ordinary representations of city life, holding a beauty that escapes the man in the



street. To our minds the Berlin view is by far the best, both photographically and artistically.

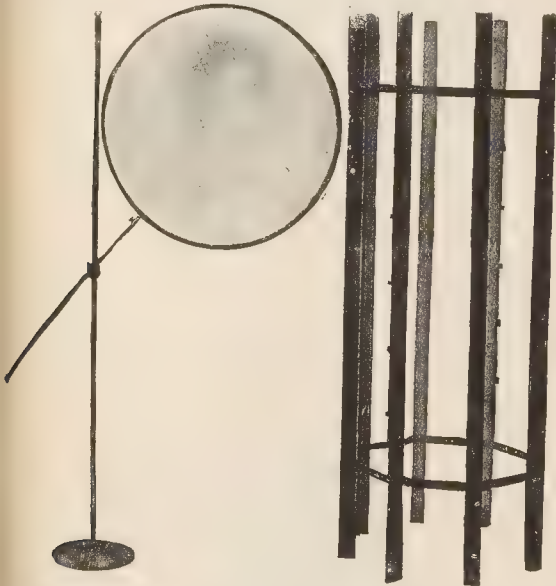
The remaining plate is a "Nude" by W. W. Renwick, and we can give it no higher recommendation than calling it one of the most successful nudes we have ever seen which were not produced by the hand of a Frenchman. Grace of line and delicacy of tones could hardly be better secured. The pose recalls that of the so-called "Venus" of the so-called Velasquez, and for the thousandth time shows up the error of the pelvic line in that most patent fraud.

"LOUIS WAIN'S ANNUAL."—We know many persons who regard Mr. Louis Wain's Annual as the most humorous of the Christmas publications. This year Messrs. Bemrose and Sons, Limited, greatly add to the attractiveness of the volume by the lavish use of three-colour supplements. The volume, moreover, contains an excellent literary programme, and is wonderful value for 1s.

## Dew Apparatus, &c.

Printing Framework and Diffusing Screen for Use with Enclosed Arcs. Made by the Westminster Engineering Co., Ltd., Victoria Road, Willesden Junction, N.W.

The "Westminster" enclosed arc lamps have been noticed already in our pages, and must be sufficiently well known to many of our readers to render unnecessary any lengthy reference to them. Moreover, the list of the Westminster Engineering Co. describes them

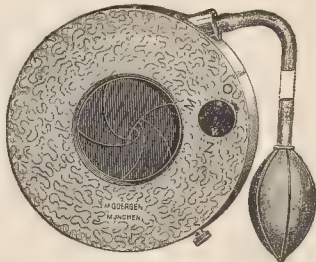


fully, and a number of the results obtained by them in the regular way of business may be seen in the present exhibition at our offices. One may, however, draw attention to two accessories which are of recent introduction on the part of the Westminster Co., and extend or facilitate the employment of the lamps. The first is a cast-iron framework for the support of printing frames. The frame, as shown in the figure, is seven-sided, and is painted white inside. It accommodates 48 half-plate printing-frames and 8 whole-plates during printing, the lamp, of course, being caused to transverse the height of the framework in small stages or with a slow continuous motion up and down. The stands on which the lamps are counterpoised permit of this being readily done by the printer. The price of the frame is £4 5s. Carriage and packing, if four frames are ordered, are free throughout the United Kingdom.

The second accessory—a diffusion screen—scarcely requires any comment, beyond the reference to the drawing of it. It is sold at £1 5s.

The "Goergen" "Central" Shutter. Sold by J. H. Dallmeyer, Ltd., 25, Newman Street, Oxford Street, London, W.

Despite the great number of shutters on the market, there must, nevertheless, be a demand for exposing apparatus of a special, even of a limited, character, which is all the more useful from the fact that its powers are not all-comprehensive. The "Goergen" shutter is one of these. It has a sphere of use quite its own, and one in which it fulfils its prescribed duties most efficiently. It is essentially



a shutter for time-exposures, and is used in either of two ways—by hand (for long-time exposures), or by pneumatic bulb for those of shorter duration. In the first case the leaves of the diaphragmatic plate are turned back by moving the milled head V, and the aperture is closed by a reverse movement. In the second case, the V-mark is turned to Z, and pressure on the bulb then opens the shutter, which does not close until pressure is relaxed. As regards ability to keep open for any length of time, Method II. seems to be limited only by one's patience, but for exposures of more than thirty seconds, the hand opening and closing is, of course, the more convenient. The shutter works practically silently, with no more noise than a smooth pen makes in a writer's hand. Hence the larger sizes should be very excellent studio shutters. The flat build of the shutter renders it a very convenient accessory to a focal-plane camera; it can be carried easily as an extra shutter and used on many occasions when a focal-plane shutter, from the noise and vibration which it produces, may be useless. The "Goergen," it should be explained, is of the "ever-set" pattern, and while we have emphasised its convenience as a time instrument, we should not omit to mention that it is adjusted to give an instantaneous exposure of about 1/80 of a second, or longer if the bulb is pressed slowly. As an accessory shutter it is certainly a most convenient piece of apparatus. We can recommend it to users of reflex cameras, with which type of instrument a lens-shutter is a desideratum when using the camera on a light tripod. The "Goergen" is made for hoods from 1½ in. to 4 in., at prices from 14s. to 24s.

Cooke Series VI. Portrait Lens, and "Cooke" Convertible Anastigmat. Made by Taylor, Taylor, and Hobson, Stoughton Street Works, Leicester.

Since reviewing these two lenses, as the result of a visit to the trade section of the recent R.P.S. Exhibition, we have had an opportunity of submitting both of them to a practical examination, the results of which we may take the opportunity now of recording while re-stating in a few words the salient features of these two additions to the series. The convertible "Cooke" or "Twin" Cooke, as it has been referred to, consists of two "Cooke" anastigmatic triplets with an iris that can be mounted in front of either of the triplets or between the two. The separate triplets are of 14.2 and 21.2 inches, which, when combined, give a focal length of 8.6 inches, with an aperture of  $f/6.5$ . The separate triplets each have a full aperture of  $f/11$ . As regards the working of the objective, our tests indicate that it has all the well-known good qualities of the Cooke lens. The definition is very fine with each of the above focal lengths. With the 14.2 and 20.2 lenses, used with stop in front, there is a barely perceptible indication of distortion with the 14.2 lens, and slightly more with the 20.2, but the amount is very small. The 8.6 combination is very perfectly corrected, and shows no perceptible form of aberration on a half-plate, which is the size it covers. The Series VI. portrait lens is a variety of the well-known focussing "Cooke" lens, so arranged that by a system of cords and pulleys, the stops, and also the focus can be adjusted from the back of the camera. The focussing system is modified by the addition of a

series of numbered graduations on the focussing ring, and it is therefore possible to introduce and repeat any desired degree of diffusion, or want of focus, by turning the ring to any particular graduation. Our tests show that this lens is admirably suited to its purpose. Though listed for 1/1-plate at full aperture, it covers a 10 x 8 plate with excellent definition, and the diffusion produced by turning the focussing ring is very uniform. The tests were made on a 12 x 10 plate, and the lens covered even this size very satisfactorily.

The A.E.G. Nernst Projector Lamp. Sold by the A.E.G. English Manufacturing Company, Limited, 4, New Compton Street, Charing Cross Road, London, W.C.

In this new type of Nernst lamp a most ingenious electrical device is used to allow of very high candle-powers being obtained. The burner is fitted with a heating coil in conjunction with resistances of special construction, which intensify the current to 1.33 amperes and allow of 500 c.p. being obtained per filament—that is to say, the total consumption for the three filaments is but 4 amperes. On this basis the makers have drawn up the following table of candle-powers obtainable with different voltages:—

100 volts= 600 c.p.	220 volts=1,400 c.p.
110 volts= 700 c.p.	230 volts=1,500 c.p.
200 volts=1,200 c.p.	240 volts=1,600 c.p.
210 volts=1,300 c.p.	250 volts=1,700 c.p.

The lamp is supplied for direct or alternating current at voltages of from 100 to 300, a burner suitable to the voltage being inserted instantly on the projecting pins attached to the centre plate of the lamp. The lamp is so small—about 8 by 4½ by 6 inches—that it will go into any lantern, and as the light remains quite constant after having attained its maximum two minutes after switching on, the new instrument ought to find great favour with enlargers, lantern exhibitors, and others. It is sold complete, with two spare burners for any voltage, at £3 18s.

**SOUTH LONDON EXHIBITION.**—The next exhibition of the South London Photographic Society will be held at the Art Gallery, Peckham Road, S.E., from March 7 to 21 inclusive. The hon. sec. is Mr. Edward Pady, 260, Southampton Street, Camberwell, S.E., to whom all inquiries respecting the exhibition should be addressed.

**THE SCOTTISH SALON.**—The next Scottish Salon is to be held in Aberdeen in February next. Like its predecessors it is to be open to the works of photographers (professional or amateur) resident in Scotland, also the works of Scotsmen not resident in Scotland, of whom there are a very large number in London alone, some of whom it is hoped may be able to send work to Aberdeen. In addition to purely Scottish work, the President of the Royal Photographic Society, Mr. J. C. S. Mummery, has very kindly accepted the committee's invitation to send an exhibit representative of English work, and Mr. Henry J. Comley, the secretary of the Society of Colour Photographers, is arranging a special exhibit of the latest developments of colour photography.

**THE ROYAL SOCIETY OF BRITISH ARTISTS.**—The 128th exhibition of this Society is not more interesting than its 127th, but there are many works that will fully sustain its recently improved reputation. The resident, Alfred East, Esq., A.R.A., does not send such ambitious and striking work this year, and the general diminution in the size of work seems to rob the show as a whole of some appearance of dignity. As large pictures do not sell readily in these days this change is perhaps expedient. The artists whose works stand out prominently are D. Murray Smith, who affects Corot-like designs; Spenlove-Spenlove, whose "River Bank, Walberswick," is homogeneous in its sunny effect; Alec. Carruthers Gould, a painter of whom the world is yet to hear much; F. H. Swinstead, a pastellist displaying unusual subtlety of observation; W. E. Schofield, the painter of grey wintry subjects of great truth; and J. W. Schofield, an accomplished water-colourist. Beyond these we should draw attention to F. O. Salisbury's little boy wearing regalia, and called "Ambition," and to the excellently observed London evening scenes by A. Talmage. Amongst the water colours we were particularly charmed with J. J. Alsop's "Night in Venice," and the never-failing clever suggestions of G. C. Haité. Figure subjects are few, and, with the exception of W. Bramley's "Young Gamekeeper," poor also.

## New Materials.

**Snow-white Satin Bromide Paper.** Made by John J. Griffin and Sons Ltd., Kingsway, London, W.C.

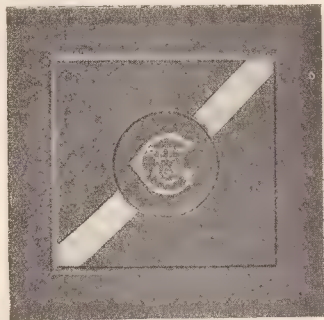
A new variety of the Snow-white bromide paper is this of Messrs. Griffins, with a surface something akin to that of the albumen paper giving prints of great clearness in the whites. The new variety of paper is satisfactorily amenable to the sulphide toning process and owing to its hardened surface is more than ordinarily free from the blister trouble which is not infrequently attendant upon this toning operation. The paper is sold at the usual prices.

**Teb and Primus Xmas Cards.** Sold by W. Butcher and Sons, Ltd., Camera House, Farringdon Avenue, London, E.C.

Messrs. Butcher's list of the well-known "Teb" Christmas mount is extensively illustrated throughout its forty pages with half-ton blocks printed on art paper in such a way that short of actual sample the purchaser gets a very good idea of the numerous styles and designs, though not of the colours. These latter, in many instances, are quite the charm of the mounts, since the absence of ornamentation of the mount is frequently of more benefit to the photograph than



its presence to an acute degree. Messrs. Butcher number the mount they send us, so that we can refer in confirmation of our contents to one or two mounts which we can recommend for their restful and unobtrusive design. Thus No. 9,002 may be described "fawn" colour (sold also in green), has a linen-faced surface, blocked in gold, and neatly tied with ribbon. Quite in nice taste as is also No. 9,007, in white and gold, sold in quarter-plate size only, at 18s. per gross. No. 9,004 is a dark brown mount, blocked in gold with "A Greeting," quarter-plate, 15s. per gross, both upright

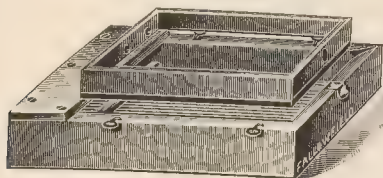


and oblong. A good mount for sepia-toned bromides. No. 9,013 is a pretty card for circle prints. It is "slashed," as the dressmaker says, with red ribbon under a gold motto, and is suitable for chalk carbons. Scottish cards and Dutch cards, and others, Greek Japanese in style, figure in Messrs. Butcher's variety, and, like others, are very moderately priced. The "Teb" list is certainly deserving of study, and the "Teb" cards are not unworthy of the choicest bits from one's season's negatives.



The "Auto-trans" Anti-frill Dish. Sold by Jonathan Fallowfield, 146, Charing Cross Road, London, W.

Since announcing the ingenious appliance of the firm of Fallowfield, we have had the opportunity of satisfying ourselves as to the effective action of the dish. The illustration shows the construction of the dish. It is of the wooden glass-bottomed well type which



was not infrequently employed by wet collodion workers. Messrs. Fallowfield adapt it to the Autochrome plate by providing an inner frame, shown slightly raised in the drawing, which is faced with rubber on its lower side, and is pressed down on the film of the Autochrome plate by the turn buttons also seen in the figure. The penetration of the developer at the edges of the plate is therefore prevented, and all need of handling the Autochrome from first to last is obviated. The dish is certainly an acquisition to the new process, even though, as appears to be the case, the later batches of plates are as immune from frilling trouble as those obtained in the early part of July. The sizes and prices of the plates are as follows:  $3\frac{1}{2}$  by  $5\frac{1}{2}$ , 3s. each;  $4\frac{1}{2}$  by  $3\frac{1}{2}$ , 3s.; 9cm. by 12cm., 3s. 9d.; 5 by 4, 4s.;  $6\frac{1}{2}$  by  $4\frac{1}{2}$ , 4s. 9d.; 13cm. by 18cm., 5s.;  $8\frac{1}{2}$  by  $6\frac{1}{2}$ , 6s. 9d.

**CHRISTMAS POSTCARDS.**—Messrs. John J. Griffin and Sons are introducing a series of postal cards with Christmas mottoes in the various brands of paper made by them, namely, Goldona, P.O.P. and Bromide, as well as in their "Satin" bromide just introduced.

**"SWIFLEX" PLATES.**—The Halifax Photographic Co., Halifax, send us samples of their extreme-rapidity dry-plate sold as "Swiflex," a title which is not belied by the very high speed of the plates. The plates work clearly in the makers' developer of pyro-soda, containing one-sixth of a grain of bromide per ounce, and give negatives of good vigour and gradation. Prices of the plates and discounts applying to them should be obtained from the Company direct, at the address given above.

## CATALOGUES AND TRADE NOTICES.

**THE GRAFLEX CAMERA.**—Two most attractive booklets, illustrating the work of the "Graflex" (reflex) camera, of Kodak, Ltd., reach our table, and interest us, to commence with, from the reproduction of one or two of Mr. Alfred Stieglitz's photographs, taken with the Graflex. The booklets are worth getting by anyone who is curious to see the many-sided advantages of the reflex camera.

**BARNET SHOWCARDS.**—Messrs. Elliott and Sons, Ltd., show a fine sense of decorative effect in the advertising matter of the window-bill order which they issue to the photographic dealers. A selection of the showcards specially for the winter season affords us the opportunity of congratulating them on the effective use of photography as a stimulant of photographic trade, in the present instance of Barnet bromide and gaslight papers. Dealers ought not to omit applying for the cards, which are obtainable free.

**PROFESSIONAL SPECIALTIES.**—Messrs. F. E. Jones and Co., 22, Gray's Inn Road, W.C., send us a list of studio and other items of special interest to the profession. One line of the firm is art canvas for showcases and backgrounds. The list is sent free on application.

**THE ARTIFICIAL LIGHT EXHIBITION.**—Messrs. Fallowfield write that visitors to the exhibition interested in the Schroeder flash lamp are invited to inspect the apparatus at 146, Charing Cross Road, where a fairly large stock is held.

**ETON PHOTOGRAPHIC RECORD.**—With a view to preserving an interesting school record, it is proposed that every boy at Eton shall be photographed, and the captains of the school have issued an appeal to that effect. New boys and those who are leaving at Christmas are urged to be photographed as soon as possible.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, NOVEMBER 8.

Aberdeen Photographic Association. "The Rendering of Colour in Monochrome." Jas. A. H. Hector.  
West London Photographic Society. "Enlarged Negative Making on Glass and Paper." Jas. Brown.  
Manchester Amateur Photographic Society. "Snow and Sunshine in the Bernese Oberland." S. L. Coulthurst.

SATURDAY, NOVEMBER 9

Aberdeen Photo Art Club. Members' Lantern Evening.  
Manchester Amateur Photographic Society. "A Dive into Belgium." W. L. F. Wastell, F.R.P.S.

MONDAY, NOVEMBER 11.

Bradford Photographic Society. "Platinotype—Elementary, Glycerine Process, and After Treatment." W. E. Fearnley.  
Kidderminster and District Photographic Society. Amateur Photographer Prize Slides.  
Gravesend and District Photographic Society. "Flower Photography." E. Seymour.  
Scarborough and District Photographic Society. "Holy Days and Fête Days in Spain." E. F. Jameson.  
Oxford Camera Club. "Rotary Carbograph Paper."

TUESDAY, NOVEMBER 12.

Royal Photographic Society. "Discussion Upon the Best Methods of Advancing the Study of Photography in Colours."  
Rugby Photographic Society. Exhibition in the Benn Buildings, Rugby.  
Leeds Photographic Society. Siena, San Gimignano, and other Medieval Cities of Tuscany." Thos. E. Green.  
Epsom and District Literary and Scientific Society. "Ilford Plates." Algernon Brooker.  
Cardiff Windsor Photographic Society. "Tabloid Photographic Chemicals."  
Worthing Camera Club. "How the Saints came to Brittany." Mrs. Gostling.  
Birmingham Photographic Society. "Rotary Carbograph Paper."

WEDNESDAY, NOVEMBER 13.

North Middlesex Photographic Society. Sale of Photographic Apparatus and Sundries.  
South Suburban Photographic Society. "Flower Photography." E. Seymour.  
Leeds Camera Club. "Mounts and Mounting." Lionel Dickinson.  
Croydon Camera Club. Conversational Meeting.  
Everton Camera Club. "Glimpses of Wales." E. Youds.  
Borough Polytechnic Photographic Society. 1907 Affiliation Competition Prize Slides.  
Coventry Photographic Club. "Rotary Carbograph Paper."

THURSDAY, NOVEMBER 14.

Rienheim Club. "A Chat about Morocco." Charles Rosher.  
Ricmond Camera Club. "Flower Photography." E. Seymour.  
North London Photographic Society. "Holiday Sketches."  
Hull Photographic Society. "Three Colour Photography and Specimens of Autochrome Work." Henry J. Comley.  
Liverpool Amateur Photographic Association. "Natural History Photography." Geo. A. Booth.  
Hawthornthwaite Photographic Society. "Carbograph, the New Enlarging Carbon Tissue." Rotary Photographic Co.  
Lingston and District Photographic Society. "Ozobrome." Rev. H. W. Dick.  
Queen's Park Amateur Photographic Association. "Faking and Dodging." Dan. Dunlop.  
Chelsea and District Photographic Society. Lantern Evening—Affiliated Competition Slides, 1906.  
Hawthornthwaite Photographic Society. "Rotary Carbograph Paper."  
London and Provincial Photographic Association. "Scaloids." Messrs. Johnson & Son.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held November 5, the president (Mr. J. C. S. Mummery) in the chair. The lecture hall was crowded to the utmost with an audience assembled to witness a demonstration of the new Autochrome plates by Mr. T. K. Grant, the British representative of M.M. Lumière. Mr. Grant, in opening his subject, said he could not deal in the time at his disposal with the theory of the process, nor could he attempt to discuss the many practical recommendations which had been made regarding the plates. All he could do was to explain and to demonstrate the practice which he himself in his own work had found the best. As regards exposure, he agreed in taking 14 Wynne or 2 Watkins as a rough guide for outdoor exposures, but it was not a sufficient means of judging the exposure—which had to be considered in relation to the subject, and was a matter of practice. The old rule of exposing for the shadows and letting the high-lights take care of themselves could not be applied to Autochrome plates in the majority of subjects. A compromise had to be made where the range of tones extended from sky to deep shadows, and the lecturer recommended as a general rule that exposure should be given for the sky and light portions, and the shadows allowed to come out as best they would. In the case of a subject which included no sky the old photographic rule might be said to hold good. The lecturer reminded Autochrome workers of the necessity for allowing for extension of camera in calculating the exposure for near objects. Also, when a small stop was used, such as  $f/32$ , he found it desirable to give a longer exposure than would be naturally

proportionate to that stop. He suggested an increase, over and above the time corresponding to the stop, of 50 per cent.

In developing the plates it was best to work entirely in the dark. He arranged three solutions on the working bench—one containing the pyro and water of the developer, the second containing the ammonia which was added at the last moment, and the third containing the reversing C solution.

Intensification was a part of the process which, in the lecturer's opinion, should never be omitted. It did not necessarily increase the density of the plate, but it did contribute to the brightness of the picture and appreciably brought out the colours.

Regarding the use of the H (neutral permanganate) solution, its action was to prevent dichroic fog. If not allowed to act long enough, this two-colour fog was liable to appear on the plates, but a second application of the H solution would remove it. The short washing—five minutes—of the plates had been questioned, but Mr. Grant said he had not yet heard of a case in which this period of washing had proved insufficient.

Replying to a large number of questions addressed, Mr. Grant stated that the formula he now used for the intensification was as follows:—

Pyro .....	3 gms.
Citric acid .....	6 gms.
Water .....	1,000 c.c.s.

This contained twice the quantity of citric acid advised by MM. Lumière, but it acted sufficiently rapidly. For drying the plates a whirler was a very useful accessory, as drops of adhering water were driven off the plate, which could then be laid aside and dried in about ten minutes.

Replying to a question as to frilling, Mr. Grant said he had used none of the special mixtures advised for edging the plates, for the reason that he had not found the need of them. In his own use of the plates he had not come across a single case of frilling.

Replying to a further question, he said that, so far as he gathered from the reports of others, the later batches of plates were less liable to frill than those first issued.

A celluloid varnish might be used, provided it was free from alcohol; in his own practice he used a gum dammar varnish thinned with benzole to about half strength. Mr. Beeson mentioned that Messrs. Sanger-Shepherd made a suitable celluloid varnish, and another speaker stated that the cristoid varnish of the Sandell Films Company was a suitable preparation. This, Mr. Grant said, was a celluloid preparation.

Asked why alcohol should be injurious in the varnish, but was used in the developer, Mr. Grant said that that had been found to be the best practice by MM. Lumière. There was actually no need to use alcohol in the first developer; distilled water might replace it. Mr. Grant then proceeded to go through the operations of developing and completing an Autochrome plate, and within the space of something less than half an hour the finished picture—a group of flowers—was projected upon the screen and proved to be an admirable example of the process. A number of Autochrome results were then shown on the screen, including examples by the lecturer, Mr. McIntosh, Mr. Child Bayley, and Mr. Armytage Sanders.

In some further discussion which followed a question was raised as to the copying of Autochromes. Mr. Grant said that the simplest method was to place the Autochrome picture and the sensitive Autochrome plate, both filter side outwards, in the dark slide of the camera; the lens was pointed to the sky, and the surface of the outer plate thus evenly illuminated. He stated that a number of the results which had been shown on the screen were copies from Autochrome negatives or positives.

**CROYDON CAMERA CLUB.**—Although the Leto-pigment process has been demonstrated in the past at the club, yet Mr. F. J. Terry contrived to give the subject fresh interest, not so much perhaps by the elucidation of new points of procedure, but by the way in which he re-dished it for the edification of all present. For those bitten with pictorial mania, and dissatisfied with mere transcripts of nature, rendered by lens and plate, the Leto-pigment process should undoubtedly appeal, owing to the amount of control exercisable. Personally, being of an open and generous nature, "faking" with him—more often than not—resulted in the print being ultimately and suitably framed by the contour of the dust-bin. Notwithstanding this, there was a "moth-and-candle" fascination in being able to

emphasise here, or suppress there, as occasion or eccentricity demanded. Mr. Terry proceeded to develop successfully several posed prints, using the lid of an old packing-case as an easel; developer consisted of a bay-rum spray, affixed to a bottle which obviously held something different to the plain water it then contained. Instead of using brushes, the lecturer—referring to prints—said he preferred to spray, next soak, and spray again. Should accidental over-exposure prevail, the water might usefully be made alkaline. Whilst the prints were being developed, several questions were asked and answered, during the course of which members in the immediate vicinity of the lecturer were much struck with the continuing action of the pneumatic bay-rum discharge. A cordial vote of thanks was accorded for a really elegant demonstration.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At meeting on Thursday, October 31, 1907, Mr. F. C. Mote in chair, Mr. A. W. Green lectured upon and demonstrated the "printing process." He said: "A printing process which admits practically as much personal control as the painter can secure with his brush and palette, except as regards the actual drawing, which gives permanent and beautiful results, of which the technical details are readily and easily mastered, is surely an ideal one for the pictorial photographer's standpoint." Such was, in brief, his description of the oil-pigment process. The paper was coated with a prepared tough gelatine, sensitised in a 5 per cent. solution of bichromate for one minute and allowed to dry in the dark. It was then exposed under a negative until the brownish-yellow image was seen, very much like a platinum print, and then thoroughly washed for half an hour. The yellowish colour visible during this wash entirely disappeared when the print was ready to pigment "develop." For developing the print should be placed upon a support of moist blotters or linen, or upon a sheet of glass or other support, and the water upon its surface removed either by blotting off or with a linen cloth. One of the special brushes was then charged with a small quantity of pigment ink and applied evenly to the surface, with a motion as used in stippling or stencilling. The pigment would attach itself to the damp gelatine in proportion to the light action, and the image gradually grew stronger and stronger. After pigmenting the print was hung up by one corner to dry, which would take from four to eight hours, when any surface hairs could be removed with a soft cloth or needle point. Spottings, if required, could be done by thinning the pigment with Megilgum whilst if any high-lights were too dark they could be lightened with the aid of indiarubber.

Mr. Dawson asked if various colours could be used upon the same print. Mr. Green had seen prints where three to four colours had been used. He thought the process gave promise.

Mr. Stretton asked if it were possible to use the ordinary art colours, and Mr. Green replied, "Yes; but they were considered too coarse."

Mr. Dawson asked if a roller could be used. The reply given was that the roller had been given up as unsatisfactory, Mr. Dawson maintaining that one could obtain control by the use of the roller.

Mr. Dockree remarked that a roller could not give a point.

Mr. Teape, in moving a vote of thanks, said that the demonstration had been a most excellent one.

Mr. Green, in his reply, said that Messrs. Griffin would give assistance to those working the process.

**SOUTHAMPTON CAMERA CLUB.**—The members of the above attended in goodly numbers on Monday evening last to meet Mr. Henry Comley, secretary of the Society of Colour-Photographers, one of the very foremost of the three-colour workers of the day, who came to lecture to them on three-colour carbon and the Autochrome processes. Mr. Comley's lecture extended over three hours, and the interest was not only sustained over the period, but the members showed signs of great individual activity in clearing up points mentioned by the lecturer. In the three-colour carbon process Mr. Comley began at the very beginning, showing the necessity for the light-filters and the three negatives, pointed out that the negatives should be of the thin variety, that their combined density should not exceed the density of the normal negative. He advised very dilute developer as the ideal means of production. He described very fully the processes of sensitising pigmented films which the "Rotary" people produced, and recom-



mended ordinary methylated spirit as the medium for the bichromate of potassium or ammonia, one to eight per cent. of the former, or one to 10 per cent. of the latter, half spirit, half solution; the sensitising to be done as quickly as possible, and the films to be absolutely dry before use. In the matter of the exposure of the film, the rule laid down was that in concurrent exposure, when a faint image appeared on the yellow film, the blue film was normally exposed, that the yellow required about twice the blue, and the red three times. Rocking the developing dish was not recommended, because of danger to details of high-lights, and in the process of development the use of a 10 per cent. sodium hydrate bath for rendering pigment more amenable to treatment was recommended. Mr. Comley proceeded to show the registration of the three films in order—yellow, blue, red—and some extremely fine prints were produced under the eyes of the members. Subsequently, after replying to many questions, Mr. Comley produced some fine specimens of Autochrome transparencies, and then went on to refer to the Warner-Powrie process. Mr. Comley was very heartily thanked for his fine lecture.

## Commercial & Legal Intelligence.

**TRAVELLING PHOTOGRAPHERS.**—At Samford Petty Sessions last week, two smartly attired young men, who had the appearance of City clerks, were charged with obtaining 5s. from Fredk. Alexander by a false pretence, at Capel St. Mary, on September 21. They gave the names of John and George Havard, and described themselves as photographers, of Sudbury. It was shown that they had got payment in advance for a number of photographs alleged to have been taken by them, but never delivered. They were committed for trial.

**CANVASSING FRAUD IN SCOTLAND.**—A case of considerable importance to the public was heard in Dumbarton Sheriff Court last week, when Edward Riffkin, 97, George Street, Glasgow, trading as the St. George's Art Company, Glasgow, sued Lawrance Watt, 6, Taylor Street, Clydebank, for the sum of 7s. 6d., being the balance of an account of 10s. 6d. alleged to be due by the defender. Sheriff Blair reviewed the modus operandi of the prisoner, and commented severely on the methods adopted and the pressure exercised by the canvassers to obtain such order from females—a servant or dependent, not accustomed with business, to hand over a photograph on the representation that the enlargement would be a work of art and would cost nothing. The thing was a swindle from start to finish, he declared, and the sooner the public knew it the better. He assuaged the defender, with £1 of expenses.

## News and Notes.

**THE SOUTHERN EXHIBITIONS.**—Tuesday next, November 12, is the last day for sending entries to Mr. S. G. Kimber, Highfield, Southampton. Intending exhibitors should apply for forms without delay.

**"YOUR MONEY OR YOUR LIFE!"** hissed the masked man at Jones's bedside. "Awri," replied Jones, "put it on the mat." The man with the bullseye repeated his request, and Jones, that keen amateur photographer, awoke. "Don't move," began the stereoscopic house-breaker, with a menacing frown. "Stand perfectly still," said the pride of the Balls Pond Camera Club, "if I take you by flashlight now, he prize for the week ending November the —" But the robber was already tearing his clothes on the cut glass at the top of the wall of the kitchen-garden.—"The Globe."

**CRITERION COMPETITION.**—The awards in the current competition are as follows:—First prize (£1 1s.) to Mr. G. W. Dunn, Manchester; 2nd prize (10s. 6d.) to Mr. J. Pendlebury, Leeds; 3rd prize (5s.) to Miss Pitt, Bridgnorth. Ten consolation prizes of 2s. 6d. to Mr. Redfern (Bradford), Mr. Nicholls (London), Mr. Green (Colne), Mr. Smith (Northampton), Mr. Carter (Manchester), Mr. Parker (London), Mr. Mannings (Birmingham), Mr. Bolton (Hull), Mr. Thompson (Northampton), Mr. Lester (York).

**THE R.P.S. DINNER.**—The annual dinner of the Royal Photographic Society took place at the Holborn Restaurant on Wednesday last week, Mr. J. C. S. Mummery, A.R.I.B.A., presiding. The President was supported by Sir Joseph Swan (Vice-President), Mr. J.

Spiller (past-president), and Mr. Francis Ince, honorary solicitor. The President, in proposing the toast of the Royal Photographic Society, alluded to the recent annual exhibition of the Society, and to its section devoted to the Autochrome process of colour photography. Mr. Ince proposed the toast of "The Visitors," to which Mr. M. Arbuthnot replied. Mr. D. Cameron-Swan, in proposing the toast of the stewards, Mr. A. W. W. Bartlett and Mr. Leslie E. Clift, in whose hands the arrangements had been, expressed the thanks of the members to these gentlemen. Mr. Clift and Mr. Bartlett briefly responded. The musical programme was somewhat unequal in character, but a mention must be made of Mr. Wolseley Hutt's rendering of Henley's "Falmouth" and "Western Wind," to the music of Furley Lewis, who himself accompanied.

THE ACCOMPANYING ILLUSTRATION, taken from our contemporary, "The Australian Photographic Journal," shows a curious effect of double exposure, the plate having been exposed both horizontally and vertically. This is demonstrated by the fact that if the picture be



turned sideways the boy totally disappears and another face and outline of a figure become distinctly visible. Although cases of double exposure are of common occurrence, it is not often that the two exposures are so clearly defined as in the present instance.

**MESSES. MOWLL AND MORRISON**, the well-known Liverpool photographers, of Hardman Street and Arcade, Lord Street (Fellows of the Royal Photographic Society), have received a Royal Warrant appointing them photographers to the King.

**"WHILE OTHERS SLEEP."**—The advertisement of the "B.J." Almanac and other things which appeared under this title last week, has made us the recipient of a good many comments—some fit for publication. The office boy of one reader was heard to remark: "Gord lummy, glad I don't work there." It is reported that Lord Rosebery, on seeing the drawing, exclaimed:

"Would that I were at 24, W— St—,  
These sleepless hours would find their solace."

But some terrible misconceptions appear to exist as to the subject of the illustration. The triangular outline towards the right of the ground floor is identified by one correspondent as the Bass trade-mark. He is prepared to prove that behind the window screen a bar is thus localised. Other evidence, bespeaking minute observation, point to the same conclusion on the part of the writer. Telegraphic address: Saline, Croydon.

**THE NEW ENGLISH ART CLUB.**—The autumn exhibition of this club comprises 123 pictures. Of these, five are excellent, twenty-one are good, sixteen are bad, and five are execrable in our view. Three brilliant and astoundingly clever sketches by Sargent, who is not a member, and a picture each by von Glehn and Holmes, make up the excellent five. The execrable five are contributed by A. E. John, who upon this occasion out-Johns himself. Who, outside his own coterie, encourages Mr. John in the exhibition of these nursery scrawls, which are too wearisome to be even comic?

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE R.P.S. DINNER.

To the Editors.

Gentlemen,—The R.P.S. is to be congratulated upon its most recent development of means for attracting new members. Its dinner was excellent, and the musical artistes, in one case, at any rate, showed studied irresistibility. With such allurements, surely the crush of new members "couldn't get in at the door," to use the lady's own phrase.

The inclusion in the programme of "Onaway! Awake, Beloved!" has put into my head some jingle, *à la* Longfellow, upon this incident:—

Then came Ruby, the green-skirted,  
Pink of cheek, with postcard dentals;  
Sang of love, of swinging higher,  
Sang of dancing and of garments;  
Held her arms out to the men-folk;  
Held them out to the officials,  
Whilst her smile grew wide and wider,  
And the grey-beards dropped their eyelids,  
Head aside she gazed at Stuart;  
Called aloud the name of Houghton;  
In her dark eyes flashed the high-lights  
As the glint upon the bottles.  
Reaching forward sweetly, boldly,  
Sang she loudly, sang in this wise:  
"McIntosh! awake, Beloved!  
Thou the wild bird of the Squaire!  
Thou, with shirt-front powdered fawn-like!  
Does not all the blood within thee  
Leap to meet me, leap to meet me!"

And so on. It's excessively easy. Your readers may like to amuse themselves with its further elaboration.

SHORTFELLOW.

### DEVELOPING DISH FOR AUTOCHROMES.

To the Editors.

Gentlemen,—On October 15 I described in a photographic contemporary a special non-frilling dish which I had designed for the development of Autochrome plates, and gave a diagram of the experimental dish which I had then constructed. At my subsequent demonstration on this plate to the Catford and Forest Hill Photographic Society I used the dish and explained its construction.

I am flattered to find from to-day's issue of the "B.J." that Messrs. Fallowfield have adopted my idea, including the well at the end of the dish to hold the solutions while the plate is being examined; but in case of any misapprehension as to my connection with Messrs. Fallowfield's dish, I think it is only right to explain that my dish, in a greatly improved form, is being placed on the market by Messrs. Houghtons Ltd., under the name of "Campbell's Non-Frilling Developing Dish," and this is the only pattern with which I have anything to do. This improved pattern will be found to render the development of Autochromes a certain and simple operation, in which the frilling of the films becomes impossible.—Yours, etc.,

W. GORDON CAMPBELL.

18, Kinver Road South, Sydenham, S.E.

To the Editors.

Gentlemen,—We thank you for yours, dated 3rd inst., with reference to the letter you have received from Mr. Campbell.

It is quite right that, by arrangement with Mr. Campbell, we are putting on the market in a few days a special dish for developing Autochrome plates on the lines of the dish described by Mr. Campbell recently in one of your contemporaries.

We shall have pleasure in sending you a specimen of this dish with illustration and particulars as soon as we are able to define the prices, etc.—Yours faithfully,

88/89, High Holborn.

To the Editors.

Gentlemen,—With reference to the letter you have received from Mr. Gordon Campbell, and which you were good enough to show me, I am extremely surprised that Mr. Campbell should have imagined either that I had copied his idea with reference to the non-frilling dish,

or that I had made a pattern from the description which appeared in the "Photographic Journal" some two weeks ago without acknowledging where I obtained the idea or obtaining permission for copying that idea. My own dish, which is fully described and illustrated in your JOURNAL, is merely an adaption to the old-fashioned glass-bottomed dish, which I sold in large quantities over twenty years ago, made up from one of these original dishes, and the only improvement is that a small frame, which has an india-rubber bed, is supported on top of the negative, and shields it from the solution. I may also mention that one or two prominent photographers have been using this dish with great success, but I shall not have a full stock for some ten days.—Yours faithfully,

146, Charing Cross Road, W.C.

JONATHAN FALLOWFIELD.

### THE ARTIFICIAL LIGHT EXHIBITION.

To the Editors.

Gentlemen,—On Friday last I had an opportunity of visiting the most interesting exhibition of photographs taken by artificial light.

An exhibition of this description should prove of inestimable value to all enterprising members of the profession, who would do well another year by adding their efforts to the collection on a more generous scale.

I feel myself, like others, remiss on this point. Controlling, as I do, over a dozen branch studios, all using artificial light exclusively a few samples taken by my particular system might be of interest to others, and I am taking the liberty of sending along a few prints showing a description of the work produced by an arrangement of my own construction of several electric arc lamps.

Portraiture by artificial light presents a vast field for experiment, and, from a commercial standpoint, unlimited possibilities naturally present themselves. I feel sure that this exhibition will be keenly interesting to all and become an annual event of importance.—Yours faithfully,

J. H. WOOLFE.

[We will make a note of our correspondent's suggestion. Another exhibition of the same character may well be brought together by general invitation. We did not adopt this course in the present instance as we were doubtful of obtaining a sufficient response. Eps. "B.J."]

### RODINAL DEVELOPER.

To the Editors.

Gentlemen,—Recently we have had brought to our notice several instances of dealers and amateurs failing to obtain a supply of Rodinal.

This would be surprising considering the liberal amount spent on advertising, but that we understand that rumours as to the withdrawal of Rodinal from the market are being passed round.

We would therefore ask you to insert this letter of ours, stating that, as sole agents for the "Agfa" patent developers, we hold a large stock of Rodinal, Metol, Amidol, Glycin, etc., at the disposal of the trade and public.

It is as well to nip such rumours in the bud, although so far no harm has been done, our sales for 1907 (ten months) being far in advance of any previous year (twelve months), and it is certainly not the intention of the manufacturers to withdraw an article that is in such a flourishing condition.—Yours truly,

CHAS. ZIMMERMANN AND CO. (PHOTOGRAPHIC), LTD.

9 and 10, St. Mary-at-Hill, London, E.C.

October 31, 1907.

**FRACTURE OF PLATE GLASS BY LETTERING.**—The painting of black letters by signs on plate-glass windows (writes the "Chemist and Druggist") appears to involve considerable risk of fracture of the glass. The fact is so well known that some insurance companies will not accept the risk. The explanation of the phenomenon is found in the property of a black surface to absorb the sun's rays, whereby unequal expansion is produced, and this, under the influence of a sudden change in temperature, develops a strain which shatters the plate-glass. Such accidents, however, are not confined to black-painted lettering. We have recently heard of a case in which transparent glass tablets, cemented on to the windows being exposed to sunlight, whilst others were out of reach of the sun's rays. The cement used, however, was a black compound, and this, of course, might be expected to act in the same way as the black paint. In every case, on removal of these tablets, the plate-glass was found to be in a cracked condition. It would be interesting to know how far light-coloured paints are free from this drawback, and whether elastic light-coloured cements could be used with advantage.



## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

1. Symonds, 39, High Street, Portsmouth. Photograph of H.M.S. "Good Hope"

Edgson, 153, South Parade, Cleckheaton, Yorks. Photograph Snapshot of Dr. Dalry's Funeral, taken in Stonevond Cemetery, Halifax.

MacKie, The Pharmacy, Culter, Aberdeenshire. Photograph of Rob Roy Statue, Peterculter, Aberdeenshire.

10. Crown Street, Aberdeen. Photograph (Combination) of a Placed Group containing the Players, Reserves, Directors, Trainer, and Secretary of the Aberdeen Football Club, Season 1907-8.

19. Commercial Road, Bournemouth. Four Photographs of Roughies from the Undercliff Drive, Bournemouth.

M. J. Keane, 8 Main Street, Arklow, County Wicklow, Ireland. Photograph of the Very Rev. J. Dunphy, Parish Priest of Arklow.

23. High West Street, Dorchester, Dorset. Four Photographs of the Rev. Dr. C. Graham, R.C. Bishop of Plymouth.

W. Thomstone, 2, The Grove, Whitworth Park, Manchester. Photograph of H.M.S. "Lusitania" in the Mersey, September 7, 1907.

S. Wile, 100, Wolverhampton Road, Stafford. Photograph of John Knight, Esq., Major. Photograph of Wm. Johnson, Esq., J.P., Major.

Dean, 14, High Street, Rugby. Photograph of the Reception at Rugby School of H.R.H. Princess Henry of Battenberg, October 26, 1907.

Photograph of the Reception at Benn Buildings, Rugby, of H.R.H. Princess Henry of Battenberg, by the R.U.D.C., October 26, 1907.

Photograph of the Opening of the Children's Ward, Hospital of St. Cross, Rugby, by H.R.H. Princess Henry of Battenberg, October 26, 1907.

Photograph of H.R.H. Princess Henry of Battenberg at the Rectory, Rugby, October 26, 1907.

G.—Your letter will be admissible for publication on your sending your name and address, not necessarily for publication, etc.

KOR.—I shall be glad if you would be good enough to give me information where I can buy a Kromskop, one of Ives' patent.

—B. SHARP.

They are not sold now except by the Scientific Shop, 324, Dearborn Street, Chicago. You can occasionally see one in Mr. Steven's weekly auction lists (King Street, Covent Garden, W.C.), or a small advertisement in our pages would most likely bring you into touch with a vendor.

as. BROWNING.—(1) We admit the justness of your criticism. The table has been withdrawn. That in the forthcoming (1908) "Almanac" will be found in accordance with average practice. (2) The sulphite is quickly destroyed. It is best to keep it separate from the alkali, and to neutralise its solution with potass metabisulphite.

ED. BROMIDES.—Enclosed please find a toned bromide postcard. I should be glad if you could give me any idea how the colour is got.—TONEER.

By the hypo-alum process, as per the formulæ in the "Almanac," 1907, page 988, or by one of the more recent sulphide processes, some articles on which appear in the 1908 "Almanac." TRYING ON GLASS.—Can you give me formula or tell me where I can purchase an ink that will write on glass?—J. E. S.

An etching "ink" is sold as "Sabatier's," by Baird and Tatlock, Cross Street, Hatton Garden, London, W.C.

W. COOPER.—Apply to Erdmann and Schanz, 109, Bedford Hill, Balham, S.W.

DEVELOPER.—Kindly tell me which is the most economical way of buying developer for bromide and gaslight papers—say amidol or metol. I frequently require to develop, say, a dozen or two cabinets, and at other times 100 postcards, and am at a loss for a cheap and easily made-up developer. Will you say if the cartidge form of developer is as cheap to buy as buying the chemicals separately?—A. H. CLARKE.

For such small quantities it will be cheaper to purchase cartidges, but for larger numbers a metol-hydroquinone developer, made up from the chemicals, is the most economical.

—Apply to Houghtons, Ltd.

C. C.—Your procedure cannot be taken exception to, but we should advise you to use the gold platinum toning in separate baths; it is usually more satisfactory than platinum-toning alone.

COPIES OF PAINTINGS.—I have some carbon prints of National Gallery pictures, by Sir E. Landseer and by Turner, and should be glad if you would kindly let me know, in next week's "B.J.," whether they would be copyright, and if I should be justified in reproducing them for sale.—T.

Most certainly the copies will have been registered by the firms making them. Your best course is to ascertain who they are—probably the Autotype Company, Hanfstaengl, or Hollier.

S. H. MEDCALE.—If you owe the man money he has a lien on the apparatus. If you do not, he has no right to retain it, and you can take police court proceedings for its recovery. The man is certainly entitled to a clear week's notice, or full wages in lieu of it. Before taking police court proceedings we should advise you to consult a solicitor, as, from what we can make out from your letter, which is somewhat vague, you made a very loose arrangement at the beginning.

COLOUR PROCESSES.—1. Where can I obtain all materials for the pinateype process? 2. Messrs. Sanger, Shepherd and Co. claim sole right to print from a dyed gelatine relief obtained by the wash-out process. I feel sure I have read of such a method of printing years ago. Can you tell me if there is any foundation for their claim? 3. Can you give me the simplest possible formula for a dry plate emulsion? It need be no more rapid than an ordinary process plate. Simplicity and ease of preparation are the important points.—CHROMOGRAPE.

1. All materials for the pinateype process can be obtained from Fuerst Bros., 17, Philpot Lane, E.C. 2. We know of no process which antedates the Sanger-Shepherd printing process. 3. An easy process for a slow emulsion is made as follows:—

Distilled water .....	20 ozs.
Hard gelatine .....	3½ ozs.
Citric acid .....	1 oz.
Ammonium bromide .....	768 grs.
Potassium iodide .....	20 grs.

Soak the gelatine for an hour, and then add the salts and dissolve by heating to 120 deg. Fahr., then add the following in a thin stream, stirring all the time:—

Silver nitrate .....	1,152 grs.
Distilled water .....	20 ozs.

Add sufficient liq. ammon. fort. 880 to dissolve the precipitate first formed. The temperature of this should not exceed 70 deg. Fahr. Allow the emulsion to stand for quarter of an hour after mixing, then add—

Hard gelatine .....	3½ ozs.
---------------------	---------

which must be previously washed and drained. When this gelatine is dissolved, pour the emulsion out into a flat dish to set and allow to stand twelve hours, and then break up and wash.

SULPHIDE.—The commercial sepia bromide card is produced by the older hypo-alum toning, using a formula such as that on page 988 of the 1907 "Almanac." This method gives a certain purplish bloom, which is not exactly like P.O.P., but is, nevertheless preferred in the trade. The prints are put through an alum bath, then into the hot hypo-alum mixture, which must be used for some time before it attains its full working qualities, or may be "ripened" by soaking untuned P.O.P. clippings in it.

FINISHING IN BLACK AND WHITE.—In working up bromides in black and white, by what means are shadows usually reduced, and, in some cases, completely hidden? I tried various whites, such as Chinese and flake, which were tinged to match the print, but when dry they appear different to colour of the print.—BARNARTT AND COHEN.

It seems clear that you have not rightly matched the colour. The shadows are frequently softened by reducing them with an ink-eraser, or with fine pumice powder or by scratching away with a knife. You might try that method. We should think you would do well to get two or three practical lessons in finishing enlargements from an experienced worker.

AVOIDING YELLOWNESS.—When retouching bromides chemically, as given in the "Almanac" for 1907, page 792—while it entirely

removes the image, yet it leaves the place yellow—how could the yellowness be avoided, and does the print want washing after it had received the above treatment?—M. B.

More ammonia added to the acid copper solution is probably required. We should advise, in preference to the copper solution, the iodine-cyanide reducer, given on page 670 of the 1907 "Almanac."

R. L.—Until you have acquired greater knowledge of the business than you possess at present we should advise you to give up the idea of issuing the printing papers. The dealers have quite enough brands of paper to stock as it is—get the views of your local photographic dealer—and you will find it very difficult to bring a new brand on the market—particularly so as your technical emulsion experience is nil. You will be foolish to take a roseate view of the profits likely to be made under your suggested scheme. If you were in town we could grant you a few minutes, that is if you arranged an appointment beforehand.

CANADA.—Will you kindly tell me (1) the best means of advertising for a situation in Canada or U.S.A.? (2) The name of the publishers of a good book on retouching?—CANADA.

(1) "St. Louis and Canadian Photographer," 3 and 10, Locust Street, St. Louis, Mo. (2) Dawbarn and Ward, Ltd., 6, Farlington Avenue, E.C.

PRESS PHOTOGRAPHY.—(1) Regarding focal plane reflex cameras, which would you prefer to use for press work—a half-plate or 5 x 4; and which size is most popular with the best press photographers? (2) I had to photograph a rapidly moving crowd (waving hats, etc.) with an 8 in. focus anastigmat (stop f/6). Day dull, distance from crowd about 30 feet. What approximate speed of shutter would you suggest? (3) I have two rather valuable albumen prints that have been spoilt by oil getting on them. Can it be removed? One seems almost saturated with it.—H. F.

(1) Half-plate is in the majority among press photographers in large towns; in a wider area we should expect to find 5 x 4 more used; nothing smaller, however. (2) If the figures extend into the immediate foreground a very short exposure will be necessary, 1/75 to 1/100 of a second will not be too short, perhaps not short enough. (3) None that we can recommend. Try benzole, followed by warm dry blotting-paper.

F. W. T.—Address at West Kirby, Cheshire.

STUDIO QUERY.—Would you kindly advise me on the following: I am building a studio facing east. Would ground glass cause too much glare from the sun, or would it be better to have Hartley's rolled plate (white)?—H. A. AYLWARD.

There would not be much difference between the two as regards glare. On the whole, however, we should recommend the white rolled plate, as it will be less trouble to keep clean than ground glass would be. It is also much stronger.

DISPUTED ACCOUNT.—Just recently I gave an order to a carpenter to erect me a studio, portable, and a tenant's fixture, 18 ft. x 9 ft., and he contracted to do this for the sum of £17 complete. Upon the day of starting the job the building inspector for this borough told the builder that as the ground was of a soft nature he would have to put a foundation for it of 18 inches. Now that the building is finished I have received a bill for same with an extra for £4 16s. "for foundations as ordered by the building inspector." I have protested against this, and have told the builder that I am under the impression that he should have known his work and have allowed for this. Not wishing to be hard on the man, I agreed to give him £2 (pointing out that I did not consider myself liable), but this he refuses. I should be glad if you could tell me my position. Nothing was said about paying for any extras, as none were anticipated. I was not consulted as to whether the builder should proceed after the inspector had ordered the foundations. I presume that there would have had to be foundations of some sort included in the contract price.—IGNORAMUS.

It seems to us that you will have to pay the full amount. Unless the foundations, as ordered by the building inspector, were put in you could not have your studio. The builder could not have foreseen what would have been the inspector's requirements when he gave the estimate, and we think his charge for an 18-in. foundation for a building of that size very moderate.

He would have done better, perhaps, had he told you before commenced the work that the foundation would be an extra. Yet it is only fair that the builder should be paid for what he had to be done.

HYPOCO.—We have now tried the preparation, and find that action is no more than that of pure water.

H. BROWN.—The best kind of plate is a "process" of "photo-mechanical," several brands of which are on the market.

A. K.—You had better apply to Meister Lucius and Brünig Hoeschst & M., Germany. They will advise you re dyes, and will be able to supply what you want if it is obtainable.

ELWES.—1. Of course he can exhibit what he has paid for, but cannot copy. 2. Legally, he cannot.

DE JURE.—You may make and register a copy of the engraving so may anybody who has access to it. You cannot restrict them, or they you, from publishing copies—that is, if the latter are made from the original.

PUZZLED.—Not powerful enough.

W. T.—Condenser is not large enough for whole plates; it should be 11 in. clear diameter. This is one cause of the trouble, most probably the colour rings are chiefly caused by the use of an unsuitable objective. One of too small a diameter will give such an effect. The green colour of the condenser is not likely to have anything to do with it. Most cheap condensers are distinctly green, and only the best and dearest quality are quite clear.

B.—1, 2, 3. Apply to the Director of Education, City and Guilds London Institute, Exhibition Road, S.W., or to the Photographic School, Regent Street Polytechnic London, W., particulars of the City and Guilds examination. 4 and 5. There are no special examinations. 6. The City and Guilds publish a list of books. 7. They are not distinct. Art matters, however, are not included in the examination syllabus, and never likely to be.

A. E. G.—Acetylene is rather bulky, but apply to Thorn's Huddle, Victoria Street, S.W. The Ideal lamp, of Houghton Limited, would probably meet your requirements better.

RATING SHOP.—I should be pleased if you will inform me, through the "B.J.," whether a tenant, taking a shop for the sole purpose of a showcase, is liable to pay rates, no business whatever to be done at the said premises?—B. S. J.

As the premises are occupied and used for business purposes the tenant has to pay the rates. You say business is not done on the premises; but is not using the place for advertising occupying it and for business purposes?

F. MILLS.—1. We do not very well see how you can make use of the circumstance on your stationery. It seems that Her Royal Highness condescended, at the request of the vicar, to sit for her portrait, and you took it accordingly. It seems that you did it for the vicar and not for you. If you wish to use Royal Arms, and that is possibly your idea, you will have to obtain the Royal Warrant, and that you are not at all likely to do on the ground that H.R.H. permitted her portrait to be taken by you. 2. Surely you have overlooked our announcement last week on p. 822.

A. I. N. (Ramsgate).—See page 799 of our issue of October 1907, reply to "T. Corn."

C. H. B.—You are certainly entitled to a week's wages if your product was no more irregular than you state.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

Control in Developing Autochromes.—MM. Lumière have issued directions for dealing with the over and under exposure of Autochrome plates and with variations in the temperature of the developer. Their recommendations are given on page 863.

Autochromes from Autochromes.—Some further specimens have been placed on exhibition at the house of the "B.J.," where they can be seen during the period of the present exhibition of portraiture by artificial light. (P. 858.)

Varnishing Autochromes.—A point in fully protecting the Autochrome film is referred to on page 859.

Carbon Enlargements Direct via Bromide Paper.—We publish a description of the new "Carbograph" paper, and an article on its manipulation by Mr. Welborne Piper, one of the first workers in this new process. (P. 860.)

Some facts and fallacies of stand development are the subject of recent communication from Messrs. Wratten and Wainwright. (P. 864.)

Mr. Robert Barr, the novelist, has patented a changing box. A folding reflex camera and a process of colour-photography are among their patents of the week. (P. 868.)

A suggestion of a novelty in portraiture for the professional's window is made on page 858.

The Germans have claimed priority in the origination of the oil process. (P. 859.)

Recent progress in the telegraphic transmission of photographs is recorded on page 866.

The common-sense view (a man's) of Christmas cards. (P. 872.)

Dr. Mees is announced to lecture on screen-plate colour processes at the Society of Arts after Christmas. (P. 872.) On November 25 Mr. Conrad Beck commences a course of lectures on the theory of the microscope. (P. 875.)

Baron von Hübl's measurements of open and enclosed arc lamps are the subject of a further article on page 865.

## EX CATHEDRA.

**"The British Journal Almanac."** The work of the Editor and the no less titanic labours of the advertisement manager having come to an end, and the last whirr of the printing machines having ceased some time in the early hours of a recent November morning, the masses of printed matter which compose the "B.J. Almanac" are at the present moment passing through the last metamorphosis preparatory to distribution, to the number of 25,000 copies, throughout pretty nearly every country of the globe. Every photographer in the United Kingdom can, if he so desires, purchase it at his dealer's on Monday, December 2. The date of December 1, which is the regular nominal date of publication, was, we regret to say, announced in our pages without regard to the fact that it falls on Sunday. We must plead—as excuse for the offence which the intimation has caused in strict Sabbatarian circles—our carelessness (or, happy thought, that of our publishers) in overlooking the fact. Photographers, too, we are afraid, will blame us for placing a week-end between them and the anticipated of months; but, unfortunately, our publishers, mere commercial men, are as adamant in refusing to accept the responsibility of delivering the "Almanac" through the country on a Saturday. Still, nothing but a miracle or a railway strike will prevent them from placing the edition in the hands of the retailers on Monday, December 2.

**The 1908 Almanac.** As for the contents, form, and size of the corpulent friend of whose society we have had quite as much as we care about for the past three months, there have been some slight disturbances of his anatomy, and one or two vital organs have been displaced. The net result of these adjustments should be approved by every reader of the "Almanac." It is that:—

The indexes to text and advertisements respectively are placed together at the end of the volume.

The directory of the addresses, postal and telegraphic, and of the telephone numbers of the photographic is also placed next to these two indexes, for the sake of the hurried reader, who has in the past laid his sins of explosive language at the doors of our innocent selves, on account of the alleged difficulty of quickly turning to a given item of information. The charge can no longer be brought, and we hope the arrangement of the text-index will further facilitate reference to the great mass of information in the "Almanac." The index to advertisements is, of course, as comprehensive as befits the importance of its subject-matter.

**Colour Prints on Paper.** The process of the future, in reproducing on paper the colour results now so easily obtainable as transparencies—what is it to be? There is no doubt that a good deal of work is quietly being done to provide a method by which the one-plate negative or

positive may be transferred to paper without the labour involved in the three-print method of superimposition. The bleach-out process, even if it can be further perfected, is not without its limitations, although, in the case of screen-plates of linear formation, it is easily amenable to the production of the full range of colours in the positive. It is probable, however, that the converse of the bleach-out process may prove a more fertile field of research, that is to say that it may prove easier to devise a working process in which coloured compounds are formed on exposure to light than to apply the bleach-out method. The transformation of leuco compounds into colouring matters by the action of light is well known, though whether a mixture of such leuco compounds can be prepared of the necessary absorptive properties to print in colours at one operation, requires to be discovered. We may refer those interested to the so-called pinachrome process, described in our issue of October 14, 1904, and briefly referred to in the Almanac of 1906, p. 865.

\* \* \*

#### Autochrome as Professional Advertisement.

From newspaper extracts which reach us from many different parts of the country, we see that the Autochrome plates continue to render good service to professional photographers on the alert to their possibilities from an advertising point of view. The display of an Autochrome portrait of a sitter who is well known locally has given good cause for a paragraph in the newspapers of the district. As an example of the type of paragraph, we quote one actual example here, suppressing only the name and address of the firm:—"During the past few days there has been on exhibition in the window of Messrs. J— and Son, photographers, P—, a portrait of a young lady taken by the Autochrome process of photography. Although many experiments have been made for several years past in connection with colour photography, it is only recently that any perfection has been reached, and, so far, the Autochrome process, discovered by M. Lumière, has been most prominently before the public. The portrait referred to was taken by Mr. — in the studio of his firm, and it is an exquisite work of art. The colouring of the face and costume of the subject, as well as the hanging draperies in the background, are perfect in every detail. Being taken in a studio, the work presented many difficulties in connection with the exposure of the plates, and it is no discredit to the Messrs. S— that the first few attempts proved fruitless. So far as is known, this is the first portrait in colour successfully taken in a studio in the north."

#### Shadow Portraits.

The illustrative pages of our always sprightly contemporary, the "Sketch," have in the past often afforded us the opportunity to point a lesson to photographic portraitists, for the "Sketch," even through its limited medium of half-tone printing, constantly giving its readers novel effects for the production of which the camera is solely responsible. In the series of portraits—of ladies of the stage, let it be said—to which we are now referring, excellent use is made of an artificial source of light to give one and the same print direct portrait, and a secondary silhouette representation of the subject. The latter is, of course, the shadow cast on the background, though we conceive that it may be liable to improvement at the hands of the retoucher should it not conform to other photographic standards of the lady's beauty of profile. Our object, however, is not to quibble over what is legitimate in the beautification of the feminine form, but to point out to our professional readers what an exceedingly good novelty photograph is here presented, and how easily they might make use of the "Sketch's" inventive genius to produce a few results which would certainly create comment on their exhibition in the show-case or window, even if they did not attract orders.

\* \* \*

#### Autochromes from Autochromes.

A correspondent has very kindly sent us some interesting specimens of contact copies of Autochromes printed by magnesium, some being prints from positives and some from negatives. As Mr. Welborne Piper pointed out in his article in our Colour Supplement of November 1, magnesium light is too yellow for the purpose, and thus a print from a positive shows a slight yellow veil, while that from a negative shows a blue veil. These effects are very distinctly apparent in these new examples, as are also the two forms of degradation that, as Dr. Mees pointed out, must exist when making positives from positives and from negatives. These effects are especially well shown in the case of a flower study. The copy from the positive shows the yellow veil and the black degradation, while that from the negative shows the blue veil and the peculiar effect of transparency caused by dilution with white. These examples have been put in our exhibition room for inspection by visitors to the exhibition of portraiture by artificial light, and they, together with the set of copies by Mr. Welborne Piper, form a very complete and interesting series. Contact copies by magnesium, by incandescent gas and by daylight, are thus available for comparison with copies produced in the camera.

### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

The forty-seventh annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 2. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

Among other alterations and improvements which have been made in the forthcoming volume, the publishers beg to announce that:—

All three indexes (text, advertisement, and trade addresses) will be found AT THE END OF THE VOLUME.

The size of the volume has been appreciably reduced, without sacrificing the value and scope of the contents.

The editorial article will deal very completely with the important subject of—

SCREEN-PLATE THREE-COLOUR PROCESSES, and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The 1908 ALMANAC will contain as frontispiece a carbon print by the Autotype Co., dry-mounted by the Adhesive Dry Mounting Co., Ltd. Amongst other attractive insets will be found a specimen of three-colour printing by the Sanger-Shepherd Colour Printing Co. and examples of the three-colour work of Hood and Co., Ltd., Middlesbrough.

Our publishers desire us again to caution our readers against postponing the booking of their copies of the ALMANAC.

#### PUBLISHERS' NOTICE.

The publishers beg to inform agents that it will be advisable to place their orders for copies immediately, as a large proportion of the issue is already booked, and a second edition will not be printed.



**Oil  
process for  
many.**

It appears that the Germans would wrest from Mr. G. E. H. Rawlins the honour which is rightly his of having applied the principle of collotype to the making by hand of photographic prints. Trust the Teutonic writer to disappear somewhere in the obscurities of his country's literature in anticipation of the modern process. In the case of oil print it was Emanuel Mariot, so we learn from Professor A. Albert in "Eder's Jahrbuch," who in 1866 printed a photographic impression on copper-plate paper, and pigmented by the subsequent application of a greasy ink by means of a velvet roller. Each print was mounted and varnished. We do not question the historical accuracy of the description, but the main fact is that the late Herr Mariot was as silent in 1866 as he is now on the essential nature of the oil-process; namely, its facility, if we may so express it, of not being inked: in other words, that the process allows the pigment to be deposited or not, as the operator thinks best. This Mr. Rawlins may justly claim to have been the first to recognise and to have applied in his editorial ends.

\* \* \*

**Note on  
varnishing  
chromes.**

As already stated, we have found celluloid dissolved in amyl acetate to be by far the best varnish to use, but we have met with one or two cases in which the varnished film had a tendency to rise and curl up at the edges. This may be attributed to the nature of the varnish, for in rare circumstances it would no doubt have occurred on any other kind. To prevent it we have adopted a process that we have often employed before in the case of many stripped gelatine films laid down on glass, which sometimes show a similar tendency to rise at the edges. The film is laid on the plate about one-eighth of an inch from the edge, and a cut is made through the film with a knife, moving the rule a small flat chisel is then run along the edge so as to pare off all loose film. This is done on all sides of the plate, which is then varnished right over the edges of the glass. A perfect seal is thus obtained at the edges, and the film cannot rise or "frill" any further without breaking through the film of celluloid, which is too tough to permit any such rupture.

\* \* \*

**Speaight  
the  
Marble Arch.**

We are interested in learning from incidental letters in the London press that all goes well with the scheme of Mr. Speaight for isolating the Marble Arch from Hyde Park and virtually moving it into a position which will relieve the congestion of traffic which occurs at this point of West End London. Mr. Speaight, in a letter to "The Telegraph," allays the fears of those who have feared that the isolation of the Arch would detract from its position as a London landmark. He instances the recent improvements in the neighbourhood of the Wellington Arch by which a roadway has just been formed round that arch. Mr. Speaight may congratulate himself that he has gained a measurable distance of seeing the realisation of his plans for the improvement of one of London's busiest highways. Even if he has to confess himself unequal to the task of moving Big Ben to somewhere east of Wellington Street! (See our advertisement pages.)

\* \* \*

**Fading  
mounts.**

Of recent years there has been a great demand for what are, very illogically, called "Art" mounts and mounting papers. Why they are called so we do not know, unless it is because they are "art" tints. But then we have never been able to

understand what an "Art tint" is, or how it is specially distinguished from any other tint. There is, however, one very disconcerting feature of the popular art mount, and that is the readiness with which it fades if exposed to strong light. All the tints are not equally sensitive, but the dark greens and olives seem to be exceptionally fugitive in sunlight, and these, unfortunately, are among the most popular colours. In some cases a few days in sunlight is sufficient to bleach the green into a dirty light brown, therefore it is obviously wise to test all mounts before use. Of late years we have frequently heard comments on the hideous tone of the mount in the case of particular exhibition pictures. Sometimes the colour has been so bad that it became impossible to believe that it had ever been deliberately selected. Probably in most instances it was simply a case of fading, and the exhibitor did not deserve the charge of bad taste that was hurled at him. We may, however, very fairly accuse an exhibitor of carelessness if he mounts a print in a permanent process, such as carbon, gum, or oil, on a mount that will not retain its colour. Remounting a print is no easy task, therefore it is quite an important matter to use a mount that will last.

## MATT CARBON.

### II.

A somewhat less flaccid feel is necessary with prints intended for opal instead of flexible support before squeegeeing, otherwise the edge of tissue may buckle in places. The rubber of the flat pattern squeegee will soon get notched and cut upon the edges of the plates; it is therefore customary to grind the edges of the plates. With regard to the squeegee, many printers suddenly find increasing numbers of blisters from an unknown cause. When this occurs the squeegee should be looked to, and if the rubber is soft and yielding or loose in the wooden handle, a new one should be purchased, or a new blade inserted, as may be done in a new pattern of squeegee just placed on the market.

The plates as they receive the prints should be laid face down upon one another with blotting paper between, placing the first one on a piece of flat glass. A fairly heavy weight should be kept upon them, and the pile limited to fifteen. Should there be about fifty prints to transfer, the first pile will then be ready for developing, and should be placed in rack with an inch or so of space between each plate. It is plunged into the developing water previously adjusted by thermometer to 105 deg. Fahr., moving up and down again to remove airbells.

The tissue will soon "bleed," and the backing should be stripped from the plates as soon as possible. The prints may then be left to develop themselves, but it is far better to remove each one singly from the racks and lave with water to remove the dissolved pigment.

The prints will probably not develop at the same rate, and those ready first should be at once removed to a tank of clean water. We lay stress on this, since leaving to soak in the hot water usually means prints covered with minute blisters, looking like tiny white spots in the print, and resembling air bubbles more than blisters. For this reason over-printed images can seldom be saved on opal by using hotter water or leaving to soak. We cannot understand why the blisters should be so minute; ordinary support does allow a lot of boiling, but when prints upon it do blister the latter are always large. The tissue seems to adhere rather more firmly to the flexible support, for it is almost impossible to avoid frilling on opal when the

safe-edge is on the film side of the negative, and a very heavy stream of water will often wash up a heavy shadow. The zinc racks should not be placed in alum solution, which may either be put in a very large shallow dish, in which the plates can lie, or into a wooden tank with wooden grooves cut into the sides, which will take a large number of plates in a small space. The plates need only be five minutes in alum, and the subsequent washing need take no longer if two changes can be given in that time. This means a tremendous saving of time, and is a very great convenience for workers, for the batch can be started and finished straight away without long waits for alum and for subsequent washing necessary when paper supports are used. Moreover, it is well known that the sooner a print can be developed and finished the more certain and better the result, as there is less chance of dust and dirt adhering to the gelatine.

After squeezeing the final support on to the carbon

film, the whole is placed in the racks and left to dry. attempt should be made to strip from the plate before paper is absolutely dry, or very bad marks will be the result.

Before concluding we must point out the greatest advantage that opal temporary support used in racks over the other variety, and that is the entire freedom of the prints from abrasions. It is well known how tender gelatine film is frequently scrubbed by the edges of other prints developing or washing at the same time. papers have such a tendency to cling together that the very greatest care can avoid much loss from this cause.

In point of view of the superiority of opal, we think professional printers will bear us out when we say that it is often difficult to get clean vignettéd carbons when on flexible support, the result being nearly always "bit" and scratched with light streaks on the lights, meaning either total waste or much aerograph work. This is entirely obviated when using opal plates.

## CARBON ENLARGEMENTS DIRECT BY ARTIFICIAL LIGHT ON "CARBOGRAPH" PAPER.

FOR some time past short announcements have appeared as to the introduction of a new type of printing paper which should combine in itself the quality of permanence of carbon with the facility of production by artificial light, which that material possesses. This new printing medium has at length appeared in the shape of the so-called "Carbograph" tissue of the Rotary Photographic Co., by whom it is issued at prices which are almost exactly double those charged for ordinary bromide paper. That the new material is obviously a quite new departure in printing methods is obvious from a perusal of the articles which appear in this issue. It will be found that in taking the first opportunity of laying particulars of the new method before our readers we have not allowed ourselves a licence of space in excess of the interest with which this innovation in pigment printing is certain to be regarded. With "Carbograph" at his disposal the photographer spreads a sheet of paper on his enlarging easel, exposes just as he would a bromide paper, and forthwith produces on any desired surface a carbon print of rich characteristic quality. When we state this—and the fact can be confirmed by any photographer in half an hour—we have shown, we believe, that the new paper can come before the photographic public with a reasonable assurance of being investigated with interest not only by the worker whose aim is the exhibition print, but by the large purchasing class whose particular care is the commercial possibilities of their technical methods.

### The Principle of "Carbograph."

The essential principle of "Carbograph" is not at all complex. The paper carries a bromide emulsion, with which is incorporated a pigment which at present may be red chalk, light green, or warm or cold sepia. On exposure to light and on development an image of metallic silver is formed, just as in ordinary bromide printing. The next step constitutes the new

part of the process. Instead of passing to the fixing-bath, the print is immersed in a bath of bichromate. Here the silver image plays the part of light; it reduces the bichromate, the reduced products tan the gelatine of the emulsion to an extent proportionate to the amount of silver present—thus, to say, the silver image is supplemented by one in insoluble gelatine. The next step is to develop this "carbon" in carbon fashion, and to obtain the print possessing all the permanence and beauty associated with the carbon process.

The silver image, although the active agent in the process, is not itself affected, but is left in the final print. It can be removed if desired, or advantage can be taken of its presence to modify the character of the final "Carbograph."

### The Process at a Glance.

Thus the essential operations in the making of a carbon enlargement by the "Carbograph" tissue are as follows:—

- Exposure of the bromide paper.
- Development as for bromide paper, five to seven minutes.
- Clearing and rinsing, five minutes in all.
- Sensitising in bichromate, three minutes.
- Rinsing, two minutes.
- Transfer to final support, ten minutes.
- Development in hot water, about five minutes.
- Fixing in hypo and washing, about half an hour.

It will thus be seen that within a little over one hour, putting the negative in the enlarging lantern a finished carbon enlargement may be hung up to dry, and that during the greater part of this time the prints need no personal supervision. The precise manipulation required in the process will be further gathered from the following notes by Mr. C. Welborne Piper, one of the first independent workers to take up the new method. We supplement Mr. Piper's article with the essential portions of the official instructions for the use of the paper.

### "REMARKS ON 'CARBOGRAPH' PRINTING," BY C. WELBORNE PIPER

No one can complain in these days that photography is standing still and making no progress, for new and important processes so rapidly follow one another that we can hardly assimilate the principles of one before the next makes its appearance. The very latest is the "Carbograph" process of the Rotary Company, which, from a few days' practical experience,

I can safely describe as a process of the utmost importance and utility. The practical character of the process is proved by the fact that I succeeded in producing satisfactory results from the very first of my experiments. I found it perfectly easy to produce a carbon enlargement direct from the original negative within one hour from the start, using an incandescent



gas enlarging lantern. If this is compared with the ordinary process, involving the production first of a positive, then of an enlarged negative, and necessitating contact printing by daylight, the advantages of the "Carbograph" method are evidently enormous. Besides all this, the result is an image amenable to a certain degree of intensification or reduction, and even to a slight modification of colour.

This new paper is coated with a combination of pigmented gelatine and silver bromide, and the effect of the initial exposure is, of course, confined to the silver bromide. The exposed image is developed with ferrous oxalate or iron citrate, and after clearing and a brief wash it is "sensitised" with a solution of potassium bichromate and alum. The reactions at this stage are evidently akin to those that take place in the "Ozobrome" and the "Bromoil" processes. Though in the "Carbograph" process the silver image is not bleached, yet the gelatine in the immediate neighbourhood of the silver is tanned or hardened, the result being that from this sensitising operation the print can be treated exactly as an exposed sensitised carbon tissue—that is to say, it can be transferred to a suitable support and be developed with hot water in the usual fashion. The hot water then dissolves the untanned gelatine, carrying away with it the pigment, and also the unexposed silver bromide in the highlights. An ordinary hypo-fixing bath removes all traces of unaltered silver bromide that may adhere to or be left in the print, and the result is an image in pigment and metallic silver.

#### Control Methods.

It is the presence of the silver in this resulting image that gives us the control over density and colour that we do not possess in the ordinary carbon process. The colour is deepened by the silver, and we can brighten or lighten it by removing the silver, or further darken it by carrying out an intensifying process upon the silver. The effect varies somewhat with the colour of the pigment, but in all cases reduction materially reduces contrast. Two of the colours in the papers I have tested were "photo-brown" and "light green." The photo-brown plus silver is a strong deep brown, but minus the silver it is more transparent and a very rich red-brown. The "light green" plus silver is a quiet, deep colour. Minus the silver, the tint is much lighter, and the result tends to flatness, so that varying degrees of reduction enable one to control the degree of contrast. The presence of silver in the image is thus a most valuable feature, while it cannot in any way detract from the permanency of the result.

#### Some Guide to Exposure.

As regards exposure, the Rotary Company state that the "photo-brown" and "red chalk" tissues require ten times as

much exposure as ordinary rotograph bromide paper. The "light green" requires seven times and the "warm sepia" five times the exposure for bromide. These ratios I found to be quite reliable, and it is only a matter of two or three minutes to make a series of trial exposures on a slip of bromide and so determine the exact exposure for "Carbograph." Enlarging from quarter to whole plate with incandescent gas, and using an eight-inch objective with one-inch aperture, the correct exposure proved to be about one and a quarter minutes on "warm sepia" tissue with a thin negative. A rather "plucky" negative required eight minutes with "photo-brown" and six with "light green." The former result was just right after complete removal of the silver, but the latter was too thin and flat in the same circumstances. With the silver left in it had just about the right degree of density. These strike me as good illustrations of the short exposures required with a feeble light, such as incandescent gas, and of the control possible over the final result.

From my experience, it appears that the process is quite easy, provided exposure is correct, and this condition also is quite readily ensured. As regards the quality of the results, that is everything that could be wished. If the silver is removed the result is identical with that produced by the ordinary carbon process, and therefore just as good or as bad as a carbon print may be. With the silver left in the effect is only that of a modified and more opaque pigment, and it could be matched by selecting a suitable ordinary carbon tissue.

Curiously enough, though the tissue appears black in the yellow light employed in the first stages, yet the image is very clearly visible on development. With the lighter shades of pigment, all details are visible, hence to a certain extent the progress of development can be judged by observation. I have not yet had time to test the effect of varying the time of development, and have hitherto developed for a fixed period of five minutes. Probably, however, it will be found advisable to vary the time according to the quality of the negative. The process is of such a nature that many slight modifications are possible, and perhaps some of them may prove to be useful in the case of exceptional negatives.

A warning is necessary with regard to the use of stale sensitiser. If too much exhausted, the effect is that of bad under-exposure, and the whole image may wash out in the hot water. If kept filtered, the sensitiser can be used several times, but it must not be overworked.

I found it best to leave the silver in the image until the result was dry, as I could then better judge whether reduction was necessary. If reduction is known to be necessary the hypo and ferricyanide reducing bath can be used in place of the plain hypo bath, and thus the time can be somewhat shortened.

C. WELBORNE PIPER.

#### INSTRUCTIONS IN THE "CARBOGRAPH" PROCESS.

The following are taken, with some slight revision, from an advance proof of the official instructions for the use of "Carbograph" paper issued by the Rotary Company.

The average speed of the "Carbograph" tissue is equivalent to medium speed bromide paper, and it is therefore absolutely essential that packets are only opened and the tissue handled in a safe orange-yellow lighted room.

#### Exposure.

The tissue is as equally suitable for contact printing as enlarging, but care must be taken that negatives selected for this process are always safe-edged to prevent the pigment washing up during development of the carbon print.

It will be found that lighter colours of the "Carbograph" require somewhat less exposure than the deeper one. The test pieces of Rotograph bromide paper in the packets are intended to

be used for trial exposures. The following numbers give the times of exposure compared with that for Rotograph bromide paper:—

Engraving black .....	9 times	Light green .....	7 times
Photo-brown .....	10 "	Warm sepia .....	5 "
Red chalk .....	10 "	Cold sepia .....	8 "

That is to say, if the bromide test slip requires four seconds, forty seconds must be given on the red-chalk "Carbograph."

The most important matter regarding exposure is not to under-time; over-exposure, unless excessive, can generally be easily corrected during the carbon development.

#### Development of the Bromide.

The exposed tissue is immersed without a preliminary soaking in water, in either a ferrous oxalate or iron citrate developer; other developers, owing to their greater or less tanning action,

cannot be advised for "Carbograph." A good ferrous oxalate developer is as follows:—

I. Potass oxalate .....	300 gms.	6½ ozs.
Distilled water (hot) to...	1,000 ccs.	20 ozs.
II. Ferrous sulphate.....	80 gms.	1½ ozs.
Citric acid .....	5 gms.	50 grs.
Distilled water .....	250 ccs.	5 ozs.

Immediately before use add one part of No. II. to five of No. I., and add to the mixture five drops of a ten per cent. solution of potassium bromide, i.e., 24 minims per fluid ounce.

For those, however, who wish to use the iron developer together with the least amount of trouble, and yet obtain results exactly as given by the ferrous oxalate developer, the powder iron citrate developer is strongly recommended by the Rotary Company. This developer keeps indefinitely in powder form, and as long as the precaution is taken of using distilled or boiled water in making it up in solution, and filling bottle to neck, it will be found to keep and work well even weeks after having been prepared. The addition to the solution of a few drops of potassium bromide is advisable.

With correct exposure development will be complete in from five to seven minutes—that is, the deposition of the metallic silver can be seen generally quite distinctly in the shadow and half-tone portions towards the end of time, and especially in the lighter colour tissues. It is, however, advisable always to adopt a constant time for the development, and also uniform temperature (50 to 60 degrees F.) as far as possible to ensure a full amount of metallic silver being deposited in the pigmented film.

#### Clearing.

Development being completed, the tissue should be immersed without washing for one minute in a one per cent. solution of glacial acetic acid.

Glacial acetic acid.....	10 ccs.	1½ drams.
Water .....	1,000 ccs.	20 ozs.

This bath is used to prevent the precipitation of basic iron salts in the film, which might otherwise cause iron stains. After this acid bath the print is well rinsed in three or four changes of water, and then transferred to the sensitising solution as under.

#### Sensitising.

To proceed with the production of the carbon print a bichromate bath is necessary as follows:—

Potassium bichromate.....	40 gms.	2 ozs.
Water .....	1,000 ccs.	50 ozs.
Potash alum (10 per cent sol.)...	20 ccs.	1 oz.

The sensitiser may be used repeatedly if care is taken to always filter through a plug of cotton wool or filter-paper before re-use. It is also advisable to store the sensitiser in a deep amber bottle to prevent its deterioration by exposure to light.

The "Carbograph" print is immersed for three minutes in the above sensitiser, the dish being gently rocked all the time. As care should be taken to prevent air-bells forming on the surface, it is a good practice to gently wipe the surface of the film as soon as it is placed in the sensitiser by passing a flat camel-hair brush (kept for this purpose) across from end to end in each direction.

The temperature of the sensitiser should also be carefully observed; it should not be too warm, and if necessary even cooled by ice in summer or humid weather. A good method to ensure uniformity under ordinary conditions is to make up sensitiser before proceeding with an evening's work, then to place the measure containing the sensitiser in a vessel containing freshly drawn cold water, and to leave it there until required for immediate use; by so doing it is easy to rely on its being at the right temperature.

It is also advisable not to touch the tissue with fingers while in this bath.

The above are, of course, only the precautions observed by the careful worker when working the ordinary carbon tissues.

After treatment with this bath the tissue is immersed in clean cold water for three minutes, or, better, rinsed in three or four changes of water before transferring to mounting paper.

#### Transferring the "Carbograph" to the Mounting Paper.

In order to avoid loss of fine detail in the carbon print, it is essential to squeeze the tissue to a piece of well-soaked transfer paper, and to leave it from ten to fifteen minutes between sheets of blotting-paper under light pressure before development—just as in ordinary carbon work.

#### The Carbon "Development."

Development, which can be done in full artificial light or weak daylight, is proceeded with in the usual way, in hot water. The temperature at first should not exceed 100 to 105 degrees F. When the print on its support has been immersed for about a minute the pigment should show a tendency to ooze out at the edges. This may be assisted by passing the tip of the finger along the safe edge portion of the print to start the action. One corner is then lifted, and the whole of the original support gently pulled away. Generally not more than a minute should be allowed before stripping, otherwise air-bubbles may form in the film.

Development is preferably effected in a fairly deep dish, and a piece of glass or opal may be used for a support, although this is not really essential. Further, unless the print is much over-exposed it is advisable not to pour a direct stream of water over the surface, as is so often done for ordinary carbon, for the reason that under normal conditions it will be found that the pigment is much more soluble, and too strong a stream of hot water is liable to make the resultant print somewhat grainy.

If exposure has been somewhat long, clear high-lights can be obtained by gently passing a saturated pad of cotton wool over these places. It will also be noticed that the safe-edged portions of prints retain a certain amount of insoluble pigment, but this also can be readily removed by passing cotton wool over the edges in similar manner.

#### Fixing.

When development is completed it will be noticed the prints have a milky appearance, due to the presence of the unaffected silver bromide. This is now removed by immersing print in a twenty per cent. plain hypo solution as under:—

Hypo .....	200 gms.	4 ozs.
Water .....	1,000 ccs.	20 ozs.

As soon as fixation commences the print will be seen to gain enormously in brilliancy and depth of colour. When the print is fully fixed (that is, in ten to fifteen minutes), it should be well washed in cold water to remove the hypo, and afterwards hardened in a one per cent. solution of alum to prevent accidental damage to the film. It is then well rinsed and hung up to dry.

The print thus obtained still contains the metallic silver image, but is, of course, absolutely permanent even if this is left in. The worker can, however, if he so desires, remove all traces of silver leaving only the carbon image. To do this the following reducing bath is used in place of the hypo fixing-bath given above is used.

I. Hypo .....	100 gms.	2 ozs.
Water .....	1,000 ccs.	20 ozs.
II. Potass ferricyanide...	100 gms.	2 ozs.
Water .....	1,000 ccs.	20 ozs.



For use take two parts of No. I. and add one part of No. II. The print should be subsequently well washed till all yellowness has disappeared.

In some cases leaving the metallic silver in the print may be considered a detriment, as it has a tendency to darken the tone a little, but frequently it will be found a really valuable aid, especially where the negative used has a tendency to harshness; also, it is quite possible, if the silver image is left in, to intensify the print afterwards by treatment with any intensifier as adopted for bromide work.

### Alternative Method of Working.

If a large number of prints are required the following method may be substituted so as to divide the process into two distinct parts.

After developing and clearing the bromide image, the "Carbograph" is sensitised in the bichromate solution as usual, only it is advisable in this case to use only a half quantity of the added ten per cent. solution of potash alum to the sensitiser, which would read 10 ccs., or half an ounce, instead of that given in the formula. After sensitising and rinsing the print should be fixed and washed, in accordance with the instructions already given, and then allowed to dry.

The transfer of the tissue to its support, and its subsequent hot-water development, can then be carried out at any later date within the limits generally allowed for ordinary sensitised carbon tissues (five to seven days) so long as it is properly stored meanwhile.

Prints which are prepared by this method are much less liable to damage in handling whilst wet than those finished without intermediate drying; but, of course, this method increases the length of time necessary for producing results, and so annuls some of the advantages of the "Carbograph" process.

### Safe-edging.

In "Carbograph" enlarging it is not necessary to safe-edge the negative. Instead, a piece of thin cardboard (as used in stiffening large packets of bromide paper) is taken and the centre portion cut out so as to form a frame half an inch in width, and of outside side corresponding to the piece of tissue. This can then be pinned on the enlarging easel over the tissue, care being taken that both edges coincide, and will effectively safe-edge the tissue and ensure its being kept during exposure.

In judging development of the carbon print it is advisable to stop a little earlier than would be considered correct for

ordinary Rotary carbon tissues, as allowance should be made for the unaltered bromide of silver suspended in the film, which will afterwards be removed in fixing.

Handle the tissue as little as possible during development, etc. The tissue being coated on a good stout support, it is really only necessary to handle it at edges with finger-tips.

### Soaking Transfer Paper.

The thicker transfer papers always require more preliminary soaking than thinner ones, and it is a good practice to place the necessary number of supports for a batch of carbon prints in soak previous to making exposures, so as to ensure their being in proper condition when required later on.

### Correct Position Enlargements.

To obviate reversal of image in enlarging, place the glass side of the negative nearest to lens, and not film side, as is customary in ordinary enlarging.

### The Silver Reducer.

If the ferricyanide reducer is to be used on Carbograph for obtaining a pure carbon image, care should be taken to see all traces of the sensitiser are washed out after hot water development, otherwise traces of potash alum left in suspension may cause blue stains directly the Carbograph print is immersed in the reducer.

In preparing the sensitiser it is always advisable when the potassium is all dissolved (hot water should be used for this) to pass the solution through cotton wool or filter paper to remove all suspended matter before pouring into the stock bottle; also as the bichromate should be kept from exposure to strong light, the sensitiser should be stored in a deeply-tinted bottle, or the ordinary bottle wrapped in brown paper.

The double transfer process can, of course, be used if desired, as for ordinary carbon, but in enlarging this is not necessary, as correct position prints are obtained by reversing the negative in the lantern as previously mentioned.

### Choosing the Squeegee.

It is advisable to always use a good quality flat squeegee—one having a strip of easily flexible rubber—as it is important that the tissues should not be too roughly treated during this process, and many squeegees of inferior quality contain only rubber resembling ink eraser more than anything else.

**AUSTRALIAN DUTY ON PHOTOGRAPHIC MATERIALS.**—The Acting Prime Minister (according to the correspondent of the "Chemist and Druggist") stated, in reply to a question in the House of Representatives on September 26, that a duty at the rate of 15 per cent. is being charged, and paid under protest, on photographic dry plates and negatives (whether of foreign or British manufacture), notwithstanding that under the new tariff the duty is only 5 per cent. on foreign imports and British imports are free. He explained that the deposit of the higher rate is necessary, because at present that is the only duty sanctioned by law. Should the proposed tariff not pass into law, the old rates would necessarily be reverted to. In the event of the new tariff being enacted, all the duties now collected would be refunded, because there would be no legal authority to retain them.

**MODIFICATIONS OF THE AUTOCHROME DEVELOPER.**—As the result of a series of experiments made by MM. A. and L. Lumière and Seyewetz it has been found that the formula for the first development of Autochrome plates is still the best which the makers can recommend, but may be considerably modified in certain respects

if the temperature departs at all from that of 60 deg. F. or if errors of exposure are to be compensated for. The colder the developer, the longer should be the time of development, and vice versa: at 50 deg. the time should be four minutes, at 70 deg. two minutes, and at 80 deg. one and a half minutes. In the case of slight over-exposure up to about four times the normal, the time of development may be reduced to not less than half; for exposure of more than four times correct, the development should be one and a half minutes at 60 deg., or one minute at 70 deg. F. For still greater over-exposure the composition of the developer may be modified, using about twice the pyro and half the ammonia, and developing for six and a half minutes. In the case of under-exposure the time of development may be doubled, or, in cases of great under-exposure, the pyro halved, the ammonia doubled, and the time of development increased to six minutes. The full text of MM. Lumière's paper will appear in our columns at an early date.

**THE PHOTOGRAPHIC CLUB.**—Mr. A. Corbett informs us that he has been elected hon. secretary and treasurer, and requests that all communications be directed to him to 9, Riffel Road, Willesden Green, N.W.

## SOME NEW FACTS OF STAND DEVELOPMENT.

[The following paper, just issued as a circular by Messrs. Wratten and Wainwright, will be seen to contain the results of experiments made in the firm's research laboratory on this method of development. Messrs. Wratten's experiments show that dilution of a developer to, say, one-tenth strength, does not prolong development ten times, but that the time required with the weak stand developer varies according to the quantity of air dissolved in the water. Glycin is found to be least subject to irregularity from this cause. Messrs. Wratten also point out the necessity of precautions to avoid fog and markings during the necessarily protracted period of "stand" development.—Eds. "B.J."]

A METHOD of developing plates which always appeals by its apparent simplicity and economy, is that which is known by the name of "Stand development." For convenience we write of "Stand development" in the sense described below. By "Time development" we understand development for a fixed time with a developer of about the normal strength. "Time development," as users of our plates know, is advised by us in the case of colour-sensitive plates. In "stand" development the plates are placed in a grooved tank with a dilute developer, and are left to soak until finished. At first sight this method seems easy, and at the same time, owing to the dilution of the developer, economical—in actual fact, however, we doubt whether it is either.

It can scarcely be considered economical in the first place, because the tanks made for the purpose, ingenious and convenient as they are, require a very large quantity of developer; one of the smallest, for instance, requires 29ozs. of developer to develop six half-plates; and after a development lasting for half an hour the developer would be so oxidised that it would not be advisable to use it a second time; so that the claim of economy can scarcely be justified.

### A Fallacy of Stand Development.

It must also be remembered that in dealing with "stand" development we cannot go away and leave the plate to develop itself for an indefinite time any more than one can with any ordinary development. If a plate would require 3 minutes in an ordinary developer, and 30 minutes to give the same result in a "stand" developer, then if it were left for an hour in the "stand" developer it would be just as much spoiled as if it were left for 6 minutes in the ordinary developer; so that it is essential with stand development to know the time which the development will take.

### Weakened Developer Needs Disproportionately Longer Time.

Inasmuch as we recommend time development with our colour-sensitive plates, a large number of the users of those plates have adopted "stand" development, and have appealed to us to give them the time which developers of various formulæ should take. At first sight it would appear to be a simple thing to give this time:—Suppose, for instance, that the metol-hydroquinone formula which we recommend on the cards enclosed in our plate boxes, requires 5 minutes for development, then it might be supposed that if this developer were diluted 10 times it would require 50 minutes for development, or that, at any rate, if it did not require 50 minutes for development, we could give the amount it did require; such, for instance, as 15 times instead of 10 times the time given on the cards. We were, however, aware that probably influences which were not obvious would disturb this conclusion, and we have recently made an investigation of the question, and have obtained the following results:—

We used for our experiments rodinal, glycin, and pyro-soda developers, abandoning metol-hydroquinone, which did not seem to us suitable for "stand" development on account of its easy oxidation. Rodinal is largely used for "stand" development, and we commenced our experiments with this.

### The Reason: Oxidation by Dissolved Air.

A plate was developed for 3 minutes in 1 in 20 rodinal. Rodinal was then diluted to be 1 in 200, and other pieces of the same plate were developed in it, the time being found which was necessary to give the same result. If the developer were diluted with distilled water which had been freed completely from air by means of a vacuum pump, the time of development required was not 30 minutes, as would be calculated from the dilution, but 42 minutes. If it were diluted with recently distilled water, which is as free from air as any that can be generally obtained, the time of development was 46 minutes, while if it were diluted with ordinary tap water, the time of development was 53 minutes.

From this it will be seen that it would not be possible to give any factor by which the times we give for 1 in 22 rodinal could be multiplied if the rodinal were diluted 10 times, because the time of development would depend entirely upon the amount of air dissolved in the user's water; an amount beyond our knowledge or control. We therefore experimented with glycin and with pyro-soda, and found that neither of these developers were sensitive to air in the water. They took the same time to develop the plate whether they were diluted with absolute, air-free water, or with the ordinary tap water; we found, however, that if pyro-soda were diluted 10 times from our usual formula, it took not 30 minutes to produce the same result as was produced by the strong developer in 3 minutes, but 41 minutes. So that if the pyro-soda developer which we give be diluted 10 times, then the time of development must be multiplied by 15. This peculiarity was not shared by a glycin developer, and we consider this the most satisfactory for use in "stand" development. To sum up:—

### Two Recommended Formulæ.

If a pyro-soda formula be diluted 10 times, the time of development should be increased 15 times; the following formula requires 15 times the time of development given on the cards with the plates.

#### PYRO-SODA.

(1) Sodium sulphite .....	100 gms.	6 oz.
Pyro .....	17 gms.	1 oz.
Sulphuric acid .....	2 ccs.	1 dr.
Water .....	10,000 ccs.	600 oz.
(2) Sodium carbonate .....	100 gms.	6 oz.
Water .....	10,000 ccs.	600 oz.

Take equal parts of 1 and 2.

For glycin we recommend the following formula, which will require 10 times the time of development given on the plates:—

#### GLYCID.

Glycin .....	9 gms.	$\frac{1}{2}$ oz.
Sodium sulphite .....	27 gms.	1 $\frac{1}{2}$ oz.
Potassium carbonate .....	46 gms.	2 $\frac{1}{2}$ oz.
Water .....	10,000 ccs.	600 oz.

We do not recommend metol, rodinal, or metol-hydroquinone, on account of the difficulty with air in the water. May we also point out that though the experience of our research laboratory is at the service of all our correspondents, yet we cannot undertake to give times of development for special formulæ, unless the result is likely to prove of general use and interest.



### Tank Markings and Fog.

Another point to which we wish to call attention relates to the defects arising from general fog, and from edge markings, in plates developed in "stand" development tanks. A plate during development is peculiarly susceptible to fog, as much so at any period of its existence, and particularly to chemical action, so that the long development time of a stand-developed plate always tends to produce a danger of fog. In tanks made of zinc, the zinc may not only be attacked by the chemicals used, but may itself also fog plates. All bad air, fumes of turned gas, stagnant water, and the multitude of chemical impurities in the air and solutions of a badly ventilated and not always thoroughly clean dark-room, will unite to attack plates which are soaking in a developer, whilst tanks, which are also used for the purpose of fixing, are always liable to the suspicion of hypo contamination. It may be pointed out that the developers given here contain no bromide. The addition of a small quantity of bromide will generally diminish any slight trace of fog, but when using bromide it must be remembered that for moderate amounts of bromide the time of development should not be altered, but the time of exposure must be increased;

that is to say, a plate which is to be developed in a bromided developer will require a somewhat fuller exposure than one to be developed in an unbromided developer.

Edge markings are frequently accompanied by a lack of gradation in the high-lights. The cause of the edge marking and the lack of gradation is the same; it is that in many of the tanks on the market the plates are too close together, and are too close to the bottom of the tank; the result is that the plate is to a certain extent starved of developer, so that the development progresses more rapidly in the half-tones and shadows than in the high-lights of the plate, producing a flattening of the high-lights; while the marking on the lower edge is caused by the solution of the backing which falls to the bottom of the tank and accumulates on the lower edge of the plates, the backing from one plate affecting the face of the plate immediately behind it.

This can be to some extent prevented by placing all plates face to face and back to back in pairs in the tank.

In conclusion, we do not as a general rule recommend "stand" development, though it is sometimes convenient, but if it is desired that it should be used, then the details given here will probably prove of service.

## ARTIFICIAL LIGHTS IN PHOTOGRAPHY.

### III.

Increase of the arc can be produced by increasing the current or by using "effect" or impregnated carbons. For printing, only those impregnated carbons which give a white light should be used, as the others are too poor in blue and violet rays. If coloured originals have to be copied and a light approximating to daylight desired, then the output of the lamp should be increased by the use of impregnated carbons.

An extremely effective form of lamp, which gives a wide field of very even illumination, is that in which the carbons, instead of being

the illumination of a plane,  $FF$ , we have the "illumination curve,"  $K$ .

If a sheet of paper is laid below the lamp it will be found to blacken fairly symmetrically around the axis of the lamp—that is, round the perpendicular dropped from the arc through  $O$  to the plane, and the greater visual luminosity of the positive crater can hardly be detected. The photo-chemical luminosity is chiefly due to the arc itself, but the light of the carbons flattens the curve and makes it more even. With such a lamp one may use a cone of nearly

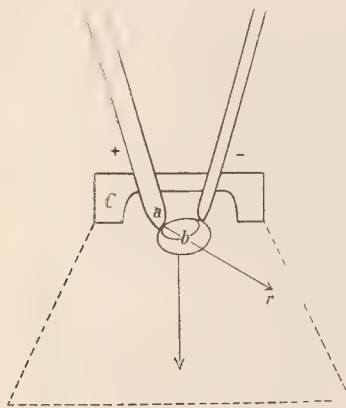


Fig. 9.

one above the other, are both directed downwards at an angle of about 30deg., and are enclosed in framework,  $C$  (Fig. 9), which becomes partly magnetised, and blows the arc out into a flame of about 1in. in length. In this form the positive crater is of minor account, the bulk of the light being actually resident in the arc itself.

From Fig. 9 it will be seen that the light is directed downwards and outwards over an angle of 160deg., though the maximum of visual luminosity lies in the direction of  $r$  from the positive crater. The intensity curve is compounded of that of the arc and that of the positive crater.  $C$  (Fig. 10) shows that of the former and  $C_1$  that of the latter, so that the final intensity curve becomes  $C_2$ , and for

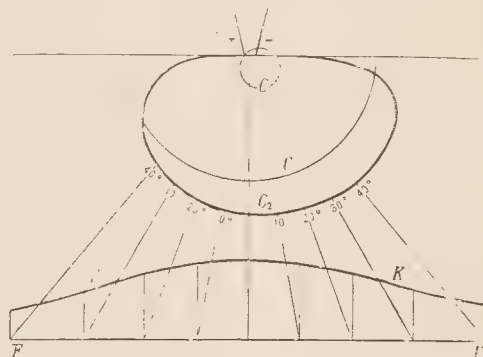


Fig. 10.

50 deg. for half-tone negatives and almost 60 deg. for those in line. It may be assumed that at a distance of 20in. a circle of about 18in. to 24in. diameter is sufficiently evenly illuminated. Sixteen inches is about as near as one can get to the lamp on account of the great heat evolved, though very short exposures may be made at 10in. A sheet of paper exposed at this distance gave a dark area of 155 square inches.

Testing the lamp, as in previous cases, by printing with and without a sheet of glass, the light was found to contain about 33 per cent. of ultra-violet rays.

The framework,  $C$  (Fig. 9), which is called an "economiser," practically acts not only as a reflector, but produces a partial vacuum, or, rather, a space in which there is less oxygen; therefore

the consumption of the carbons is minimised. As a reflector it increases the light by about 30 per cent. Naturally a glass globe must also be used if the full effect of the "economiser" is to be obtained, otherwise there would be diffusion of the air into the space of the "economiser."

### The Enclosed Arc.

This type of lamp has lately found much favour. As very high voltages are used, it is necessary to enclose the carbons in a practical vacuum, otherwise they would burn away very rapidly and glow throughout their whole length.

There is no crater, but the two poles are flat at the ends, and the arc wanders round and about the surfaces (Fig. 11). The positive + pole, however, emits the most light, the negative—pole remaining comparatively dark. The arc *b* (Fig. 11) is over an inch long, and emits an intense violet light, which is increased by the white glowing positive pole.

It is extremely easy to see visually the "illumination curve" of the positive carbon and that of the arc by holding a sheet of white paper parallel to the lamp. The former is intensely white, whilst the violet zone is comparatively dark. On the other hand, by replacing the white paper by a sheet of collodion P.O.P. an almost even tint is obtained, the more powerful photo-chemical ultra-violet rays evening up the action.

The higher the voltage the richer in ultra-violet, and comparatively



Fig. 11.

poorer in the less refrangible rays the arc becomes; therefore this lamp is not suitable for copying coloured objects on colour-sensitive plates. A yellow filter will increase the exposure about five times more than usual, or more still the lower the voltage.

In consequence of the great separation of the carbons, the arc emits its light almost without hindrance, and as it constantly changes its position it acts like a circle of light of about 1 in. in diameter, if we take into consideration only an angle of about 20deg. on each side of the central horizontal line.

The "illumination curve" is therefore somewhat flatter than that shown in Fig. 3 for a surface parallel to the carbons. The homogeneity of the light is about equal to that of the lamp just previously described, and for half-tone negatives a light cone of about 40deg., and for line one of about 60deg., can be utilised.

A sheet of collodion paper, exposed at a distance of 10 in., gives an almost circular spot of 155 square inches.

Testing this lamp, as in previous cases, it was found that a sheet of collodion paper was blackened to the standard tint at a distance of 20 in. with

A 4-ampere lamp in .....	70 seconds;
A 6-ampere lamp in .....	33 seconds.

The interposition of a sheet of glass  $\frac{1}{4}$  in. thick only increased the time by about 10 per cent. This is, of course, explained by the fact that the glass cylinder surrounding the lamp absorbs the greater part of the ultra-violet rays.

An enamelled white reflector of the shape shown in Fig. 12 about doubles the light, and the standard tint was obtained in 16 seconds. At a distance of 20 in. a negative prints three times as quick, or six times with the reflector, as in diffused daylight, and as a cone of

from 40deg. to 60deg. can be used, it is possible to print a negative 24 in. by 16 in. at this distance.

The high efficiency of the reflector is probably due to the fact that the whole of the rays emitted by the lamp are collected and reflected, so that it acts as a large reflecting surface.

### THE TELEGRAPHIC TRANSMISSION OF PHOTOGRAPHS.

READERS of the daily press will have read of the installation of part of the "Daily Mirror" of Professor Korn's method of electrical transmission of half-tone photographs. Last Thursday a large company of journalists and others assembled at the "Mirror" office to witness a demonstration of the use of the



Photograph cabled to the *Daily Mirror* from Paris, November 8, 1907.

between London and Paris for the telegraphing of a photograph. Professor Korn himself delivered a short lecture, and did his best to make clear the highly technical method employed under the system. The results, which have been reproduced in the "Mirror," show the complete sufficiency of the Korn process at the present time for the purposes of the illustrated newspaper. They are a prising advance on those which were shown to us in London some five years ago by Professor Korn with the aid of an experimental installation, which we believe was the first to be used outside Professor Korn's own laboratory at Munich. As regards the electrical methods adopted by Dr. Korn, we must refer our readers to the issues of the "B.J.," in which they have been described at length.

### Other Methods.

Writing of the telegraphic method of M. A. Belin, the "Daily Telegraph's" Paris correspondent says that the apparatus is different from that of Professor Korn, but is equally efficient. M. Belin does not employ selenium, which, according to him, has a particular drawback. His transmitting apparatus is a cylinder, on which is wound the photograph, which is in slight relief. As the cylinder revolves, a needle follows the surface of the photograph in spiral lines, the distance of a sixth of a millimetre apart. The needle is carried by a level, which oscillates more or less according to the movement of the former, which, being connected with the transmitting wire, causes the intensity of the current to vary correspondingly. The receiving apparatus carries another cylinder, revolving at exactly the same rate, round which is wound a sensitive film. An "oscillograph," consisting of a loop of the finest wire, through which the current passes, and which bears a tiny mirror, one millimetre long by seven-tenths of a millimetre wide, transmits, by means of an electric lamp, rays of light to a lens. The wire loop is more or less twisted, as the current varies in strength, and the mirror is thus more or less deflected from its original position. The lens directs the rays through an aperture in a screen on to the cylinder and the film. Each movement of the needle in the transmitting apparatus thus exactly corresponds



to a movement of the mirror at the other end, and the rays of light thrown on the receiving film vary correspondingly in intensity. As the needle follows the original photograph very closely, the reproduction obtained is proportionately accurate.

The Paris "Journal" also reports that an inventor, M. Berjonneau, has constructed a new tele-photographic apparatus, by which pictures may be transmitted to any distance by means of submarine cables. It is thought that it will even be possible by means of this apparatus to send pictures by wireless telegraphy.

## Photo-Mechanical Notes.

### Section-Cut Half-Tone Screens

ACCORDING to a recent specification (No. 58, 1907), a patent has been taken out for a process of preparing half-tone screens by cutting a section of cemented celluloid films. The patentee, Robert Krayn, 24a, Marien Strasse, Berlin, employs the following method:—

The layers or bands are piled up until a sufficiently thick block is produced, from which the veneers can be cut transversely and then be polished on both sides. The number of lines of these screens or veneers depends on the number of the layers piled up in the block. In order to produce cross screens two or more of such screens are cemented crosswise on to each other, and are then cemented between two sheets of glass.

Single plates are then placed one upon another until a block of the required thickness is obtained, the plates being coated with the cement before putting them together. The plates thus assembled are then exposed to a strong hydraulic pressure, which unites them in a homogeneous block, which is cut into sections.

In case the sections obtained as described above are piled up one upon another in such a manner that the transparent lines of one section lie over the opaque lines of the layer beneath it, and are then united again so as to form a block, which is again cut into sections which are vertical to the primary section of which it is composed, a veneer would be produced, which would have the appearance of a chess-board consisting of transparent and impervious squares, but it is nearly impossible to realise so exact a fitting over each other of the different lines of the primary section. If the lines do not fit exactly over each other, squares will also be obtained, but same will be seemingly irregular form, which might have an advantageous effect on the picture or photograph. The screen can be employed as a direct support to the sensitive plate. The exposure to light takes place on the back part through the screen. The negative thus obtained is adapted to be directly employed for half-tone work.

If layers of the thickness of the well-known roll film (0.05 mm.) are employed twenty layers or lines are obtained in each mm. thickness. If from such a block sections 0.05 mm. thick are sliced or peeled off and a new block is formed of these sections, which is cut vertically to the primary section, of which it is composed, films are obtained of the character of a chess board with 400 squares to the square millimetre, of which 200 are transparent and 200 impervious to light. For the etching process, of course, these squares are too small.

If the film, however, is covered with the sensitive plate and the back exposed to the light, a negative is obtained, the positive copies of which display the character of etchings, this effect being caused by the dissection of the shadow and half-tones into fine points.

Instead of pasting the single bands on to each other, this colourless transparent and impenetrable layers of quickly drying collodion or other suitable material may be poured or placed one upon another until a block is formed, or the different plates are produced, of which the block may then be composed.

**TELESCOPIC LENS HOOD.**—Those who recognise the value of shading a lens—and the practice is one which is an almost necessary precaution in the case of the modern air-spaced anastigmat—will be interested in hearing of a new lens hood which is being introduced by Messrs. A. E. Staley and Co., of 19, Thavies Inn, Holborn Circus. The hood is telescopic, and forms, when opened out to its working position, a series of concentric diaphragms. The accessory, as soon as it is ready, should be sure of a large sale.

## Exhibitions.

### HACKNEY PHOTOGRAPHIC SOCIETY.

When, after traversing the wilds of Shoreditch, we reached the public baths of Hackney, we found Mr. Walter Selfe in person admitting the burgesses of that borough to the exhibition hall at sixpence a time all the afternoon; after 6 p.m. entrance costs one shilling, but for that sum one gets a two-hour concert and a lantern lecture, besides the privilege of examining 499 (see catalogue) specimens of modern photography. That is the Hackney plan, eminently practical of gilding the photographic pill and inducing the astute Hackney public to come in its hundreds and gulp it down, concert and all, at the ridiculous figure of one shilling per head. As a local function the exhibition is a pronounced success, thanks to the tireless energy of Mr. Walter Selfe, who for years past has guided the Hackney Society on a prosperous and solvent course. As a consequence the members of the Society are able to pride themselves on bringing together a collection of their own and others' work which ranks very high among photographic exhibitions. Moreover, the members' classes compare very favourably with those open to general competition. If any criticism be levelled at the Hackney work as a whole, it is that the members show too evident a desire to trim their sails to the mood of the moment in pictorial photography. To accuse any of them of playing up to the judges is to credit them with more than human cleverness, seeing that Mr. A. H. Blake judged with Mr. H. W. Bennett and Mr. Furley Lewis. There was, however, rather more of the "mist-and-mirk" sort of photograph than one is accustomed to look for in an exhibition largely contributed to by Mr. Hensler, Mr. Rawlings (not the "oil" Rawlings) and Mr. Selfe.

Of the work awarded in the "Portraiture and Figure Study" class we preferred Mr. F. E. Roofe's clever little Dutch picture (No. 21) to Mr. Hensler's "Habitué" (No. 27) in St. Paul's Churchyard. The pigeons which he feeds are too much of a tone with the habitué, with the result that the difference in personal cleanliness between the two classes of beings disappears. Mr. Roofe's "Little Curly-Locks" is another delightful child study.

Mr. Selfe's "Across the Thames at Low Tide" (No. 56), which is judged best in all Members' Class, is splendid photography, but all too warm in tone for the Thames at Somerset House. No. 101, by Mr. C. J. Powel, interested us for its demonstration of how a print 2in. x 1½in. is nevertheless strong enough for an exhibition wall.

In the largest Members' Class, "Landscape and Seascapes," the award to Mr. Rawlings goes to No. 108, "The House on the Hill," which perspectively is a very clever piece of work, but is not as good as the average of Mr. Rawlings' work in composition. The interest is placed in the top quarter of the picture, but at the cost of weakening of the foreground. Mr. Hensler's rendering of a "Wet Night in Suburbia" (No. 144) is a very clever night picture, with all the effect of light on water-laden air. His "Mist Lifting," No. 145, is also a fine rendering of mist over a panorama, and would be beautiful but for the coarse texture of the paper. The third award goes to a gum print, but the puzzle of the section is Mr. H. W. Lane's picture of St. Paul's and some scaffolding, which is entitled "Tugging."

Mr. Selfe takes a deserved award in the Architecture Class for his "In a Ruined Church" (No. 9), fine technical work, with the feeling of the deserted shrine in it.

The Open Classes are not up to the standard which Hackney usually secures outside its own ranks. No. 277, which is judged the best in all the Open Classes, is a clever effect of lighting on the figures of potato diggers, by H. Y. Simmons. Mr. Judge's "After a Storm" is a fine piece of work which does not gain an award. No. 367, which does, is in the big style, and has a good rendering of motion in it. In the Miscellaneous Class, to which "Animals, etc.," are relegated, Mr. Henry J. Comley takes the award for a three-colour carbon, "Dessert."

The representation of colour photography by the newer screen-plate processes is limited to about half a dozen Autochrome transparencies by Messrs. C. Welborne Piper and John H. Gear, together with a couple of examples of the Warner-Powrie process. In the trade section, the exhibitors are Messrs. R. and J. Beck, who receive the trade award for the "Isostigmat" lens; Messrs. Burroughs, Well-

come and Co., who show results of a new universal developer, "Rytol," and examples of the 1908 "Wellcome Exposure Diary"; Messrs. C. P. Goerz, Wellington and Ward, and the White Band Chemical Co., in addition to the local exhibitors, Messrs. F. F. Dadd and Son, Grant and Taylor, and William Rawlings and Co.

#### FORTHCOMING EXHIBITIONS.

- November 5 to 27.—West of England Industrial Exhibition (Photographic Section). Sec., A. D. Breeze, Great Western Chambers, 41, Union Street, Plymouth.
- November 12 to 16.—Rugby Photographic Society. Sec., R. H. Myers, 13, Bridget Street, Rugby.
- November 19 to 23.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.
- November 25 to 28.—Lancaster Photographic Society. Entries close November 16. Sec., Walter Gunson, Manesty, Scoforth Road, Lancaster.
- November 20 to 27.—Croydon Camera Club. Sec., H. T. Dodsworth, Enmore House, Woodside Green, South Norwood.
- November 28 to December 4.—Southsea Photographic Society. Sec., Gilbert Wood, 10, Pelham Road, Southsea.
- December 5 to 7.—St. George Co-operative Society Camera Club. Entries close November 25. Sec., George Anderson, 77, Brae-side Street, Glasgow.
- December 5-7.—North London Photographic Society. Entries close November 30. Sec., C. H. Madden, 12, Dagmar Road, Stroud Green, London, N.
- December 11 to 14.—Hove Camera Club. Sec., Stanley Read, 12, Old Steine, Brighton.
- December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1908.

- February 20 to 22.—South Manchester Photographic Society. Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.
- February 15 to March 7.—Scottish National Salon. Entries close January 20. Sec., Frederick W. Kay, 183, Union Street, Aberdeen.

#### CATALOGUES AND TRADE NOTICES.

**BOARDMAN ARC LAMPS.**—The Boardman Co. of 10, Southwark Bridge Road, S.E., send us their new list of open and enclosed arc lamps for portraiture and printing. It includes particulars of the firm's complete portrait and printing outfits at £14 14s. and £10 10s. respectively.

**COLLOTYPE POSTCARDS.**—Some excellent specimens of colotype postcards in monochrome and colour are sent to us by the Barton Pictorial Postcard Co., Ltd., 15, St. James', Barton, Bristol. The firm's work should appeal to photographers requiring a really good series of cards at a moderate price.

**THEFTS BY TRAVELLING PHOTOGRAPHER.**—A photographer named Harry May was, at South Shields, last week, committed to the Quarter Sessions for trial on three charges of theft from landladies at whose houses he had stayed. It was stated that accused was wanted at Sunderland and West Hartlepool.

**TO AVOID "COCKLING"** when mounting prints upon their papers, as in "multiple" mounting, Mr. W. Brush, in addressing the Bristol Photographic Club, advised making pin-pricks on the mounting paper exactly where the four corners of the print were to come. Then with a sharp knife making two diagonal cuts, like the letter X, nearly, but not quite, joining each pair of diagonally opposite pin-pricks. The edges only of the print are then smeared with the minimum amount of some adhesive containing but little water, such as Secotine or one of the photo-pastes, and the print quickly pressed on to the mount so that its corners agreed with the pin-pricks. The same procedure is gone through with any subsequent thin mounts the print may require.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received between October 23 and November 2:—

- MULTI-COLOUR FILTERS.**—No. 23,738. Improvements in yellowish light filters for polychrome exposures. Ernst Wandersleb, Jena, Germany.
- TONING AND MOUNTING.**—No. 23,762. Process for photographic toning and mounting. Harry Schmidt, 509, East Street, N.W. Washington, D.C., U.S.A.
- ONE-PLATE COLOUR PHOTOGRAPHY.**—No. 23,812. Process to reproduce in natural colours, transparencies, positives, and enlargements, from a single negative and single exposure. James Marlow Child, 27, Harrington Street, Pear Street, Derby.
- OPTICAL LANTERNS.**—No. 23,818. Improvements pertaining to optical lanterns and the regulation and control of light-producing agents, electric arcs, limelights, or the like, used in connection therewith, and apparatus therefor. George Robson, 21, Rochdale Road, Leyton, Essex.
- ANTI-HALATION DEVICE.**—No. 23,962. Improvement in lighting fixtures for taking non-halo photographs of interiors. Max Anzinger, 224, Friedrichstrasse, Berlin, Germany.
- PLATES.**—No. 23,964. Improvement in arrangements in covering photographic plates for partial exposure. Hans Steindl, 224, Friedrichstrasse, Berlin, Germany.
- DEVELOPMENT.**—No. 23,973. Improved device for holding flat-plate photographic films during the processes of development. Benjamin Thomas Akers and John Edward Wilson, 33, Chancery Lane, London.
- PRINTING PROCESSES.**—No. 24,124. Improved gelatine compound for use in photographic printing processes. George Edward Hawke Rawlins and J. J. Griffin and Sons, Ltd., 322, High Holborn, London.
- CINEMATOGRAPHS.**—No. 24,157. Improvements in film gates for cinematograph machines. Leo Kamm, 27, Powell Street, Goswell Road, London.
- REPRODUCTIONS ON GLASS, ETC.**—No. 24,214. Improvements in or relating to the reproduction of images on glass, porcelain, ceramic, metallic, or other surfaces. Maurice Anthès and Edwin Lloyd, Ltd., 70, Chancery Lane, London.
- CINEMATOGRAPHS.**—No. 24,225. Improvements in or relating to incombustible cinematograph ribbons or strips. Frederic I. Mare, 72, Cannon Street, London.
- MULTI-COLOUR SCREENS.**—No. 24,233. Improved means for the manufacture of photographic multi-coloured line screens. Alfred James Munro, 43, Southampton Buildings, London.
- FOCAL-PLANE SHUTTERS.**—No. 24,240. Improvements in "focal plane" shutters for photographic cameras. Wilfred Bailey, 1, St. Ann's Square, Manchester.
- PRINTING FRAMES.**—No. 24,285. Improvements in photographic printing frames. Frederic Cotton Symonds, 56, Ludgate Hill, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

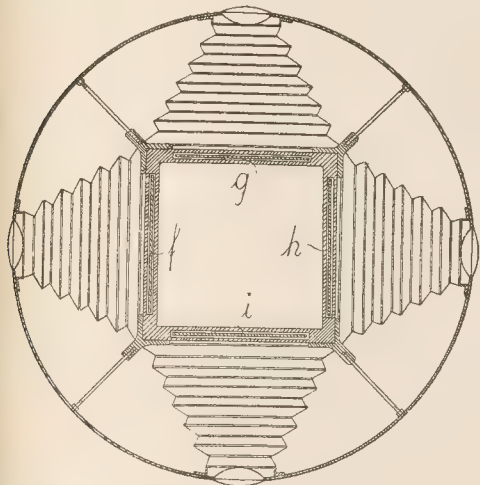
*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**FOLDING REFLEX CAMERAS.**—No. 16,198, 1906. The invention consists in improvements to the camera described in Patent No. 21,561, 1903, first in regard to providing means for lifting the mirror into position behind the focussing screen. This is done by mounting an arm upon the spindle or one of the pivot pins upon which the mirror is carried, and connecting this arm by means of a link with a slide. The slide may engage by means of a spring-operated catch so that it may be retained by the catch in the position corresponding to the uplifted position of the mirror. The slide moves by means of a stop mounted so as to protrude on the outside of the frame, and the catch may be adapted to be operated for release from without. Means are also provided for mounting the hood of the camera, for ensuring



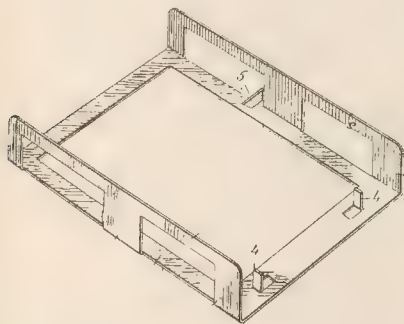
the fall of the focussing screen before the closure of the camera, and for fixing the mirror in relation to the focussing screen. Charles Edmund Peczenik, 11, Pancras Lane, London, E.C., and Augustus John Gratte Maskens, 12a, Cross Street, Islington, N.

**MULTIPLE CAMERAS.**—No. 6,739, 1907. The claim is for a camera of the form shown in the figure, in which four separate lenses are employed, the four dark slides being placed at *f*, *g*, *h*, *i*. The advantage of the spherical photographic apparatus is stated to lie in the fact that both in separate and combined exposures



the views are taken at the same angle, while the adjustment of all the objectives, both laterally and vertically, can be uniformly and simultaneously effected from a central point. Robert Bachstein, 17, Dürerplatz, Dresden, and Balduin Emil Enge, 22, Kronprinzstrasse, Oberlössnitz, Germany.

**PLATE-HOLDERS.**—No. 6,613, 1907. The invention is for a plate-holder, consisting of a bent sheet with open base and sides,



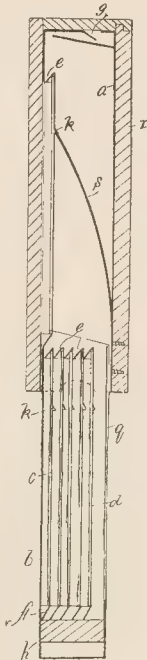
partially cut away. It is provided with stops, 4 and 5, for the purpose of holding the plate in position. Michael Paris Foran, 38, Portland House, Johannesburg, South Africa.

**UNIVERSAL CAMERA.**—No. 12,662, 1907. The claim is for "a camera for photographic and optical purposes, comprising a screen room; a lens box mounted externally of the screen room and opposite an aperture in the front wall thereof; a guide frame supported independently of the screen-room structure and adapted to enable a lens box to be shifted for the purpose of adjusting the focus of the lens; a copy board supported by and adjustable lengthwise of the guide frame; bellows connecting the lens box with the aperture in the screen room; and means for enabling the lens box to be adjusted lengthwise of the guide frame from within the screen room."

The essential feature of the apparatus appears to be the building of the camera of such size that the operator can enter it and carry out focussing, vignetting, etc., while within it, at the same

time being able to make the adjustments of the lens, etc., which are outside the camera-chamber. Alchanan Cohen, 8, Nicholas Street, St. Peter's Road, London, E.

**CHANGING BOX.**—No. 22,994, 1906. The invention relates to a changing box of the form shown in the figure, in which *a* is the outer box or casing, *b* is an inner case which slides into the outer casing *a*. This latter case *b* contains the plates *c*, each plate being carried in a sheath *d*. The top end of the sheath is turned over at *e* so as to form a wedge or bevel. The other end *f* of each of the sheaths is also turned out so that it is approximately parallel with the surface of the wedge *e*. Each of the sheaths *d* is provided with a projection or stamped-up portion *k*. *g* and *h* show light-buffers placed at the top and bottom of the outer casing *a* and the inner casing *b* respectively. *m* and *n* are stops provided respectively on the outer casing *a* and inner casing *b* so as to prevent the latter being pulled entirely out of the former.



In using the apparatus the casing *b* is drawn down and the spring *s* taking against the catch *k* on the sheath *d* at the back of the casing *b* prevents the said sheath *d* being drawn down with the rest of the sheaths, so that when the other sheaths are drawn down sufficiently to clear the sheath thus held by the spring *s*, this sheath is pressed forward against the window at the front of the box *a*, as shown in the frame. The photograph is now taken, and then the inner casing *b* is pushed upwards. The wedge portion *e* at the top of the sheath next to the front, as it rises, will slide over the inclined surface *f*, and, when the casing *b* is pushed completely in, the plates will be in their original position except that the plate which was formerly at the back of the box next to the spring *s* is now in the front of the box, so that when the operation is repeated the next plate towards the back will be brought up ready for exposure. When the plates are all exposed he entire case may, if desired, be immersed in a developing bath, the developer being allowed to enter the case and flow over the plates by the apertures protected by the buffers *g* and *h*. The other operations, such as washing, fixing, or the like, can also be performed without removing the plates from the sheaths or the box, so that on completing the operations it is simply necessary to remove the finished negatives from the sheath. Robert Barr, Hillhead, Woldingham, Surrey.

**PRISMATIC DISPERSION COLOUR PHOTOGRAPHY.**—No. 8,723, 1907.

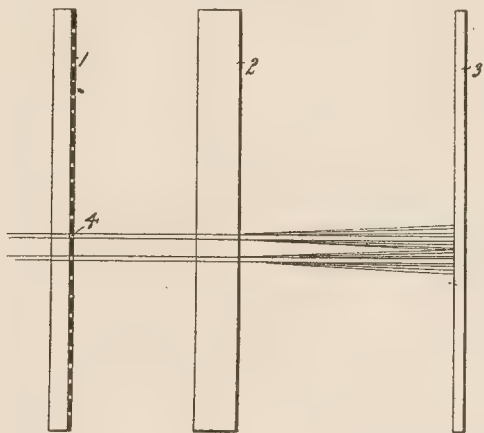
The inventor proposes to employ the following process:—

The optical image of any subject is first decomposed by means of a screen into a large number of parts which are very small relatively to the size of the image. In their further course the rays of light of these small parts enter a colour-diffusing device 2, which may consist of a simple prism, a direct-vision prism, any combination of prisms, a combination of small particles of colour-diffusing material, a diffraction grating or the like. By means of the colour-dispersing device the parts of the image are dispersed into small more or less pure, real, or virtual colour spectra, so that the image received on a ground-glass 3 or the like consists of a large number of very small spectra, which, however, in consequence of their smallness, can scarcely be perceived as such, and which give the impression of the original image.

If the ground glass 3 be replaced by an ordinary panchromatic plate or the like, each colour of the object to be photographed will act in those places in the sensitive layer, in which it has, in the small spectra, the position corresponding to its wavelength. For example, if the parts of the image passing through the screen at 4 consist of the colours yellow and green, action of the light will only take place on the particular similar-coloured places of the entire spectrum.

If the negative produced in this manner be placed in the posi-

tion of the ground glass and observed against a white surface arranged in front of the screen, those colours which had acted appear hidden in the surface of light consisting of complete



spectra. On the other hand a positive produced from the negative allows only these colours to pass through and the image appears in the proper colours.

The image may also be projected or the apparatus may be combined with a stereoscopic apparatus or the like. Moreover the image can be copied by various copying processes or by employed for producing the parts of the image for three or more colour-processes, different areas of colour being excluded alternately in the copying by screens which cover these colours, or by colour filters, or positives produced therewith, having a surface on which the smaller spectra are reproduced by any process whatever, may be interposed, or the copying be effected on colour printing paper in a copying-frame furnished with a colour-screen corresponding to the spectra. The apparatus furnished with this contrivance is likewise suitable for ordinary monochrome photography and when properly fitted up for taking photographs by fixed waves of light. Franz Urban, Hotzenplotz, Silesia, Austria.

**CINEMATOGRAPHS.**—No. 3,119, 1907. The invention consists of a rotary film-mover in which the engaging finger is adapted to be moved in a direction at right angles to the path of the film to disengage the finger from the same. Enoch J. Rector, 131, West Twenty-fourth Street, New York City, U.S.A.

### New Trade Names.

**ANGELO.**—No. 296,599. Photographic printing papers. The Eastman Kodak Co. (a corporation duly organised under the laws of the State of New York, U.S.A.), 183, Main Street East, Rochester, New York, U.S.A., dealers in photographic materials September 26, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Controlling Contrast in Bromoil Printing.

In bromoil (says a writer in "The Photographic News") the contrast is controlled in two ways, either by the strength of the original bromide print or by the adjustment of the quantities of alum and citric acid mixed with the ozobrome solution. Of course, the variations of ink and manipulation in pigmenting apply as well to the bromoil as to the original oil process. The best results are to be obtained by the use of a normal bromide print, fully developed, so that the deposit of silver is adequate, and then a careful balancing of

citric acid and alum to give the desired result. An excess of alum will give flat prints on pigmenting, while less alum gives an increase of contrast, and the citric acid may be maintained in constant quantity.

### Toning Platinotype with Sumach.

A method of toning platinum prints (writes Mr. C. Ainsworth Mitchell in "The Amateur Photographer") is to treat them for about fifteen minutes with a hot solution of a vegetable extract containing one of the so-called "iron-greening" tannins, such as Sumach extract which can be obtained as a commercial article. About a teaspoonful of the extract is dissolved in a pint of water at about 140 deg. Fahr. and the print immersed in the liquid until sufficiently toned, after which it is washed for a few minutes in tap water and dried. The tannin combines with the traces of iron left in the paper after the acid bath, and the print is changed to a soft greyish green colour and is also intensified to some extent. Chestnut bark extract has a similar toning effect, though the colour is less pleasant than that produced by Sumach.

## New Books.

"Jahrbuch für Photographie und Reproduktionstechnik," 1907. Edited by Dr. J. M. Eder. (Halle: W. Knapp. 8 marks.)

This year's issue of "Eder's Jahrbuch" reaches us rather later than its appointed time of publication, yet we can appreciate, perhaps as well as anybody, the labours which must precede its completion for the press, and are ready to pardon its delay in reaching us, so long as we are able to add it to the series of volumes on our shelves, the value of which, for reference purposes, we cannot easily exaggerate. Dr. Eder's compilation shows no radical departures from previous issues of the "Jahrbuch." The volume opens with a series of papers by Continental authorities. Notable among these are Dr. W. Scheffer's note on a general formula for stereoscopy, General Obermayer's review of recent progress in colour photography, Dr. T. Dokulil's précis of stereoscopic progress, and Dr. E. Wandersleb's interesting paper on the variation of distortion with various lenses when used copying on various scales of reduction.

In the systematic résumé of the photographic literature of the year Dr. Eder exhibits his genius for prolific and careful abstraction. If it is too profuse, say, in reproducing details of apparatus, the fault, a good one, and he is to be commended when he adopts copious short references in the case of the more recondite themes of scientific photography. We do not find quite the accustomed number of editor's comments on the more questionable items of alleged fact, but the volume, as a whole, shows that the editor and his staff not less painstaking in their orderly collection of the work of the year which worthy of record. The usual indexes, one of names and the other subjects, is as full as ever. The only suggestion towards improvement we can make is that in the names-index some indication of the subject of each entry should be given in cases where there are a number of entries to a given name.

"Denizens of the Deep." By F. Martin Duncan, F.R.P.S. (London: Cassell and Co.) 5s.

A new book of nature-wonders, "presented," as Mr. Frohman would say, by the camera. Mr. Kearton and Mr. Pike have lain on the earth or ascended to its dizzy heights. Mr. Martin Duncan takes his readers to the waters that are under the earth, a very interesting tale he spins of the strange folk to be encountered there, their habits and proclivities, and their (frequently reprehensible practices and their quaint moral conventions. The latter, it should be added, are chiefly introduced or implied by the author for the picturesque effect; the glimpses of deep-life à la mode, however, even if they are imaginative, are all the good of the story-book, and usually, it must be admitted, Mr. Duncan is not without some experimental support for his humorous conception of submarine amenities.

The barnacle spends its later life standing on its head. The crab leads the strenuous life when young; the sea-anemone may devour him, but as soon as he is grown up he is able to resist



out a claw into the stomach of his former foe and remove any delicate morsel which the anemone may be digesting. The female octopus is a model mamma, and jealous of her offspring to the degree of devouring her own spouse should she suspect him—as she may with good reason—of designs upon the little ones.

It is because Mr. Martin Duncan has the rare gift of writing thus humorously of the underworld of Nature as he has seen and photographed it, that his book, with its sixty odd illustrations, is a delightful Christmas present for a boy or girl.

"Photographische Probleme." By Dr. Lüppto-Cramer. (Halle: W. Knapp.) 2 marks 50 pf.

Dr. Lüppto-Cramer's continuous papers on phenomena involved in emulsion-making do not lend themselves to condensation. Yet the experimental results which they contain may be sufficiently valuable to make it worth while keeping the full texts of the papers at hand for reference. This volume, therefore, the fifty-eighth of Herr W. Knapp's "Encyclopädie der Photographie," should be a useful addition to the chemical literature of photography.

"The Patents and Designs Act, 1907." By J. Roberts and H. Fletcher Moulton. (London: Butterworth and Co.) 4s.

The recent revision of patent legislation in this country naturally calls for a handbook, which shall treat the subject entirely from the view of a person in the present transition state. This the authors have set themselves to do by first giving a summary in popular language of the new Act, and following it with the full text of the Act. In this later portion they interpolate the official text with explanatory notes, which should assist in making clear the difference between the present legislation and the past. Even a layman is familiar with certain provisions of the new Act, such as the reference to prior specifications, but the more subtle nuances of patent law and practice require some such guide as the authors now themselves to be. One may commend the book to those of our readers to whom patent protection is of importance.

SOUTH DEVON.—Under this title Messrs. Adam and Charles Black have issued a volume of their colour series, illustrating the topography of South Devon with reproductions of the paintings of C. E. Hannaford. The text is by Mr. Chas. R. Rowe, known to many of our readers for his journalistic connection with photography. Mr. Rowe can justly claim to know Devon as intimately as anyone, and his descriptions of incidents and places add greatly to the interest of the volume. Delightful haunts for the photographer are Dartmouth, Exmouth, Totnes, Kingsbridge and Torquay, and if Mr. Hannaford adds glamour to the colouring, Mr. Rowe no less lends romance to the travels of the tourist. "South Devon," published at 6s., is decidedly a book to draw one to the West Country on the first touch of spring.

## Dew Apparatus, &c.

the "Nulli Secundus" Anastigmat. Sold by A. E. Staley and Co., 19, Tavies Inn, Holborn Circus, London, W.C.

An anastigmat lens at the ridiculous price of 50s. for an instrument 7 inches focus is the offer which Messrs. Staley make until November 30. While we cannot explain the commercial wisdom of selling lenses at precisely half its list price, it is, nevertheless, our duty to write of the instrument as we find it. Hence we are bound to say that the "Nulli Secundus" taken for our trials from the number which happened to be in stock at the time, has been found to be an anastigmat objective of remarkably high quality. At its full aperture of  $f/6.8$  the lens covers a half-plate perfectly to the extreme corners, a test which we were able to increase in severity by raising the lens nearly level with the top of the plate; the lower part was still satisfactorily covered. The lens, it is evident, has a very flat field, and is able to cover a plate considerably larger than that for which it is listed, and this without resorting to a small diaphragm. Messrs. Staley have demonstrated its covering power by a photograph of a landscape taken on a 12 x 10 plate, and will send a bromide print from the negative for the sum of sixpence. The lens is undoubtedly capable of

very fine work over a large angle. The "Kew" tests of the lens made at the National Physical Laboratory, have shown the lens to be one of excellent quality, but as doubt has been cast upon the Kew certificate by a contemporary, we may be allowed to say that the official duplicate of the certificate sent out by Dr. Glazebrook is quite unmistakable in its report, and is, moreover, innocent of the particular inconsistencies referred to by our contemporary—that is to say, the focal length is correctly stated as 6.54 inches, or 16.60 cms., and the maximum semi-angle of field tested is plainly specified as



31.4 degrees. Our contemporary complains that in the copy of the certificate examined by them this figure is so written as to be indecipherable, ignoring the fact that this semi-angle is that subtended by the half-diagonal of the plate, that it occurs twice in the Kew report, and that if it did not occur at all is readily calculable from the focal length of the lens and the diagonal of the plate. There can thus be no doubt as to what is meant. We hold no brief to defend the National Physical Laboratory—it is well able to take care of itself—but we may refer to the matter as an instance of hypercriticism. Our contemporary admits that the Kew tests show the lens to be an excellent instrument, therefore our assurance of the definiteness of the Kew tests may well be put on record.

## Dew Materials.

"Grosvenor" (Private) Greeting Cards. Sold by Houghtons Ltd., 88-89, High Holborn, London, W.C.

In the way of Xmas greeting Messrs. Houghtons offer a series of cards for the reception of photographs which should meet with undivided favour from the professional photographer inasmuch as their use (to the photographer's profit) does not involve him (the photographer) in the purchase of stock which he may not entirely dispose of. Messrs. Houghtons adopt the all-convenient idea of the private greeting card. They manufacture it in some five and twenty varieties, and put a specimen book of the cards in the photographer's hands for the sum of half-a-crown, which amount they remit on the execution of orders to the total of £2 10s. The half-crown, we should add, includes a book of order forms and counterfoils. Thus the photographer is able to let his customers see a variety of cards into which any photographs are inserted for them, while at the same time any one of a series of seasonable greetings may be selected. The cards may be ordered in lots of 12, 25, 50, and 100, and the prices for these quantities range roughly as follows:—

12	25	50	100
4/-	6/-	10/-	19/-
6/6	9/-	16/6	30/-

which are inclusive of good quality white envelopes. At these moderate prices to the customer, there is still a substantial profit to the photographer, and Messrs. Houghtons' proposition is one which we may feel certain will not be ignored. We have reason for saying that those who have tried the experiment of the specimen book have not found themselves disappointed in the results. A window card, bearing two

specimen cards and announcing that the album may be seen within, goes out with the book of specimens at the price of 2s. 6d. already mentioned.

Leto "Cream Crayon Smooth" and "Platino Matt" Gaslight Papers. Made by the Leto Photo. Materials Co., Ltd., 3, Rangoon Street, London, E.C.

In introducing two new brands of the Leto gaslight paper the makers have undoubtedly answered the demands of photographers for a paper which is not only good as regards colour of the image and gradation of the print, but is, moreover, pleasing in its surface. The "Matt smooth" paper of the same manufacture is a very satisfactory product in this latter respect, and it is characteristic of the far greater attention paid to the aesthetic effect of a photographic print that there should be a market for still two other varieties of the paper. However, the Leto Co. cannot be charged with overburdening the dealer with different brands, for the series of gaslight runs to six only in all. Of the two new products the "Cream Crayon Smooth" has a very delicate tinted surface, and is eminently suitable for development to the warm tone given with the first of the formulae recommended by the makers, namely, adurol. The warm black tone thus obtained harmonises well with the warm tint of the paper, and the result is a print of peculiarly pleasing character. The "platino matt" on the other hand best lends itself, we think, to the colder tone of the metol-hydroquinone developer with which an excellent cold black of great strength and brilliancy is produced. Opinions may differ as to the procedure we have suggested, but it will surprise us to hear either product described as other than a gaslight paper of excellent quality, giving beautiful results on direct development, and lending itself well to the hypo-alum and other methods of toning.

Xmas Calendars and Cards. Sold by Houghtons Ltd., 88-89, High Holborn, London, W.C.

The mere man will be grateful to Messrs. Houghtons for producing and drawing attention to, so utilitarian a form of Christmas greeting as a wall calendar, an article which, fortunately, is none the worse for having a photograph inserted in it. It is no disparagement, but quite the contrary, to the many admirable greeting cards issued by Messrs. Houghton and others, in a state of readiness for photo-



graphic embellishment, to acknowledge that their final destiny, once they have been despatched to some uncontrolled male recipient, may be long delayed, but in the end is not infrequently—the waste-paper basket. However, it is satisfactory to know that, fortunately for the post-office, Messrs. Houghtons, and the stationery trade, such objects of solicitude are immeasurably outnumbered by the thousands (of the opposite sex) who welcome the arrival of such missives. For these, corresponding thousands must labour while yet there is time, and while yet they can obtain such excellent supports for the gems of their summer's photography. Therefore the large list (with half-tone illustrations) of the cards and calendars just issued by Messrs. Houghtons should be assured of quite a number of consultants if only from those who have perceived the wisdom of sending Xmas greetings,

which, from the fact of their including a photograph, are the most desirable of all Xmas salutations, inasmuch as they lay upon the recipient the obligation to acknowledge the greeting with something equally acceptable, such as a box of cigarettes or a bottle of writing fluid. It will be further evident from this last consideration that Messrs. Houghtons' list should be obtained quickly, and speedily made use of it. As to the cards and calendars, we must express our genuine admiration of their tasteful designs and their commendable brevity of motto. Personally we dislike to put all the fervour of the days "when we were twenty-one" on a card to be sent to, say, Jones



who owes us £5. Therefore, thanks to Messrs. Houghtons for abating the expense from gush.

We understand from Messrs. Houghtons that their list will be sent to every applicant who quotes the above sensible remarks on Xmas cards.

GREETING NEGATIVES.—Messrs. H. W. Green, of Rotherham, send us specimens of the convenient paper negatives of circle and oval design, which require only to be laid between the negative and printing paper in order to impress upon the finished photograph white letters such as seasonable mottoes as "with best wishes," &c. The negatives are sold at sixpence per packet.

THE LATE MR. W. D. VALENTINE.—The death took place at Dundee on November 7 of Mr. W. D. Valentine, of Messrs. Valentine and Son, Ltd., the well-known photographers of Dundee.

MESSRS. A. E. STALEY AND Co. ask us to announce that, owing to the great rush of orders, they will be compelled to withdraw their offer in connection with the "Nulli Secundus" lens after November 30. Foreign orders posted before that date will be executed.

SOCIETY OF ARTS.—Amongst the sessional arrangements of the Society we note that one of the ordinary meetings after Christmas will be devoted to the important subject, "Screen-Plate Processes in Colour Photography," the lecturer being Dr. C. E. Kenneth Meade.

PAPER PRINTS FROM AUTOCHROMES.—At a meeting of the Royal Photographic Society, on November 5, a demonstration of the Autochrome process was given by Messrs. Herbert Denison and F. Branson. Mr. Denison stated that he had been assured that a process for reproducing colour on paper was practically ready, its introduction being withheld until the Autochrome plate becomes more generally used. The President (Mr. Thornton), commenting on the trifling trouble, advised edging the plates with a saturated solution of solid paraffin in ether, which he had found to be a complete cure.



# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, NOVEMBER 15.

Sutton Photographic Club. "The Ozobrome Process." Andrew Pringle.  
Sheffield Photographic Society. "Colour Photography." Henry J. Comley.  
Stafford Photographic Society. "Rotary Carbograph Paper."  
Aberdeen Photographic Association. "Photographic Chemicals."

MONDAY, NOVEMBER 18.

Catford and Forest Hill Photographic Society. Monthly Competition. Short Address and Criticism. E. T. Holding.  
Harrow District Photographic and Scientific Society. General Meeting and Election of Committee and Officers.  
South London Photographic Society. Monthly Competition. Lantern Slides.  
Lancaster Photographic Society. "The X Rays." Dr. Gibson.  
Scarborough and District Photographic Society. "Ozobrome." A. E. King.  
Bradford Photographic Society. "Aerograph." Demonstrated. S. Hampshire.  
South Manchester Photographic Society. "Photographic Chemicals."  
Willesden Polytechnic Photographic Society. "Rotary Carbograph Paper."

TUESDAY, NOVEMBER 19.

Royal Photographic Society. "Flower Photography." E. Seymour.  
Redhill and District Camera Club. "Holiday Lectures." Members.  
Blairgowrie and District Photographic Association. Lantern Lectures by Members.  
Manchester Amateur Photographic Society. "Velox." Mr. Hadfield. "Mounting and Tinting." T. Longworth Cooper.  
Wimbledon and District Camera Club. "Lantern Slide Making." D. H. Magnus.  
Sheffield Photographic Society. "Hints to Would-be Picture Makers." H. Snowden Ward, F.R.P.S.  
Marylebone Presbyterian Photographic Society. "Rotary Carbograph Paper."  
Blyth and District Camera Club. "Advances in 'Tabloid.'"

WEDNESDAY, NOVEMBER 20.

Central Technical College Photographic Society. "The Three Z's" (Zigas, Zelvo, and Zigo). Thomas Illingworth & Co., Ltd.  
Edmonton Photographic Society. "Photographic Chemicals."  
Bristol Photographic Club. Report on the Exhibition.  
Coventry Photographic Club. Judging No. 2 Summer Competition.  
Woodford Photographic Society. "Rotary Carbograph Paper."  
North Middlesex Photographic Society. "Dark Room Manipulations." S. H. Bentley.  
South Suburban Photographic Society. "Photography at the Zoo." W. H. Wilshe.  
Borough Polytechnic Photographic Society. Lantern Slide Competition.  
Everton Camera Club. "Print and Mount Criticisms."  
Leeds Camera Club. "Florence: Its Scenery, Its Art Treasures and the Tragedy of the Renaissance." Thos. E. Green.  
Mill Camera Club. "Autochromes." Norman Fearnley.

THURSDAY, NOVEMBER 21.

Thornton Heath Photographic Society. "Rotary Carbograph Paper."  
Rodeley Farsley and Calverley District Photographic Society. "Lantern Slides." W. H. Reed.  
Liverpool Amateur Photographic Association. "Mounts and Mounting." Francis Fielding.  
Midlothian Photographic Association. "Lenses and Shutters." W. Hume and T. Haddow. "One Man Show." Alex. Allan.  
Handsworth Photographic Society. Lantern Slide Competition.  
London and Provincial Photographic Association. "Paper." E. T. Wright.  
Hull Photographic Society. "Architecture in Picardy and Provence." J. V. Saunders.  
Richmond Camera Club. "Scaloids." Johnson & Sons, Ltd.  
North London Photographic Society. "Ozobrome." E. H. Down.

## PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A meeting of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, the 8th inst. The following members of committee were present:—Messrs. A. Ellis, A. Mackie, S. H. Fry, D. Prodger, Lang Sims, E. Scamell, C. H. Skillman, H. C. Spink (Brighton), and H. A. Chapman, J.P. (Swansea). Mr. H. C. Spink, president, in the chair.

The Hon. Secretary reported that sixteen of those members invited to contribute to the P.P.A. Exhibition of professional work, to be held at the office of the "British Journal of Photography" in February next, had accepted, and that they would therefore have about as many pictures as they could conveniently deal with. Several of those invited had neglected to reply, although stamped addressed envelopes had been enclosed with the invitation.

At the suggestion of Mr. Lang Sims it was decided to ask the members to supply lists of the professional photographers in their neighbourhoods partly with a view to the compilation of a list of the photographers in the United Kingdom, but more particularly with the idea of making the Association known to all photographers, and giving them opportunity of becoming members of the Association.

In reference to a letter from a member of committee, making sug-

gestions with regard to members in arrears with subscriptions, the Hon. Treasurer said he considered the subscriptions were coming in very well this year. He was connected with several societies, and in that respect the P.P.A. compared very favourably with others.

With regard to a suggestion made at a former meeting that portraits be obtained of the present and past Presidents of the Association, a short discussion took place, and Mr. S. H. Fry said he would be pleased to make enlargements of the photographs of any size and in any style that might be agreed upon, and the President said he should be pleased to have made and present a suitable case and album.

A point having been raised as to the constitution of the committee, after some discussion it was agreed to recommend all alterations in the rules at the next annual general meeting.

Several other matters were dealt with of a nature undesirable to report.

## ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held Tuesday, November 12, the President (Mr. J. C. S. Mummery) in the chair. Forty-five members were duly elected by ballot.

Dr. Lindsay Johnson exhibited some specimens of a single lens devised by himself, and also a specimen of a dark-room clock.

A discussion on the best means of advancing the study of colour photography was then opened by Dr. C. E. Kenneth Mees, who held that the most advisable measure which the society could take was to foster the frank discussion at its meetings of processes which could not be considered to have been fully matured. He thought many methods had certain valuable features about them, and were none the less worthy of discussion from the fact that they had not reached the practical stage. Among others who took part in the discussion were Messrs. Henry J. Comley, Hector Maclean, A. J. Newton, F. T. Beeson, Oliver Dawson, H. Snowden Ward, C. P. Butler, P. Bale Ryder, and George E. Brown. It cannot be recorded, however, that any very definite suggestions were offered for the guidance of the Council of the Royal Photographic Society.

CROYDON CAMERA CLUB.—When Mr. J. M. Sellors' name is down for a demonstration, it follows as a matter of course that the subject selected will be treated exhaustively, and clearly explained. Last week Mr. Sellar selected "Kallitype," and conclusively proved that it was simple, absurdly cheap, yet capable of giving most beautiful and artistic pictures. Any tone could be obtained from true black to red on either the smoothest or roughest of papers. So far as permanence went, he could personally give no assurance, but they had it on the authority of Mr. Geo. E. Brown, F.I.C., that since the introduction of an alkaline fixing bath this desirable attribute need not be questioned. Cartridge and Whatman's drawing papers the lecturer had found suitable, and to require no sizing. He sensitized with: Ferric-oxalate, 75 gr.; silver nitrate, 30 gr.; distilled water, 1 oz. Absolute cleanliness was imperative in making up this solution. The printed image was only partially visible, and exactly resembled the initial appearance of a platinotype print. He had experienced much trouble with some published formulae for developers, but the following had worked well in his hands:—For black tones: Borax, 1 oz.; Rochelle salt,  $\frac{1}{2}$  oz.; potassium bichromate (1 per cent. solution), 7 drs.; glycerine, 1 oz.; water, 10 oz. For brown black: Borax, 1 oz.; Rochelle salt, 1 oz.; pot. bichromate solution (as above), 7 drs.; glycerine,  $\frac{1}{2}$  oz.; water, 15 oz. For very warm sepia to red: Rochelle salt,  $\frac{1}{2}$  oz.; potass. bichromate solution (as above), 2 drs.; water, 10 oz. The addition of  $\frac{1}{2}$  oz. of sodium tungstate to the last developer gave a warm colour suitable for portraiture; warmer colours were also obtained by heating the developer, and the paper used had an influence on the resulting tone. The prints were transferred from the developer straight to the fixing bath, the latter being made up as follows:—Hypo, 1 oz.; ammonia, 120 minims; water, 20 oz. In the short discussion which followed the lecture, Mr. W. H. Smith said that Kallitype certainly afforded prints of surprising beauty; there was, however, a doubt as to the form in which the silver was deposited, and this bore directly upon the matter of permanency which many thought seriously open to question. Perhaps for this reason the process had never "caught on."

## Commercial & Legal Intelligence.

**CANVASSING FRAUDS IN GLASGOW.**—A severe indictment of the canvassing swindle was delivered by the Sheriff of the Dumbarton Court last week on the occasion of the hearing of a case in which Edward Riffkin, 97, George Street, Glasgow, trading as the St. George's Art Company, sued Lawrence Watt, residing at 6, Taylor Street, Clydebank. The action was to recover 7s. 6d., being the balance of an account alleged to have been incurred by the defendant. The case of the plaintiff, or "pursuer," as he is termed in Scotland, was set forth by a partner of Mr. Riffkin, who explained that his firm did enlargements of photographs. They had an employee of the name of Muir, who left them some time ago. They got an order through Muir for the enlargement of a photograph for the defender. His firm represented that they would take a photograph and enlarge it and submit a proof. If satisfactory, they expected the order for finishing and framing. If anybody said they simply wanted an enlargement, but not the framing, they would not take the order. They asked for no deposit until they had seen the proof, but they expected to get the finishing and framing. If the proof was satisfactory, they charged for the finishing and framing, but not for the photograph. They took the sketch to defender's wife and submitted it for her inspection, and Muir came back with the order, showing that 3s. had been paid. They got an order for a certain style of frame. The price was to be 10s. 6d. After hearing the evidence from both sides, Sheriff Blair gave a verdict for the defender, with £1 costs. He said he was glad this case had been brought forward, because it gave him an opportunity of expressing his opinion of this business, which had been exposed more than once in the newspapers and elsewhere. It was quite clear that these associations were carried on for the purpose of foisting on the public enlargements and frames. He did not think it was within the power of the court or any other court to suppress them, but it was for the court to look very closely into the facts when disclosed. The *modus operandi* in this particular firm's operations had been exactly the same as in others. They went round the country; one man different on each occasion went round touting for orders. There was only one way of dealing with that man—kick him out. He induced some female—a servant or dependent who was not accustomed to business—to hand over a photograph on the representation that the enlargement of it would be a work of art and would cost her nothing. That was the first representation. Then came another man with the proof, and says: "This is what you are going to get now. We do not charge you, but you don't expect us to work for nothing; take a frame." Down comes the frame with another man, who repudiates anything said by the other man, and then sues for his money for this wretched, miserable, cheap frame, worth about 1½d. a foot. The thing was a swindle from start to finish, and the sooner the public knew it the better.

**A ROCHESTER BANKRUPTCY.**—The public examination of Arthur Fredk. Eastmead, carrying on business as a photographer at 173, High Street, Rochester, took place at the Rochester Bankruptcy Court last week. The gross liabilities were scheduled at £216 8s. 5d., and of this amount £191 10s. 11d. was unsecured. There was owing for rent £24 8s. 6d. The assets included:—Cash in hand, £1 3s. 6d.; stock-in-trade, £50; furniture, £6; and book debts, £191 10s. 11d. Debtor attributed his failure to bad trade, insufficient capital, and ill-health during the last few months. He commenced business as a photographer on the 23rd September, 1901, having then a capital of £12. His brother had originally carried on the business, and he purchased it from him for £250, payable by instalments, and of that amount he had paid £100 on account. Debtor was previously in the Navy for 22 years as a sick berth steward, and was invalided home with malarial fever from the Mediterranean, and afterwards on pension of £48 6s. per year. He had not been well since he left the service. Before taking over the business he assisted his brother. He came home really to look after him on the understanding that the house and business should be his, but, unfortunately, he did not have it in writing. With regard to his recent illness, debtor explained that he took some sulphate of zinc in mistake for Epsom salts. Debtor added

he really never had a chance to pay his brother the money for the business. First of all, his brother talked of putting him into the street; then he came back to live with him. He took the best part of the house, and agreed to pay 5s. a week rent, and that was really how the £100 was paid. This closed the examination, and the debtor was allowed to pass.

## Correspondence.

- \* \* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \* \* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### EXPOSURE OF AUTOCHROMES BY ACTINOMETER.

To the Editors.

Gentlemen,—There is one point in the report ("British Journal of Photography," November 8) of Mr. T. K. Grant's demonstration at the R.P.S. which greatly interests me. It is his experience that "where a small stop was used, such as *f*/32, he found it desirable to give a larger exposure than would be naturally proportionate to that stop. He suggested an increase over and above the time corresponding to the stop of 50 per cent."

Now, this is a similar experience to the now well-known one that Autochrome plates require a different speed value in indoor light than outdoors. But in this case it is impossible to put it down to any shortcoming of an actinometer paper testing the difference in the light. One can only conclude, as I did in my article of the previous week, that with Autochromes the usual law of intensity of light and time of exposure being interchangeable does not quite hold good, but that an allowance is necessary.

My object in writing is to ask if any readers can give their experience of the exact allowance required to be made with a stated difference of light, whether tested by an actinometer or caused by a difference of stops. I find that I shall have no difficulty in plotting out a special front dial for the Bee meter which will make the allowance both as regards light and stops, if I get data to work on.—Yours truly,

ALFRED WATKINS.

The Watkins Meter Co., Hereford.

[We believe that the apparent discrepancies as regards exposure with small stops are not peculiar to Autochromes. It may be accounted for in part by the fact that with lenses of variable thicknesses central light pencils pass through only the thickest part of the lens where a small stop is used. With a large stop the whole of the lens is utilised, including the thinner portions, which stop less light. According to Dr. Paul Kruss, a modern anastigmat stops from 19 to 3 per cent. of the light. An old lens will probably stop more, and in one composed of lenses that are appreciably thicker in the centre than at the margins we may expect variations with different stops. Such differences should be noticeable with any slow plates of small latitude.—Eds. "B.J."]

### POSTCARD PORTRAITS.

To the Editors.

Gentlemen,—Recently I selected from my stock of negatives of children some forty or fifty subjects, all of which were charming little pictures. I printed them in collodion chloride, cabinet size, or a little less, trimmed them with a very narrow white margin, and arranged them to exhibit all in one frame. Judge of my chagrin, on being greeted in the street by a lady: "Oh, Mr. Barry, I am so please you have started to do postcards of children. I will bring my three in to have a few of each done. Of course, they will be the usual price, twopence each."

Needless to say, the frame is no longer on exhibit.

Does not the incident illustrate the association of ideas and the debasing influence of environment?—Yours faithfully, W. BARRY.

The Studios, 7 and 8, Park Street, Hull.



## THREE-COLOUR CARBON PRINTS.

To the Editors.

Gentlemen,—In the interest of three-colour workers I should be obliged if you will allow me to correct a couple of misleading discrepancies in the report of my lecture and demonstration of three-colour carbon at Southampton, published in the current issue of the *J.*

I am reported to have recommended the use of a 10 per cent. solution of sodium hydrate as a means of assisting the development of carbon prints which had become partially insoluble by overexposure or otherwise. The bath I employed at that demonstration contained  $1\frac{1}{2}$  drams of sodium hydrate to 20 ounces of water. This is less than 1 per cent., but is so powerful in its action that the film can be merely dipped into it for a second, and immediately returned to the developing water, when development will proceed automatically. A 10 per cent. solution is useful as a stock, but for use a bath made of sodium hydrate 10 per cent.; stock solution, 30 minims; water, 1 ounce, will generally be found sufficiently strong, particularly if the bath is used at a temperature of 80°.

The report further states that both ammonium and potassium bichromate may be used with methylated spirit for sensitising carbon prints. For the making of a spirit sensitiser common methylated spirit is that which can be desired, but ammonium bichromate can alone be used in it. A potassium bichromate sensitiser must be made up with water only, as spirit causes the potassium salt to be immediately deposited.—I am, yours faithfully,

HENRY J. COMLEY,

Hon. Sec. of The Society of Colour Photographers.  
Turrey House, Stroud, Glos.

PORTRAITURE BY THE MERCURY-VAPOUR LAMP.—Owing to great pressure upon our space this week we are compelled to hold over, among other matter, an article on the use of the mercury-vapour lamp for portrait work in the studio. This will appear in our next issue, and will complete the series of articles on methods of artificial lighting which we have published during the present exhibition in our offices of examples of artificial light portraiture.

AN ASCENDING GELATINE MANUFACTURER.—M. Alfred Schweizer, Officer of the Legion of Honour who disappeared recently, was the "Petit Parisien" proprietor of an important gelatine factory which provided this substance to the Assistance Publique (Parisian Poor Law Administration). He appears to have speculated somewhat largely, and to have recently had heavy losses. The deficit is estimated at 200,000fr. (£28,000).

A series of four lecture-demonstrations on "The Theory of the Microscope" will be given by Mr. Conrad Beck, F.R.M.S., at the Society of Arts, John Street, Adelphi, W.C., on Monday evening, November 25, December 2, 9, and 16, at 8 p.m. The lectures, which will be illustrated by lantern slides and diagrams, judging from the syllabus, be of an extremely useful and interesting character, and should prove of great value to all interested in this branch of optics. The syllabus is as follows:—"The Microscope Constructed from Uncorrected Lenses."—Image formation by a lens, simple microscopes, three forms, investigation by a system of their defects and their cure by separated lenses, increasing distance increased, high power and large field obtained, eyepieces, positive v. negative, Ramsden circle, magnifying power, compound microscope. "The Correction of Simple Lenses."—Bad quality of images formed by simple lenses, chromatic correction, chromatic correction, spherical aberration, zonal aberration, condition and Gauss surfaces, tangent condition, equal chromatic magnification, summary of corrections, correction of eye-piece. "Influence of Diffraction."—Explanation of diffraction, slit, convergence, diffraction pattern or antipoint, its influence on telephoto images, its size, Abbé theory, Gordon's attack on Abbé theory, relation of aperture to magnifying power, oil immersion, use of and methods of reduction of size of anti-point, limits of resolution and visibility, special cases, diffraction of the eye. "Applications of Theory."—Best combination of eye-piece and objective glass, high power illumination, Gordon's oscillating screen, use of aperture, penetration for visual and photographic work, use of cover-glass, substage condensers, achromatism and aplanatism, use of condensers, angle of illuminating cone, illuminants, monochromatic light, Wright's experiments, critical illumination, possible uses.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

## PHOTOGRAPHS REGISTERED:—

- T. Upton, 24a, Southgate, Sleaford. *Two Photographs of Edmund Royds, Esq. W. Coats, Junr., 20, Prudhoe Terrace, Tynemouth. Photograph of the "Maurelanta" leaving the Tyne, October 22.*  
D. Wayland, 138, High Road, Streatham, London, S.W. *Two Photographs of Mrs. C. Booth-Clibborn.*  
W. Heine, Bushey Cottage, Park Road, Teddington. *Photograph. Chancel of Saints Peter and Paul's Church, Teddington.*

NATIONAL GALLERY PICTURES.—I should feel much obliged if you would let me know the address of a firm who would supply me with some negatives of National Gallery pictures (not copyright).—T.

We fear we cannot. Most of the firms who go to the expense of photographing in the National Gallery usually retain the negatives and the copyright to themselves. Your only course would be to approach these firms, or employ a photographer.

RICHARD MARSH.—A description appeared in our issue of September 28, 1906. You will also find a description in the catalogue of Jonathan Fallowfield, 146, Charing Cross Road, W.

MOUNTANT, ETC.—I. Last week I made up some dextrine paste, as per formula on page 994 of "Almanac" for this year. I find, on testing with litmus, that this is decidedly acid. Is this in any way likely to affect the permanency, or to cause stains on prints mounted with it? In every other respect it is satisfactory. 2. Will you also please give me the address of a firm making small glass bottles of about 3-4 oz. capacity, and where I can obtain indiarubber corks?—TONUS.

It is certainly prejudicial to prints. We should use a little solution of carbonate of soda to neutralise the dextrine mixture while fluid. 2. Poths and Co., 4 to 6, Bury Court, St. Mary Axe, E.C., from whom also you could obtain the corks.

NOVICE.—If you select any of the leading makes of ultra-rapid plates, priced at 1s. 6d. per dozen, in the quarter-plate size you will not be disappointed. We cannot say more than this.

R. L.—We should advise you to get Abney's "Instruction in Photography," or better, Valenta's "Auscopier-verfahren" (German), in which you will find the most complete instructions as to P.O.P. There is no book dealing with bromide paper in the way you desire.

W. JOHNS.—The The Tress Co., 42, Oxford Street, London, W.; J. Epstein and Co., Rupert Street, Bristol; Alfred Osmond, 105, Old Street, London, E.C.; and Birmingham Moulding Warehouse, 48, Great Hampton Street, Birmingham.

FLASH LIGHT.—I have constructed a flash lamp in which the magnesium powder is contained in a reservoir and blown through a spirit flame, as you will see by the enclosed rough sketch. It answers very well, but the flash is not quite quick enough for some purposes. Will you please give me a formula for a flash powder to use in the lamp so as to get a more instantaneous flash than with the magnesium alone?—D. CONWAY.

There is no flashlight powder suitable for use in any such contrivance as yours. Flash powders must not be used in the way you propose, but fired in the open.

AUTOCHROMES.—1. Would you mind telling me how to prepare the

permanganate and the acid, Solution C, separately? 2. Have you noticed any increase in speed of the later batches of plates?

—H. C. H.

1. C. No. 1 Solution—Water 1,000 ccs. or 35 ozs., pot. perman. 4 gms. or 60 grains. C. No. 2—Water 1,000 ccs or 35 ozs., sulphuric acid 20 ccs. or 6 drams. Mix equal parts of each for use.

2. We have not made any exact tests, but speed certainly seems to vary.

R. W. BROWN.—We can only judge by the work done, which we have seen. It is certainly equally good in the two cases.

**DAMAGED BACKGROUND.**—I have had three of my backgrounds badly mottled with the damp, the marks being about the size of a sixpence or so. They are high-priced grounds, and done, I believe, in flatted oils. My studio is large size, 36ft. by 16ft., and I have difficulty in getting it warmed. I use a large oil stove (movable), as the fireplace is at one end, with the result a fire does not spread the heat around. Can anything be done to preserve the grounds by coating them over with any preparation which would repel damp, and at the same time not affect their value in photography? I have some new grounds in, and am afraid of them starting the same; it is such a loss. I may mention the grounds are hung on frames, and always remain so. They are never rolled up at all. Any suggestion from you to remedy this evil will be gratefully received.—RETINA.

If they are done in oil we see no reason why they should become mottled with damp. But if they are in distemper it is conceivable that the size in the colour might develop mildew when exposed to continued damp, when it probably would show in spots such as you describe. The only suggestion we can make is that you keep the backgrounds dry. You cannot expect to keep a studio the size of yours either dry or warm in cold and damp weather with an oil stove. To do that properly you should have one large, or two small, slow combustion stoves, such as mentioned in an article on page 823 of the issue of November 1.

**COPYRIGHT.**—A firm of postcard publishers has, without my permission, reproduced, in postcard form, a copyright photograph of mine. Before I write them on the subject I would be glad to know what would be a reasonable sum to accept in case of settlement.—W. M.

If the card is reproduced in bromide, photogravure, or other process, justifying a 2d. card, we should say £2 2s. to £3 3s., or half the amount if the card is sold at 1d.

**FIREPROOFING FABRIC.**—Will you be kind enough to inform me, if possible, of a formula which I could use to make some linen fireproof (using it for flashlight purposes)?—J. BLAKE.

Alum, 80 ozs.; ammonium carbonate, 2½ ozs.; boric acid, 1½ ozs.; borax, 1¼ ozs.; water, 2½ quarts.

G. RAY.—You want a good deal, and to get all in one lens will cost you a pretty penny. A lens such as the new Tessar *f*/3.5, or the Holostigmat *f*/4.5, will be small enough for your half-plate camera, but perhaps not quite as rapid as the best portrait lens. We advise you to allow your dealer to supply you with the largest aperture portrait lens he can, and, to use the dark slides, have an adapter fitted to the studio camera.

A. POWELL.—We cannot give you precise figures—an electrical paper can do that—but most companies make a reduction on current used in the day before 5 p.m.

G. A. W. R. (New Zealand).—A 10 x 8 R.R. should certainly cover a 1/1 plate easily, but the definition will not be as crisp as that produced by an anastigmat. If you want great depth and sharpness you should have a shorter focus anastigmat, one of, say, 9 or 10 ins. Your requirements are inconsistent. The extra depth of the R.R. is only due to want of correction. Spherical aberration increases depth at the expense of sharpness, hence you cannot have extra depth and very crisp definition at the same time. The lenses you mention are probably all good enough.

**FILMS.**—We can understand the failure of the freshly made developer having been due possibly to the omission to shake up before use. The caustic soda and carbonate can easily accumulate at the bottom of the solution, leaving the upper portion so weak in

alkali as to render the developer inert. Metol-hydroquinone, pyro-metol is a better developer for films. It is possible the developer was unduly cold; this would account for the lack of action, though not for the fog.

L. G.—1. Certainly he has. You have no right to show the photo anywhere, or make use of it for purposes of your own. You were paid for taking it, and although the negative is yours you must do nothing with it except to the order of your customer. If you do, he can obtain an injunction in the Court of Chancery, and that would be a very costly matter to you. The only suggestion we can make is to give a long exposure. Failing that, you had better employ artificial light—magnesium or flash powder.

**PHOTOGRAPHING BANK NOTE.**—A friend of mine, who is engaged at a bank, has offered to get me a Bank of England note for £10 to photograph if I give him a dozen postcards of it. It occurred to me that if I published postcards of a thousand-pound note they would have a good sale. Will you please advise me if the publishing of the cards would be illegal, as I should not wish to get into trouble about it.—G. ANDREWS.

What you propose to do would certainly be illegal, though the copy of the note were much smaller than the original. It is illegal to copy banknotes in any form whatever, and we should advise you to abstain from doing so, either for publication or private circulation, or you will find yourself in trouble.

**UNEQUAL QUALITY OF WORK.**—About a month ago I arranged with a stationer in the town, who publishes postcards of the surrounding villages, to take a dozen views of this place, to be equal to the others which he has. When I showed him my proofs he compared them with others, and then refused to accept them, saying they were too bad for him to publish. Some of them had to admit, were not good, but others were, yet he would not have any of them, saying he wanted a dozen, or more. Can I compel him to have, and pay for, those that are good, and can I claim something for my trouble?—VILLAGE PHOTOGRAPHER.

We do not see that you can claim anything. You arranged to take a dozen views, equal to others published, and according to your account only some of them were good. Evidently the stationer wants a series of a dozen views, such as he can publish, and those you have not supplied; he is therefore not in rejecting the lot. You have not fulfilled the agreement made, and for that reason you have no claim upon him.

**IVORY and others.**—In our next.

**CINEMATOGRAPH.**—Is the effect of an unnaturally quick movement, such as a man appearing to arrive at the end of a long journey immediately after starting, caused by the operator turning the handle quicker?

No. Such effects simply mean that part of the film has been cut out owing to defects or damage, or that the series of exposures has been made on two or more films that have been afterwards joined together.

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## SUMMARY.

Electrical Transmission of Photographs. We publish a full account of M. Belin's method of telegraphing a photograph. The details of the method is a carbon relief. (P. 880.)

Some hints on installing the mercury-vapour lamp are contributed by Mr. G. R. Henderson, one of the exhibitors in the present collection of artificial light portraiture to be seen at our offices until November 30. (P. 822.)

Some further notes on portraiture by the enclosed arc lamp are given on page 886.

The continuation of Baron von Hübl's articles on "Artificial Lights in Photography" appears on page 885.

The Krays screen-plate process of colour-photography is reported to have been demonstrated in Berlin. (P. 894.)

Some preliminary details of the Photographic Convention at Brussels next year have been announced. (P. 887.)

We regret to record the death of Mr. Thomas Taylor, the ex-president of the Birmingham Photographic Society. (P. 884.)

Some notes on the official tests of lenses carried out by the Royal Physical Laboratory suggest the more useful character of the tests could assume from the photographer's point of view. (P. 879.)

Precaution in making test exposures of enlargements is mentioned on page 878.

The too rapid drying of an oil print during pigmentation is best avoided by selecting a thick paper or tissue and supporting it during pigmentation on a thick pad of wet blotting-paper. (P. 878.)

The coincidence method of focussing which can be tried by anyone is mentioned on page 878.

Two modifications of the focal-plane shutter are among the contents of the week.

A remarkable instance of canine sagacity. (P. 896.)

## EX CATHEDRA.

**Photographing Architectural Refinements.** The "Journal" of the Royal Institute of British Architects publishes an article by Professor Wm. H. Goodyear, M.A.,

which describes and illustrates an interesting application of photography. Most people have probably heard of what are called "refinements" in ancient Greek architecture. These are more especially associated with the Parthenon, which was most carefully and completely surveyed by the late Mr. Penrose for the purpose of analysing and recording all the various refinements that had been adopted by the ancient builders. Mr. Ruskin drew attention long ago to the presence of similar refinements in various Gothic and mediæval buildings, but it has been left to Professor Goodyear to prove their existence, for which purpose he has employed photography. The refinements employed are of many varieties, and as subtle as those of the Parthenon. Their object is not in all cases obvious, but, generally, they may be described as attempts to correct optical illusions. Thus Gothic columns and piers have been shown to possess an "entasis" similar to that used by the Ancients, while walls, piers, etc., have been found to be built intentionally non-vertical, and parallel walls have been proved to diverge vertically from one another. These points have been settled by the aid of photographs representing the building, with plumb lines suspended in suitable positions, and six full-page reproductions of the photographs are given. This opens up a new field of work for architectural photographers, and those interested in architecture may like to carry out some of Professor Goodyear's tests in other buildings. A lens free from distortion is, of course, necessary, and, unfortunately, the one used is not mentioned. Obviously such tests can only be relied on when the plumb line and the wall or pier line are at approximately the same distance from the camera.

\* \* \*

**Value of Pictures and Engravings.**

During the past year or two there has been a great slump in the picture market, particularly in the works of modern masters, while those by the old masters have realised, in some instances, extraordinarily good prices. But it would now seem that these are depreciating in value, for one day last week a painting by Hoppner was put up at an auction sale at Willis's Rooms and the highest bid for it was only 4,600 guineas, while its owners a year or two ago refused an offer of seven thousand guineas for the picture. Another painting that had cost 3,000 guineas was sold for 310 guineas. While the price of paintings has been declining, that of old engravings has been increasing. In a two days' sale last week at Sotheby's the sum of £2,806 was realised for old English and French engravings. An engraving—"Mrs. Siddons as the Tragic Muse," by F. Harward—has fetched £126 at auction. The present

seems to be the time for those who wish to realise upon really good old engravings.

#### Trial

#### Exposures for Enlargements.

It is usual when making big enlargements to first make a series of trial exposures on a slip of paper, and so obviate the risk of spoiling a large sheet. There is, however, a right way and a wrong way of making the trial, and for some reason or another nearly everyone selects the wrong way, while nearly every book on enlarging recommends it. When making a series of test exposures for contact printing there is only one simple practical method. The printing frame must be covered with a piece of card, which is slid over the frame for definite distances at fixed intervals of time. The slip of test paper is thus exposed in steps, so that if 5-second intervals are used a series of exposures in the order of 5, 10, 15, 20, and 25 seconds, etc., is secured. As a general rule a precisely similar method is adopted with enlargements, but, though this method is the only practical one available for contact printing, it is not necessarily the best, and there is a very much better one that can be just as easily applied when enlarging. The objection to the method described is that each step represents a different part of the image, and the result gives only an uncertain clue to the exposure required in the densest part unless the particular step that proves to be correctly exposed happens to include that part. Obviously the best method is to select the part that presents the greatest difficulties in the way of exposure and make a test series on that part alone. This is very easily done by cutting an aperture in a sheet of card or opaque paper and pinning this shield upon the easel in such a way that the strip of bromide paper can be slipped between easel and shield and drawn past the aperture. The light should be screened off at each movement of the slip, but this is easily done by interposing oneself between lens and easel while changing.

#### An Oil Printing Trouble.

A contemporary draws attention to a frequent cause of trouble when pigmenting in a warm room. If the temperature is much over 60 deg. F. the print dries so rapidly that it begins to take the pigment in the wrong places, and very speedily becomes too flat. This occurs more often than many suspect, and undue flatness due to this reason is often put down to something else. One remedy advised, that is to work in a cold room without any artificial heat, is unpleasant. Another remedy, to frequently re-soak the print, is also objectionable, for it is very difficult to blot

off the moisture without damaging the part finished. After each soaking the whole print has to be retouched more or less all over. Generally we have found the best procedure is to adopt an extra thick and very wet pad of blotting paper for the support, and to select thick paper for pigmenting upon. If using the Bromoil process a thick bromide paper can be used, and this holds the moisture excellently. The greater part of the trouble is, however, due to the fact that the moisture quickly runs out of the blotting-paper pad at the edges. It is, in fact, forced out more or less by the dabbing action employed in pigmenting. The best remedy would probably be the use of a very shallow tray in place of the usual sheet of glass. If the pad just fitted the tray then moisture could only be lost by evaporation at the top, which loss would be small compared to the other. Further, the pressure of the brush should tend to keep the print moist rather than to squeeze the water out at the edges of the pad. Possibly, also, something better than blotting-paper could be found for the purpose. Inventors might well turn their attention to the production of a perfect oil printing pad, that will give a firm surface, keep wet, and not suck the water out of the print.

#### Fine

#### Focussing.

A patent specification recently abstracted in our pages gave particulars of a very ingenious focussing method, which depended on the correct alignment of two reflected images. This reminds us of a little known but useful method of securing sharp focus that depends on bringing two separate images of the same object into coincidence. Take a spare lens cap and cut two segments out of the circular cover so as to leave a bar about half an inch wide across the centre. The exact width must be arranged to suit the lens. With the cap on the lens objects not in focus are seen in duplicate on the focussing screen, and if we rack in and out until the two images combine sharp focus is secured. With a large aperture lens and a clearly observable distant object it is easy to focus accurately in this way, but with near objects we require a little additional assistance in the form of a finely divided scale fixed in some convenient part of the camera to register varying degrees of extension. We have found a scale divided into twentieths of an inch a very useful adjunct to a camera for this and for other purposes. Focus on a point somewhat beyond the object and then rack out until the two images coincide. Note the extension on the scale, and then rack the camera further out so as to separate the images again. Next rack in until the two images once more coincide, and again read the scale. This reading will be different from

### THE BRITISH JOURNAL OF PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-seventh annual issue of THE BRITISH JOURNAL OF PHOTOGRAPHIC ALMANAC will be published on December 2. This year's ALMANAC reached a total of over 1,000 pages, and the entire edition of 25,000 copies was sold out immediately. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1908 will also consist of 25,000 copies.

Among other alterations and improvements which have been made in the forthcoming volume, the publishers beg to announce that:—

All three indexes (text, advertisement, and trade addresses) will be found AT THE END OF THE VOLUME.

The size of the volume has been appreciably reduced, without sacrificing the value and scope of the contents.

The editorial article will deal very completely with the important subject of—

SCREEN-PLATE THREE-COLOUR PROCESSES, and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The 1908 ALMANAC will contain as frontispiece a colour print by the Autotype Co., dry-mounted by the Adhesive Dry Mounting Co., Ltd. Amongst other attractive items will be found a specimen of three-colour printing by Sanger-Shepherd Colour Printing Co. and examples of three-colour work of Hood and Co., Ltd., Middlesbrough.

Our publishers desire us again to caution our readers against postponing the booking of their copies of THE ALMANAC.

#### PUBLISHERS' NOTICE.

The publishers beg to inform agents that it will be advisable to place their orders for copies immediately, as a large proportion of the issue is already booked, and a second edition will not be printed.



ther by perhaps several divisions of the scale. Alter the extension to an intermediate point, and the focus then secured will be about as perfect as is attainable. It will be noted that this method is a refined variation of the old system of taking a mean extension between two adjustments that appear to be equally out of focus. The variation is, however, much more accurate, as we substitute well-defined degrees of sharpness for two indefinite degrees of want of sharpness. A fine focussing surface is desirable, and we invariably use one consisting of a thin film of silver iodide, as described in our issue of March 30, 1906.

### Stains in Chromium Intensification.

We frequently receive complaints of brown stains produced during the process of intensification with chromium. These stains are somewhat troublesome to remove, and sometimes they will not submit to treatment, but they are very easily avoided. One form of stain is due to development in a strong light. As developers are mostly employed in the dark, very few people seem to be aware that some of them stain most violently when used in very strong light. This is especially the case with hydroquinone, but none of the others are nearly as bad. Seeing that no light is really necessary during the intensification process, anything whatever is gained by developing in sunlight, and there is no risk of stain in soft diffused daylight, or in artificial light, provided the developer is fresh. Another source of stain is too much exposure during the washing between bleaching and development. If one film in a plate is partly covered by another the more exposed part will become a darker tint owing to the action of light on the bichromated gelatine, and this irregular action will probably be visible after development. Sometimes, however, the gelatine becomes tanned or hardened by the exposure, while at the same time the silver image becomes solarised, in which case the image refuses to re-develop. Here, again, safety lies in operating in a weak light. Another source of stain is insufficient washing between bleaching and re-development. These stains are, however, very slight and generally unnoticeable. If the image is bleached before all the hypo is washed out of the film, there is no danger of stain if the bleaching solution acts long enough, for it is a most effective hypo eliminator; but if the original image was perfectly fixed a stain of a quite fatal character may be produced. Such a stain cannot be remedied, but the others can generally be removed by putting the plate or film through the process again and allowing the bleaching solution to act for a considerable time. A very useful bleach for this purpose is one containing 10 grains bichromate in 20 minims hydrochloric acid in every ounce. This is of little use for intensification, but an excellent cleanser.

### THE GERM IDEA OF THE NEW CARBON-BROMIDE PAPER.

It is surprising how useful and really valuable photographic inventions, made years ago, lie dormant until they are unearthed, or probably re-invented, and extended on business lines by some enterprising firm, when their value becomes realised. The commercial introduction of "Carbograph," described in our issue of last week, is a case in point. The essential idea of this process was originally invented and fully described at a meeting of the Photographic Society of Great Britain (now the Royal Society) by the late Mr. Leon Warnerke more than a quarter of a century ago. It was at the May meeting of 1881 that Mr. Warnerke read a paper on his discovery of the fact that carbon-bromide of silver, after exposure to light and development, became analogous to exposed bichromated

gelatine; that is, the exposed portions are rendered insoluble in warm water.

It should be pointed out that the method of working here described differs somewhat from that of "Carbograph." Warnerke developed the silver image with alkaline pyro, instead of with ferrous oxalate developer, his aim being to obtain direct the insoluble gelatine image, which, in the case of "Carbograph," is produced indirectly through the agency of the silver image in conjunction with potassium bichromate. It is possible that other obstacles stood in the way of the commercial success of Warnerke's process, yet it can hardly be thought that the more roundabout and successful process has been adopted until after the complete trials of Warnerke's first suggestion. However, the latter was before its time, and though a good deal of interest was displayed in it, and though other experimenters have taken it up and laid it aside, it has never attained any wide recognition until the present time. Now at length, in the product of the Rotary Photographic Company photographers have at their disposal a really simple and valuable method of making carbon pictures direct or enlarged, with only the exposure to light necessary with bromide paper. It may be interesting to quote a leading article on Warnerke's discovery in our volume for 1881:—"Great stress is laid upon the applicability of the invention to pigment printing, and there is little doubt that much may be done in this direction, for by mixing such pigments as are inert on silver bromide and also on gelatine, the process becomes still more analogous to the ordinary carbon process, with the extra advantage of greatly increased sensitiveness, so that prints may be produced by artificial light, or enlargements made direct upon the tissue, without the necessity of a transparency and an enlarged negative. But here we can see some little difficulty as to its practical application, as the tissue being dark, like ordinary carbon tissue, how is the first development—that with the alkaline pyro—to be judged?" It should be remembered that at the time this was written gelatine photography was quite in its infancy, and time-development had not been thought of.

### OFFICIAL TESTS OF LENSES.

Last week, in reviewing a lens which had reached us for notice, we referred to an official copy of the certificate granted by the National Physical Laboratory. One could not discover in this—as a contemporary has done in the original—"technical slips and carelessness," but there are nevertheless one or two matters which may be referred to arising out of the tests to which a lens is submitted at the National Physical Laboratory. The first of these is the angle over which the lens is tested for astigmatism, curvature, and distortion. As reported in the certificate, this angle is limited by the size of the plate which the lens is listed to cover. Thus in the instance before us a lens of 6.54 inches focal length is listed for a 7 by 5 plate, representing a semi-angle of field of 31.4 degrees. Therefore the tests for astigmatism, etc., are made at angles from the axis increasing by 5 degree differences up to the maximum half-angle of 31.4 degrees. The measurements, we would submit, would be all the more valuable if they were carried further, inasmuch as photographers who purchase an anastigmat lens usually expect it "a double debt to pay." They anticipate using it, very probably at its full aperture, with its optical axis considerably above the centre of the plate, and they frequently design to employ it on a larger plate; in which latter case, it is true, they usually are content to use a smaller diaphragm. The inference, however, is that while it is advisable and proper to do as the National Physical Laboratory does, and indicate the point in the

tests corresponding to the full covering to the corners of the plate for which the lens is listed, it is equally important, from the practical photographer's standpoint, to describe the behaviour of the lens on a field outside these limits.

Our second point concerns the test of "Illumination of Field," or rather, the form in which the results are expressed. We read in the particular certificate before us that:—

The semi-angle of the cone, outside of which the aperture begins to be eclipsed, when the largest stop giving satisfactory definition over the whole plate ( $f/6.8$ ) is employed, is 3 degrees, covering a circle on the plate of 0.94 cm. (0.37 inches) radius.

Which is a clear statement of the fact that slight cut-off by the mounting of the lens commences at a small angle from the axis. Then we read:—

Owing to the diminution in the effective aperture due to obliquity, the illumination at the boundary of this circle will be reduced to 100 per cent. of that at the centre. At the corners of the plate, in consequence of the diminished effective aperture due to eclipse and obliquity, the illumination will be reduced to 14 per cent. of that at the centre.

The boundary referred to is presumably that of the circle of .37 inch radius, and when the illumination upon it is stated to be "reduced to 100 per cent. of that at the centre," the fact to be conveyed, we suppose, is that it is precisely equal to that at the centre, "reduced to 10 per cent." being a mathematical phrase innocent, as applied to abstract numbers, of the paradox which involves when used in reference to, say, dividends or the Bank rate. We think that the form of expressing the results could be made more intelligible to the average photographer.

Yet another point strikes us in regard to the diagrammatic representation of the lens' behaviour. The curvature of field and the astigmatic fields are shown by full and dotted black lines and in red lines, all drawn on a scale of full size. The deviations from the normal are not drawn on a magnified scale, as is more usually the case, therefore in a diagram representing the working of a very finely corrected lens the various lines are so close together that their meaning becomes confused. In the diagram before us it is next to impossible to distinguish the various curves, excepting at the few points where their divergence is greatest; hence the diagram does not convey anything like the information that would do if two different scales had been employed.

## THE ELECTRICAL TRANSMISSION OF PHOTOGRAPHS

[Our Paris correspondent's account of M. Edouard Belin's method of transmitting photographic images electrically is, we believe, the first technical description of the Berlin system to reach this country. In publishing it we would refer those who have written us as to Professor Korn's method to our issues of July 7 and 14, 1905, and of December 14, 1906, wherein are described the principles and later developments of the Korn system.—Eds. "B.J."]

THE fascinating problem of transmitting pictures by wire has occupied the minds of many photographic scientists (c.f. R. Liesegang "Die Fernsehen"), and recently general attention has been drawn to it by the remarkable results obtained by Prof. Korn, of Munich. As was intimated some months ago in our columns, a French scientist, M. Edouard Belin, of Nancy, has been also engaged with this question, and the interview and demonstration which he afforded at the Société Française de la Photographie, Paris, inspire confidence that a very considerable advance has been made. It is known to many that M. Belin has made himself expert in sensitometric problems, and it is these studies which have led him, he claims, to the solution of some of the most important problems in technical photography. Transmission of a given photograph by wire, a self-registering opacity-meter, a registering sensitometer, and last, not least, the transmission by wire of the image of any given person, object, or proof! The last problem, not to be confounded with the first, is the one M. Belin has been longest devoted to, but, having put it aside for the others, its solution is not complete. None the less, he is confident of success, and that fairly soon. The first question, which has attained a certain solution from Herr Korn, M. Belin claims to have completely solved, but in a quite different manner, and also fulfilling certain stringent conditions of which Korn's method is incapable. These are:—

1. That the image received should be of precisely the same dimensions as that transmitted: Korn's images are reduced in size.
2. That they should be reproduced, or reduced, or enlarged, if desired, but the detail should remain on the same scale as if the original size were preserved.
3. That, whatever the original, a positive or negative image can be formed at will at the receiver. The value of this for photo-mechanical processes is obvious. The nature of the original is simply telephoned to the receiving station, when adjustment is made accordingly.

4. Further, the image received shall be of the same intensity as the original, or, if desired, can be intensified or reduced. And this is obtained by no subsequent chemical treatment, but during transmission by a simple physical adjustment.

It now remains to describe the apparatus which performs the marvels. The complete model installation, containing transmitter, receiver, motor, and a resistance-line of 4,000 ohms equivalent to several hundred kilometers, is mounted on a stage about a meter square, and M. Belin kindly explained the functioning of the apparatus. The two photographs give a very good idea of its disposition.

### Telestereography.

To commence with, the method is entirely different from that of the German savant, which, as is well known, utilises the vari-

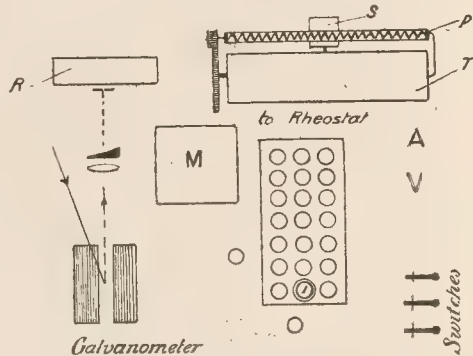


Fig. 1.

A—Ammeter. V—Voltmeter. O—Resistance coils. o—Main resistance. S—Style or point. R—Receiving cylinder. T—Transmitter.

ing electrical resistance of selenium when exposed to light. Belin calls his procedure "Telestereography," or transmission a relief to a distance, and one essential lies in the use of a carb-



print as the original transmitted, such a print being, of course, a relief in which the contours are proportional to the intensities of the image.

This print is wound on the cylinder of the transmitter T. In perfect synchronism with this revolves the cylinder of the receiver R, the synchronism being effected by the use of an alternating current in the same manner as adopted by Prof. Korn. As the cylinder of T revolves a small point or style in contact with it moves along the axis P, which is geared on to the cylinder of drum. The conditions chosen are such that the print advances linearly 1 mm. for six turns of the cylinder, from which results that detail down to  $\frac{1}{2}$  mm. is faithfully reproduced. The movements of the point or style are transmitted by an arm to a small sliding contact or roulette, working on a minute rheostat. This rheostat consists of twenty very small plates of copper separated by layers of mica and each branching off to a resist-

### The Receiving Apparatus.

The variations in the current of the circuit, proportional as they are to the intensities of the image, are registered by the extremely delicate galvanometer of Blondel, known as the oscillo-

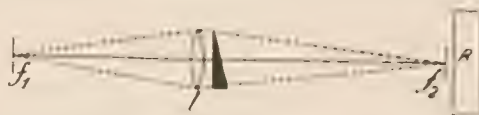
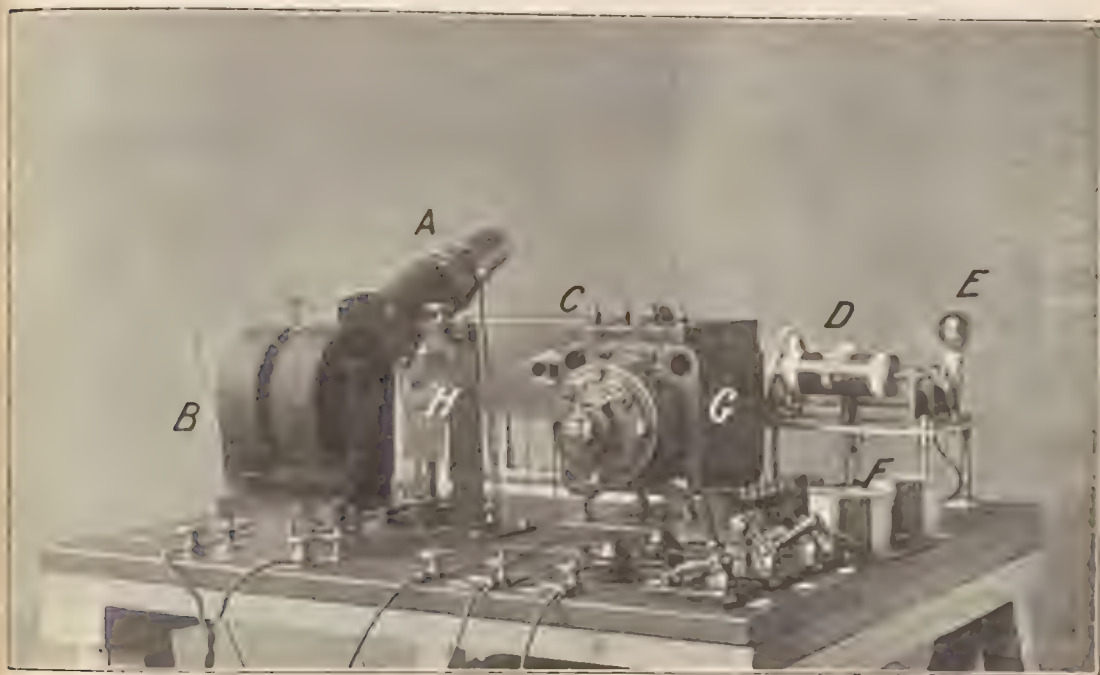


Fig. 2.

graph. The great advantage of this instrument is its immediate response to variations of current, it being capable of following changes occurring as fast as 50,000 per second. On the mirror of the galvanometer falls a beam from a Nernst lamp, the oscilla-



- A.—Nernst lamp, throwing a beam on mirror of galvanometer.
- B.—Blondel's oscillograph galvanometer.
- C.—Receiving cylinder synchronised to transmitter.
- D.—Transmitting cylinder with moving point or style, acting as a sliding switch.

- E.—Minute rheostat, transforming the movements of the style into resistance-variations.
- F.—Ammeter, voltmeter, and switches.
- G.—Motor.
- H.—Lens and scale of tones through which the reflected ray passes to receiver.

and coil.<sup>1</sup> There are thus twenty variations of the intensity of the current possible. At the commencement, before the variation introduced by the cylinder, there is simply a large resistance of 4,000 ohms, the movement of the transmitting cylinder and the style then call into play the variations, always according to the contours of the carbon image, and hence in proportion to the values of light and shade. One may compare the arrangement to a delicate finger, running over the relief and transforming the variations of intensity into variations of electrical current. It will be seen that such difficulties as Korn's method has to meet, in the "chemical sluggishness of selenium," are entirely avoided in that of M. Belin, which depends on a purely physical action. Nor is it a small advantage that the carbon print is of great permanence and durability. So much for the transmitting mechanism.

(1) M. Belin explained that he had chosen a range of 1-20 as representing the possible range of contrast in photomechanical processes.

tions of the reflected ray are then proportional to the intensities of the current. Bien! Let us then follow the reflected ray.

The diagram (2) explains the disposition which enables the registration as a photograph to be effected of these electric fluctuations. An aplanatic lens  $l$  throws an image of the reflected ray from the mirror  $f_1$  on to a small hole  $f_2$ , this hole being  $\frac{1}{2}$  mm. in diameter:  $f_1$  and  $f_2$  are conjugate foci of the lens. Behind this minute hole revolves the second synchronised receiving cylinder R, on which is a photo-sensitive surface. The hole is so near the film as practically to be in contact with it, so that any diffusion of light is avoided. In other words an image of the hole is continuously printed on the film, and this means that detail is preserved to  $\frac{1}{2}$  mm. Under these conditions, there would still be no variation of the light intensity. The way this is effected—that is, the method by which the deviations of the galvanometer are converted into light intensities—is ingenious. Behind the lens (see Fig. 2) is a scale of tones, i.e.,

of densities (in the sense of Hurter and Driffield), increasing from bare glass to a certain value; in fact, an optical wedge. Various ways of producing this optical wedge may be employed: at present M. Belin uses a photographic plate specially exposed. The scale of densities increases in proportion to the mirror deviations, i.e., to the intensities of the current, and the more (or less) the reflected ray deviates, the more (or less) it is absorbed, so that the hole is illuminated by light varying in intensity with the intensities of the original image. The density-scale is mounted on a revolving axis, so that according to the direction of increase of density, relative to the mirror deviations, a positive or negative image can be obtained at will on the receiving film, fulfilling the third condition mentioned at the start.

#### Intensifying or Reducing.

Again, if instead of a scale of tones corresponding to those of the original, one of harder or softer gradation be substituted, the image may be obtained reduced or strengthened in intensity, and by purely physical means

It must be confessed that both the ingenuity and the com-

parative simplicity of the apparatus make it very promising. The results obtainable at present are very fair, and M. Belin hopes by certain slight modifications, such as a refinement of the rheostat and the cursive point, to greatly improve the rendering. He claims that in transmission of detail his apparatus is greatly superior to that of Prof. Korn, and its capacities in other directions also appear to transcend those of the selenium telegraph. In two or three weeks, with the promised aid of the State telegraph lines, he hopes to give a public demonstration of its capabilities over long distances, an event which will be awaited with much interest. M. Belin states that he can also transmit writing in relief by his instrument, and that the question of speed is one chiefly conditioned by the fineness and perfection of mechanical and electrical details. At present the transmission of 9 by 12 cms. image occupies about 30 minutes.

As to the more romantic problem of simultaneously photographing and transmitting the image of any object, scene, or person, M. Belin would only state that the idea involved was entirely different from that sketched above. His last words were: "Nous verrons!"

## PORTRAITURE WITH THE MERCURY-VAPOUR LAMP.

[In reference to the work with the mercury-vapour lamp at the exhibition of artificial light portraiture now open at our offices, the following notes sent to us by one exhibitor may be offered as a useful introduction to the installation of this particular form of illuminant.—Eds. "B.J."]

MUCH has been heard from our American cousins about the Cooper-Hewitt mercury-vapour lamp as an inimitable substitute for daylight, especially as connected with photographic portraiture. Be this as it may, photographers in this country are still very conservative in their outlook on artificial illuminants for portraiture. Doubtless, the results of artificial lighting, as exhibited by some few professional photographers, have done more than anything to allay the fears of those more intrepid than their fellows; and a commendable action seems afoot amongst better-class professionals. Still, much doubt appears prevalent as to what form of illuminant is best for the studio. It is to help those who are in doubt that the writer has formulated the following hints.

Until quite recently photographers looked upon the electric arc or the incandescent electric lamp as the ideal illuminants for portraiture. To work these systems, however successful they may have been, required an extraordinary amount of practice and skill, to say nothing of the enormous amount of patience required. The fittings, arrangement of screens, etc., also called for an unlimited amount of energy and zeal on the part of the operator, and a certain knowledge of electricity was called for in working the lamps; add to this the uncertainty of the electric arc lamp, the difficulty in starting the lamps, the flickering and unsteadiness of the light, and other minor faults which seem inseparable from the arc lamp, and sufficient reason is evident for the shyness which photographers show in adopting this form of lighting for the studio. The incandescent system is much better; but here, again, the heat thrown off by the lamps, the initial cost of apparatus, and the cost of running are grave faults, which the operator must consider. Twelve months' experience with the Cooper-Hewitt mercury-vapour lamps has shown the writer that none of the faults enumerated above can be laid at the door of the American system. For the benefit of those about to invest in some form of artificial lighting for the studio, the writer's method of working the lamps is given below.

#### The Mercury-Vapour Light.

The lamp consists of a glass tube 45in. long with a large bulb at one end, in which is secreted about one pound of mercury. The tube is exhausted to a high degree and sealed. The wires

lead the current to each electrode, one of which is at each end, the electrode at the bulb end being the mercury before mentioned. To start the lamp it is necessary to switch on the current, then pull the lamp down gently by the chain fixed at the tube-end, in order that the mercury may run from the bulb to the electrode at the other end of the tube, thus completing the circuit. Allow the tube to assume its normal position, letting it back gently, and without jerking. It will be noticed that, as soon as the stream of mercury breaks, an arc is formed. This arc induces vapour to arise from the mercury in the tube, and then causes the same to become incandescent. It will now be clear to all that, as there is no filament or solid substance to heat, there will be a more economical consumption of electricity than if such were the case.

It is here that the mercury vapour-lamp is proved to be cheaper than other electric lamps. It will now be necessary to explain how the lamps are fitted, and how they are applied to photographic portraiture.

#### Installing the Lamps.

It will be seen from Fig. 1 that the lamps are hung from the ceiling, as is the case with the ordinary pendant form of lamp. The lamps are sent out from the manufacturers all ready to be put into place. It will, however, be necessary to warn photographers about one or two points connected with the fitting of the lamps. In the first place, it is absolutely necessary that the polarity should be correct—that is, it must be impressed on the electrician who fits up the installation that the negative and positive wires must be fitted at their respective and proper ends of the lamp, otherwise the life of the lamp will be considerably curtailed. The life of a lamp is guaranteed at 1,000 hours, but the average life is from 2,000 to 3,000 hours. Another point which is of great consequence is the main wiring, which should be what is known as 22-wire. This should have a distance of not less than 2in. between positive and negative wires. This is necessary to prevent induction. It is only necessary to have this space left from the switch to the lamps. We will now deal with the all-important point—position. In this I cannot do better than describe my own studio and my method of working in it. On reference to Fig. 1 it will be seen that the lamps are



made to hang. This renders fitting extremely simple. My studio consists of two ordinary rooms with the division wall taken out. The height to the ceiling is 9ft. 6in. After several experiments and rearrangements, I have found the following to be the best position for the lamps:—Against one of the side walls I have a wooden bracket fixed at a height of 7ft. The top of the bracket stands out 18in. from the wall, and to the top of this is fixed one of the lamps. The tube is thus hanging at a height of

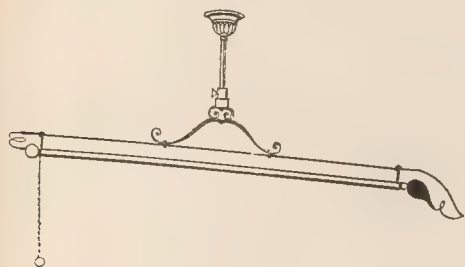


Fig. 1.

6ft. 6in. from the floor. The second lamp is hung from a batten fixed to the ceiling, and so fixed that it is 18in. further from the wall than is the lower lamp. On reference to Figs. 2 and 3 it will be seen that this is practically similar to the ordinary skylight arrangement. The resistances should be placed on the wall and as near to the lamps as possible. Next, I have a wooden frame

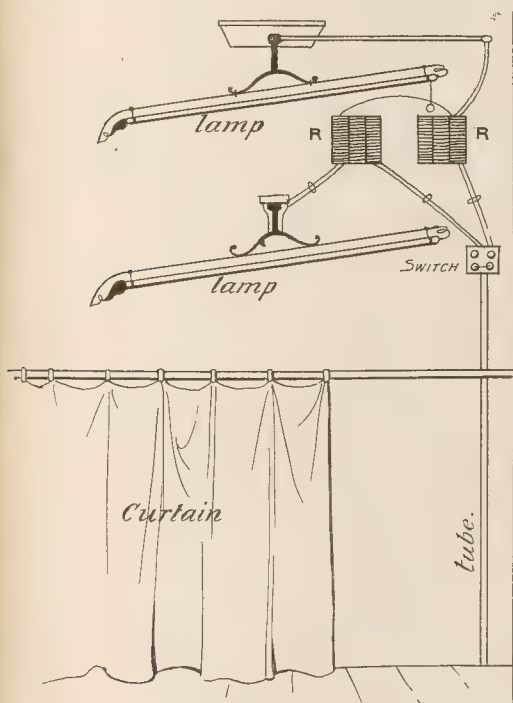


Fig. 2.

such as is used for backgrounds. This is fixed to the floor by means of screws placed through the feet into the floor. The size of this frame is 5ft. high and is 6ft. wide. On this another frame of the same size is fixed by hinges at the point indicated by the angle in the illustration. The top of this frame is fixed to the ceiling so that it may be lowered at any time. We now have a skeleton studio frame in front of the lamps, and it will

probably be found necessary to diffuse the light by placing muslin over the wooden frame. I might here mention that the ends of this framework are covered with art serge in order to prevent the light from coming through. As a diffusing medium, I have found that one thickness of the material known as lawn is just right for ordinary effects. The upper frame is covered with this material, and I think it is best fixed to the back of the frame by means of drawing-pins. The frame can then be lowered when the muslin becomes dirty, so that a fresh piece may be put on. The wood may now be stained, and the whole will present a neat appearance. A curtain is now hung from the top of the lower frame, and is found to be of value in preventing too much light from reaching the feet, whilst at other times it can be moved in order to obtain more light near the floor. The wall, being papered with a light paper immediately behind the curtain, will serve to reflect sufficient light in this direction.

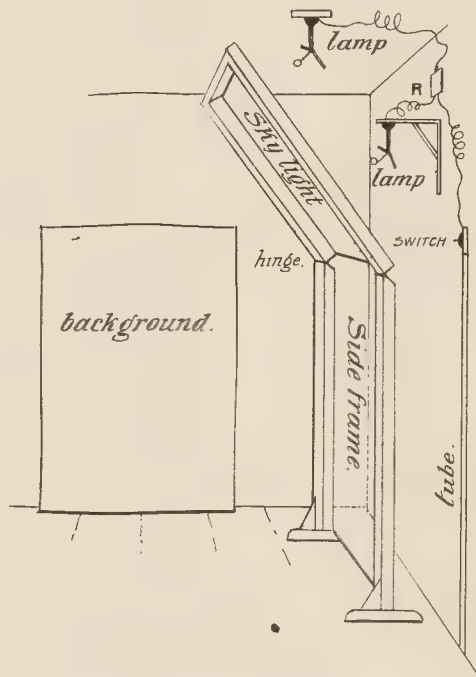


Fig. 3.

Having described the skylight, we will turn our attention to other demands.

#### Important—A Screen for the Camera.

One of the first things to be considered is the camera. It is absolutely necessary that, when using artificial light as an illuminant, the camera lens should be screened from the light itself, otherwise halation and blurring of the picture are sure to occur. To my knowledge, the best means of effecting this shading of the lens is by placing a small bellows arrangement on to the front of the camera. If this is fitted with brass telescopic rods it may be moved backwards and forwards into its correct position, which will, of course, be dependent upon the amount which is to be photographed. Having attached this bellows arrangement to the camera, the next consideration is the plate which we must use. The mercury spectrum is almost deficient in the red; it therefore follows that the blue will predominate. It is for this very reason that orthochromatic plates should not be used. It is, of course, different when dealing with arc lamps, and, indeed, any other form of light where a certain amount of

red and yellow light is present. Then an orthochromatic plate would prove to be much faster than an ordinary plate, but with the mercury-vapour lamp the exact opposite is the case.

Here I wish to say that I have made exhaustive trials of plates made by different manufacturers, and, although for ordinary purposes the plates have been of the same speed, when used with the mercury vapour-lamp each plate has required a different exposure. This, I suppose, could be explained by the scientist. The fact remains, however, that one plate is quicker than another, and I here recommend the two plates which I have found to be most satisfactory in conjunction with the Cooper-Hewitt light. In point of speed the first plate is the "Mawson," and following closely is the "Royal Standard." I have obtained excellent results on both plates.

### Reflecting Screens.

We must now consider the remaining factor of lighting. Some of the most important accessories in any studio are the screens used in obtaining various effects of light and shade, and it is in connection with these I would like to say a few words. The first I would mention is known to all photographers as the Sichel head screen. This screen is invaluable where artistic lighting is required, and, as it can easily be obtained from the dealers, I will pass on and describe the second style of screen. This screen consists of a light wooden framework about 6ft. 6in. in height, which is elongated by a brass rod, bent in the shape of three sides of a square, fixed by the ends to the top of the wooden frame, forming, as it were, a side wall and single slant roof. This frame is covered with very fine muslin, that known as butter muslin being the correct kind to use. At the bottom of this frame a spring roller is fixed, to which is attached a red blind. This blind is made to draw up to the top of the wooden frame. This completes the description of the apparatus required, and it now remains for us to put everything to its proper use.

### How to Set to Work.

Assuming that we have a sitter to photograph, we will proceed to operate in the best and most approved manner. It is here that the beginner will find most trouble, yet, if he has arranged everything as I have explained, he will be able to work correctly the first time, and he will probably be surprised at the simplicity of the method. First of all, place the sitter 4ft. from the side frame of the skylight and about 1ft. from the background end of the same so that 5ft. of the skylight are in front of the sitter. Now switch on the light, starting up the lamps very carefully. It will be seen that the light is a beautifully soft one, giving exquisitely soft shadows with beautiful sparkling lights. Proceed to focus in the ordinary way; next pose the head in the exact position required; now place the wooden screen between the skylight and the sitter, but have it closer to the skylight than to the sitter; draw up the blind until a slight shadow appears on the chin of the sitter. It will now be noticed that the head is beautifully lighted in a soft, scintillating light. Now place the plate in the camera and use

f/6 for the exposure. Expose for six seconds, and develop with the following developer:—

1. Metol .....	40 grs.
Hydroquinone .....	20 grs.
Sodium sulphite .....	400 grs.
Water up to .....	25 ozs.
2. Sodium carbonate ..	400 grs.
Water up to .....	25 ozs.

Take equal parts of each.

The resulting negative should be a distinct success. Of course, the length of exposure will depend entirely upon the particular lighting the operator may want to reproduce, but it will be found that in no case will the exposure exceed nine or ten seconds. It will also be found unnecessary to move the sitter to any great degree, as various effects of lighting can be obtained by using the two screens mentioned. Drapery can be lighted in any fashion and high-lights subdued. So soft is the light that it will be found necessary to place the reflector at least 5ft. away from the sitter; indeed, the reflector may be dispensed with altogether for ordinary lighting. It will, perhaps, be as well to mention the best form of reflector to use. That in use in my studio is one made specially from my instructions. It is simply a light wooden frame set on castors so that it can be moved easily. Fitted to this frame are two smaller frames, each of which is swung in the centre by a thumb-screw, so that they can be made to occupy any position, just as in the case of a mirror. These smaller frames are covered with light grey cloth, and when in use the reflector is brought to within 5ft. of the sitter, and the upper half is then tilted to the angle which gives the correct amount of reflected light. Being tilted in this manner, the reflector does not give false reflections in the eyes. Speaking of the eyes, it is well to mention that owing to the violet ray of the mercury-vapour lamp there is complete freedom from eye-strain. This point is in itself a sufficient recommendation for the lamp. It is a fact well known to scientists that the soreness caused to the eyes by artificial light is due to the preponderance of the red rather than to the weakness of the light as compared with daylight. The explanation of the deficiency of the red in the mercury spectrum is sufficient proof of the absence of eye-strain. Having obtained a satisfactory negative, the lamps may now be used for printing from the same, and for this purpose I have two brackets fixed under each lamp on which I place a light board. This board will hold six half-plate printing-frames, giving with the two lamps accommodation for twelve half-plate frames. The light will be found absolutely steady, and, once the correct exposure is found for any particular negative, from which, say, a platinum print is required, any number can be printed correctly by leaving the frame for the same length of time as that required in the first instance. With a negative of medium density the average exposure required for a P.O.P. print will be about ten minutes, the negative being about 6in. from the lamp. Very little heat is given off by the lamps, and even with an hour's exposure the negative would not be appreciably warmed.

GEORGE R. HENDERSON.

NEW STUDIO AT GRAHAMSTOWN.—Mr. E. J. Jeanes has opened a studio in Bathurst Street, Grahamstown, South Africa.

NELSON PHOTOGRAPHIC SOCIETY.—The second annual exhibition of this society will be held in the Stanley Street Schools, Nelson, from January 30 to February 1, 1908, the latest date for receiving entries being January 20. There will be four classes, open to all photographers, whether amateur or professional, and in each of these, as well as in those reserved for members and others residing in the district, a solid silver vase and a goblet will be placed at the disposal of the judges, Messrs. C. F. Inston and T. Lee Syms, for award. Entry forms are now ready, and may be obtained from the hon. secretary, Mr. Henry H. Beetham, 98, Brunswick Street, Nelson, Lancs.

MESSRS. A. E. STALEY AND Co. have sent us a copy of the current issue of the little booklet, entitled "The Prism," published by the Bausch and Lomb Optical Company, of Rochester, New York, which deals, month by month, with the adaptation of various lenses to the photographing of Nature subjects.

DEATH OF MR. THOMAS TAYLOR.—Much regret will be felt at the announcement of the sudden death of Mr. Thomas Taylor, late president of the Birmingham Photographic Society, and a well known figure in photographic circles in the Midlands, where his home was, as well as at meetings of the Photographic Convention. Much sympathy will be felt with the widow, son, and daughter of the deceased gentleman, by all of whom much kindly hospitality was bestowed on those who had occasion to visit the Birmingham Society.



## ARTIFICIAL LIGHTS IN PHOTOGRAPHY.

## IV.

An abstract of recent papers by Baron A. von Hübl.

## The Mercury-Vapour Lamp.

This lamp usually takes the form of a glass tube, *a* (Fig. 12), of 20in. to 40in. in length, which is exhausted and has some mercury enclosed, *Q, Q*, with the electrodes cemented and fused into the glass. Various forms are given to the lamp, but they are all practically of the type shown in Fig. 12.

As the mercury vapour in the vacuum is a very bad conductor, it is necessary to "strike the arc" as with an ordinary carbon arc

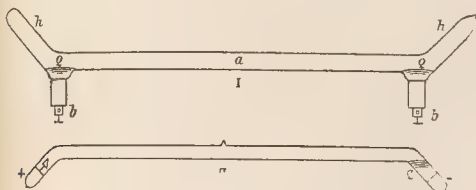


Fig. 12.

lamp—that is to say, one must make contact and then separate the poles. This is done in the case of the mercury vapour lamp by tilting the lamp, so that the mercury all runs down on to the positive electrode. This should be done before the current is switched on. Then the lamp is again tilted back, so that the mercury forms a bridge to the negative electrode, and the light at once starts out. It is absolutely essential that the negative electrode be always covered with mercury; if it is not, the lamp becomes useless in a few seconds. The positive electrode, on the other hand, may be made of carbon or iron, and if large enough may be free, as shown in II. (Fig. 12). The advantage of these lamps is that they may be used in practically any position, whilst if the electrodes are small and consist of platinum wires, they must both be covered.

Practically it may be considered that to drive these lamps, two and a half volts are required for every inch of length.

The light emitted is a pale bluish-green, which, as will be seen

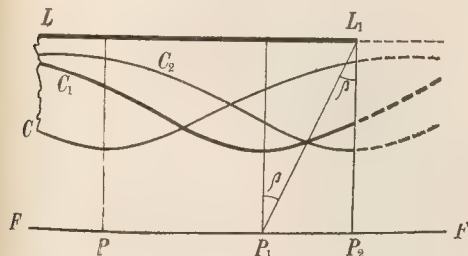


Fig. 13.

later, is, of course, dependent on its spectrum. The mercury vapour is extremely rich in ultra-violet rays, but in practical work the latter are of very little value. Compared with the carbon arc, the light is weak, and consequently the heat evolved is small, so that printing frames can be placed very close.

A lamp 20in. long and consuming 50 volts and 4 amperes gave the standard tint at a distance of 4in. in 70 seconds; at 8in., 1.2 seconds; so that at 4in. it is about as effective as ordinary diffused daylight.

A lamp constructed of Uviol glass showed the standard tint at a distance of 4in. in 34 seconds; on the interposition of a sheet of glass this was increased to 75 seconds. Hence the light contains 4 per cent. of ultra-violet rays, which are absorbed by the glass.

The great advantage of the mercury vapour lamp lies in the large extent of the luminous surface. As with almost all other electric lamps, the luminous area is less than 1/4 in. square; with the vapour lamp it is from 30 to 40 times as large. Obviously for the homo-

geneous illumination of surfaces it is far superior. In printing from negatives, too, this extended area enables one to dispense with a ground glass, which otherwise must be used in avoiding the prominence of retouching in the print.

The photo-chemical luminosity being practically confined to the blue and violet rays, it is obvious that in printing from yellow negatives or on carbon tissue a very long time is required.

## The Law of Exposure.

The mercury vapour lamp being practically a line or parallelogram, the laws applicable to a point of light no longer hold good; we must therefore deal with this at some length.

The curve of illumination is first plotted out for a point on a surface opposite the middle of the lamp. To find the illumination

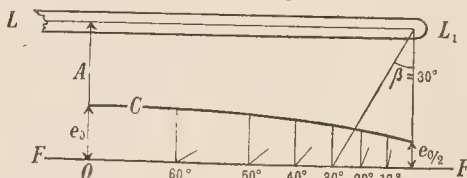


Fig. 14.

for any other point parallel to the lamp this illumination curve must be shifted to that point. For instance, in Fig. 13, let  $L, L_1$  be the right half of the lamp; then the curve,  $C$ , applies for the point,  $P$ , on the plane,  $FF$ . For  $P_1$  and  $P_2$  this curve becomes  $C_1, C_2$ . The illumination therefore decreases from the centre to the ends of the lamp, and in ratio to the reduction of the curves. At a distance which is small in comparison to the length of the lamp and opposite its centre a point,  $P$ , receives light from almost the

whole of the surface  $e_0 = \frac{I_0}{A}$ . The illumination for the point

$P_1$  is therefore only  $e = \frac{I_0}{A} + \frac{I_0}{A} \sin \beta$ , or  $e = \frac{1}{2} e_0 (1 + \sin \beta)$ .

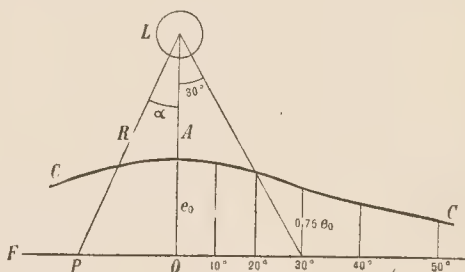


Fig. 15.

This formula shows the decrease of illumination from the centre to the ends of the lamp, and at  $L_1$   $\beta$  is also  $\sin \beta = 0$ ; thus  $e = \frac{1}{2} e_0$ . This spot is only half as brilliantly illuminated as the middle.

Utilising the formula,  $e = \frac{I_0}{A} \sin \beta$ , and taking into considera-

tion the distance, it is extremely easy to calculate the illumination of any point at any distance, and by increasing the latter from 4in. to 10in. to twice or four times, the illumination sinks to  $\frac{1}{4}$  and  $\frac{1}{16}$ ; not as the inverse squares,  $\frac{1}{4}$  and  $\frac{1}{16}$ . If the distance is increased from 10in. to 40in., the law of inverse squares practically applies.

Therefore for very short distances the above statement only holds good, and, as will be seen from Fig. 14, with a lamp 20in. long and 4in. distance from a plane, even illumination only extends to  $\beta = 40^\circ$ .

The illumination of a plane at right angles to the lamp axis is shown by the following: Let  $L$  (Fig. 15) be the section of the lamp, and  $F$  the plane, then the illumination at the point,  $O$ , as has been shown above, is  $e_0 = \frac{I_0}{A}$ , and for  $P e_0 \cos^2 \alpha$ . The illumination of two points on the plane,  $F$ , is as the square of the cosine of the "radiation angle," and  $OC$  is the resultant curve. Here, again,

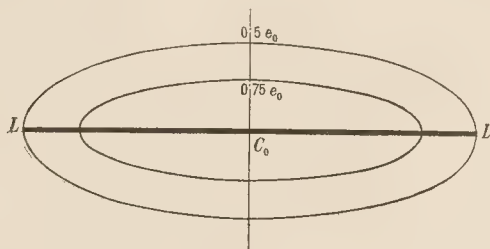


Fig. 16.

this only applies to very short distances, for with greater distances the illumination is no longer proportional to the distance. Still the "illumination curve" is always flatter than when the light is a point, under which conditions it decreases as the third power of  $\cos \alpha$ .

### The Field of Illumination.

The illumination of a plane parallel to the lamp corresponds practically to an ellipse, the major axis of which lies in the direction of the lamp axis. Fig. 16 shows the limits of the illuminated ellipse of a 20in. lamp,  $LL$ , at a distance of 4in. The inner ellipse shows where the illumination is  $e = 0.75 e_0$ , whilst the larger one includes the area where the illumination is 50 per cent. less than under  $L$ . A sheet of collodion paper, darkened in the centre to the standard tint, showed a total area of the ellipse as 140 square inches.

### The Practical Use of the Lamp.

The light of the mercury lamp is relatively weak, and it can therefore be used at short distances—4in. to 8in.—for printing, otherwise long exposures are required. On account of the necessary proximity of the lamp, the practical field of illumination is very narrow. For larger sizes it is absolutely necessary to use a combination of several lamps. The lamps should then be mounted up parallel to one another on a plane, and the distances between them can be calculated from the law described in Fig. 4. As the "illumination curve" is somewhat flatter at right angles to the lamp axis than there stated, the distance between them,  $D$ , may be for half-tone printing 1.7  $A$ , and for fine 2  $A$ .

The lamps must always be connected up in series and on a frame to allow of the tilting for striking the arc.

The disadvantages of the mercury-vapour lamp are its fragility and the impossibility of increasing the illumination—that is, reducing the time of printing by reduction of the distance, as with other arc lamps.

## PORTRAITURE WITH THE JANDUS ENCLOSED ARC LAMP.

In an article which we published a week or two ago, our contributor, Mr. C. H. Hewitt, pointed out that while in some cases it was an advantage for the experienced electric light operator to buy his lamp and fit up his own installation, there were a great number of professional workers who wanted this done for them, and preferred to have the lamp delivered in such a form that it merely required hanging up and connecting with the cable. Messrs. Houghtons Ltd. evidently realise that this demand exists, for they are marketing the Jandus enclosed arc lamp with the addition of simple reflectors and diffuser, and judging from a series of exposures which we have had made recently, the lamp, as arranged appears to give very readily any of the effects of lighting which may be required in any portrait studio.

The lamp itself is arranged to be suspended from the roof of the studio by a steel wire cord, and is either kept in position by a balance weight or raised and lowered by means of a small winch attached to the side wall of the building, whichever method may be preferred or found most convenient in any particular instance. The lamp is of the well-known enclosed-arc type, though it has certain points of detail and design which differentiate it from other models. It gives a steady even light of great photographic value without being at all trying to the sitter's eyes. Behind the lamp, as it hangs, is placed a semi-circular reflector constructed of thin sheet iron stiffened with thin rods, this being whitened on the reflecting side with a water paint. The reflector is arranged in such a way that it cuts off all direct rays passing in the direction of the camera, and the risk of fogging the plate with stray light in the lens is thus largely obviated. This semi-circular reflector is about 5ft. from top to bottom, and 3ft. 6in. from edge to edge. In front of the lamp, that is, between the arc and the sitter, a small square screen is placed for the purpose of diffusing the direct rays of light, this screen being covered with a single thickness of tracing cloth. The lighting on the face is beautifully soft, but if at any time it should be thought desirable to dispense altogether with filtered direct light, a second frame may be slid into place, which, being opaque, will cut off all direct light, but will reflect light into the semi-circular reflector, which will, in turn, reflect it towards the sitter. The exposure, when this method is adopted, will naturally be a little longer.

As with other forms and arrangements of artificial light, some satisfactory reflecting screen must be provided for lightening the

shadows on that side of the head away from the lamp. Such reflecting screen most photographers already have at hand, so that it need not be regarded as an integral part of the lamp as supplied. A screen of good size should be used so that it may be kept fairly well away from the sitter, when many of the drawbacks attendant on the use of reflected light from a small and dead white reflector are avoided.



From a negative exposed, as described in the article, in an improvised studio at Messrs. Houghtons, Ltd., where the "Jandus" lamp has been fitted up.

Two questions will no doubt be asked at once by the photographer who contemplates purchasing a portrait lamp, first, the cost of running per hour, and, second, the length of exposure required. As to the former, the Jandus lamp is made in three sizes, either of which may be fitted up in the manner described. The lamp of which we a



now writing was of the intermediate size, and the consumption of current is as follows:—

Large size .....	15 ampères
Medium .....	12 ampères
Small size .....	10 ampères

From these figures it will be an easy matter for our readers to calculate the cost per sitter if they know their local price per unit, and the average time it takes them to make a sitting.

With the medium-size lamp a series of exposures was made on Imperial special rapid plates with a portrait lens at an aperture of  $f/5.6$ , half second, one second, and two seconds being given, and these plates developed in an ordinary pyro-soda developer all gave satisfactory, well graded negatives. As under favourable conditions an exposure of one to two seconds is a normal studio exposure, it will be seen that no difficulty occurs in making well-timed exposures which shall develop readily and give soft harmonious negatives. With nervous or restless sitters, or in the case of animals and children, where the exposures must be as short as possible, an aperture of  $f/4$  in the lens, and an ultra-rapid plate in the dark slides, will together enable exposures of less than a quarter of a second to be given, such exposures being those ordinarily known as "studio snaps."

There is no necessity for our urging on the photographer the importance of artificial light at this time of the year. Scarcely a day passes but what those workers who are not equipped with an installation realise that they are losing money either directly or indirectly on account of their reliance on daylight alone. This always uncertain factor is, of course, most fickle just now, at a time when there is a rush of sittings and orders for the approaching Christmas. A method of artificial lighting which enables ordinary fine day exposures to be given, and ordinary daylight lighting effects to be obtained, will thus be always acceptable, and such a method Messrs. Houghtons have at the photographer's disposal.

#### THE BRUSSELS (1908) MEETING OF THE PHOTOGRAPHIC CONVENTION.

It will interest habitual and prospective conventioners to know that the programme already arranged includes a reception by the Burgomaster of Brussels in the Hotel de Ville; the opening ceremony, when the presidential address will be delivered, and papers read; a conversation; a display of pictures and lantern slides of Belgian scenery by members of the Association Belge de Photographie (at whose invitation the Convention is being held in Belgium); a presidential reception by Sir Cecil and Lady Hertset in the grounds of the Jardin Zoologique at Antwerp; receptions by the Burgomasters of Ghent and Antwerp, on the occasions of the Convention visiting those cities; and the annual dinner. Arrangements are also being made to hold a trade exhibition of pictures and photographic apparatus during the meeting.

Besides the places already mentioned, excursions will be made to Malines, Louvain, and the ancient Abbey of Villiers-la-Ville. The official Convention group will be taken in front of the magnificent Palais de Justice.

For the convenience of members able to stay after the close of the meeting, cheap excursions will be obtainable to some of the most picturesque and interesting places in the country.

Special terms (about half the usual fares) have been arranged by the express and short sea routes via Dover, Calais, and Dover-Ostend. F. A. Bridge, hon. secretary, East Lodge, Daleton Lane, London, will supply all further information.

#### MR. ANDREW PRINGLE ON OZOBROME.

Those whose photographic experiences carry them back to the society life of half a score of years ago will understand that when Mr. Andrew Pringle gave a lecture demonstration—which he did on Friday, November 15, before the Sutton Photographic Club—those who were present, which included a large number of the club members, enjoyed an exposition which was broad-based upon a long and varied photographic experience, and which was explained in simple but precise terms. The lecturer stated that of all the photographic printing processes he had struck, not any was easier or more satisfactory. The possible control in vigour of a print was at least double

as much as with other printing methods in which hand-work was not the chief factor; for, in the first instance, one might modify the bromide print; and, secondly, one could, with care and certainty, alter the normal vigour of the ozobrome replica by the introduction of alum, on the one hand, or of a citrate on the other, to the ordinary sensitising solution. The chief danger in the manipulations was said to be air-bells. These, however, were easily avoided by the use of a sponge. Thus the bromide print, when immersed in water, was sponged front and back, as also was the pigmented tissue (or plaster). In the same way the transfer paper was similarly treated. Moreover, when the tissue was stripped from the bromide print, placing finger and thumb, one on each side of an edge of the tissue, the thumb was worked right round the edges, so that it wiped off any incipient air-bells, which, if present at this stage, would be found near the margin of the undeveloped tissue.

Mr. Pringle pointed out that the ozobrome process, although producing a carbon print from a bromide enlargement or contact print of the greatest perfection, was in many respects much easier to work than the direct carbon printing process. To commence with, no judgment was necessary in order to gauge the printing time, that being already settled by the bromide; furthermore, the risk of the tissue becoming injuriously affected during the drying after sensitising was eliminated. From his demonstrations and comments it is irrefutable that many professionals who may have failed at carbon printing would find that ozobrome is quite within their capacity, and that it could be successfully applied to money-making purposes. The lecturer showed a large and an unusually attractive series of prints in duplicate—i.e., the original bromide, accompanied by its carbon image, and stated that as illustrating that one could eat his cake and yet have it still, and this over and over again, some of the bromide prints, including one dating from 1886, had been bleached and redeveloped from twelve to twenty times, and yet looked as good as ever. The bromides with which Mr. Pringle demonstrated the process—one of which was a copy of the late Colonel Gale's once all popular "Sleepy Hollow"—having, after printing their images on the carbon, been washed, were redeveloped with amidol, thereby regaining their pristine vigour and colour.

The chairman—Mr. Hector Maclean—drew particular attention to the great value of ozobrome for record photography. There were, he said, no doubt tens of thousands of bromide prints in existence which were of value as records, and which, transformed into carbons, would last as long as the paper on which they were printed, for which reason not only should an ozobrome outfit be at the disposal of record societies, but amateur photographers should acquire a knowledge of this easy and interesting method of making carbon copies from their bromide prints.

#### FORTHCOMING EXHIBITIONS.

November 5 to 27.—West of England Industrial Exhibition (Photographic Section). Sec., A. D. Breeze, Great Western Chambers, 41, Union Street, Plymouth.

November 19 to 23.—Southampton Camera Club. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.

November 20 to 27.—Croydon Camera Club. Sec., H. T. Dodsworth, Enmore House, Woodside Green, South Norwood.

November 25 to 28.—Lancaster Photographic Society. Sec., Walter Gunson, Manesty, Scotforth Road, Lancaster.

November 28 to December 4.—Southsea Photographic Society. Sec., Gilbert Wood, 10, Pelham Road, Southsea.

December 5 to 7.—St. George Co-operative Society Camera Club. Entries close November 25. Sec., George Anderson, 77, Brae-side Street, Glasgow.

December 5 to 7.—North London Photographic Society. Entries close November 30. Sec., C. H. Madden, 12, Dagmar Road, Stroud Green, London, N.

December 11 to 14.—Hove Camera Club. Sec., Stanley Read, 12, Old Steine, Brighton.

December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1908.

January 30 to February 1.—Nelson Photographic Society. Entries

close January 20. Sec., Henry H. Beetham, 98, Brunswick Street, Nelson, Lancs.

February 20 to 22.—South Manchester Photographic Society. Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.

February 15 to March 7.—Scottish National Salon. Entries close January 20. Sec., Frederick W. Kay, 183, Union Street, Aberdeen.

## Exhibitions.

### SOUTHAMPTON CAMERA CLUB.

THE seventh annual exhibition, now open at Southampton, is easily the best exhibition, from a pictorial standpoint, that the local camera club has held. Every year the three southern societies of Hove, Southsea, and Southampton combine and hold exhibitions successively at those three centres, and this year it is the turn of Southampton to lead off.

The pictures are hung in the beautiful and spacious Philharmonic Hall, in the centre of the town, and a special light installation has been arranged to show off the exhibits to the greatest possible advantage. Besides the usual classes there is a competitive class for residents in Hampshire and the Isle of Wight, which has been well supported. There is also a loan collection of representative British work and a selection of colour work, both prints and slides. Altogether we feel sure that all who have visited the Southampton exhibition, or can do so before it closes to-morrow night, will long remember it as a splendid show of pictorial and technical photography.

A casual glance round the exhibition is sufficient to show that the greatest improvement visible in the work of the year has been effected by the members of the local camera club; indeed, the standard of work compares very favourably with the strong open competitive class. Mr. S. G. Kimber shows 25 frames, "Not for Competition," and, as usual, most of his work is the perfection of pictorial architecture; but the few landscapes in his collection of exhibits fully bear comparison with anything of their class. His strongest picture is "In Westminster Abbey." Dr. Milner-White has three frames, also "Not for Competition," of which "A Stormy Day—Loch Hourn," would certainly have scored but for the condition under which it was entered. W. Martin is responsible for three non-competitive exhibits, all of interest; and Mr. W. R. Kay shows eight frames with the same reservation.

Miss E. Alder has three exhibits, of which the best is "A Doorway in Gloucester Cathedral"; Mr. A. D. R. Bacchus, one of the younger members of the club, has a "mention" in the technical class for "Viviparous Lizard," and also takes an award in the slides with a splendid series of frog studies. Mrs. T. L. Baker's two flower studies show great promise, and Mr. Baker's two river scenes are interesting. Mr. T. S. Bloom exhibits some good gum work, the best being "The Seaweed Cart"; and Mr. O. P. Butler has a good landscape, "A Welsh Mountain Pass." Mr. G. C. Chaloner's "Sand Bank—Poole Harbour," merits more than passing notice, and Mr. C. M. Cooper's pictorial work is attractive, especially "A Study of a Girl's Head in Profile," and "Portrait of a Young Lady." Mr. Cecil Daw has been awarded the silver plaque, presented by the editor of the "Amateur Photographer," for the best picture in the members' classes, and the winning print, "The Hillside," certainly deserves the high opinion the judge has formed of it. The breezy sky is as near perfection as possible, and the only fault one can find is the meagre quantity of foreground that has been retained. Mr. Daw's other exhibits show strong artistic temperament, but are far behind the successful work. Mr. R. G. Vaughton Dymock exhibits seven prints, of which "Llechryd Bridge," a delicate landscape, is easily the best. Mr. H. Essex has a strong collection of exhibits, and all his work shows careful thought, combined with good execution. "A Sunlit Glade" has earned him a rose-bowl in the print class, and a similar award goes to him for his slides, besides the silver medal presented by the editor of the "Photographic News" for the best single slide entered by a member. In addition to these material awards Mr. Essex has received three hon. mentions for his beautiful still life studies, of

which "Cloudberry" in particular attracts much attention and praise. Of three pictures by Mr. G. Fudge, "Lighting Up" and "Outward Bound" appeal to the general public, although they have not quite caught the judge's eye; but Mr. A. Gibbings has received an award and a mention for two first-class snow scenes, "Winter" and "A Wintery Gleam" respectively.

Mr. A. E. Henley is to be heartily congratulated upon being declared the champion for the year, and as he has twenty-five exhibits it can not be denied that he has worked hard for the honour. "Flaked with Sunshine," a fine architectural picture, receives an award, and Mr. Henley also takes three hon. mentions, one in each class in which he has shown his work. His chief success, however, has been in winning the special club award for the best collective exhibit by a member. In still life subjects Mr. Henley has always more than held his own, and this year's work shows that his powers in that direction have not decreased, especially noticeable being "Blackberry Blossom." In landscape and portraiture his work is not quite so successful, but fails principally only by comparison with his architecture and still life. Mr. C. D. Kay has been awarded a rose-bowl for "Betsy," an exceedingly delicate portrait in gum; but his "Portrait of Miss Dorothy Menpes," in the same process, is not far behind the winner; and a delicate architectural print, "St. Albans," has gained the same worker a "mention." Mr. A. B. Lawler shows a pleasing portrait study, whilst Miss Helen S. Morgan and E. W. Mudge both exhibit good work, with distinct promise of better things to come.

Mr. H. W. Miles is a popular exhibitor at Southampton, and this year he receives an award, and deservedly so, for "Becalmed," an excellent composition with but one fault, that the water appears to "run up-hill."

Mr. R. E. Parson is one of the club's new workers, but his name appears in the award list this year. "Beams of Light," a powerful yet simple architectural work, takes a premier award, and a "mention" is given to "A Sunlit Lane." In making these awards the judge has undoubtedly discriminated wisely, but "Cloister Shade" is little, if at all, inferior to the pictures he has noticed. Walter Playfair's "Old Mill" is a dainty piece of work, and a general favourite, but more careful mounting and finishing would improve it. Dr. Purvis and H. J. Quilter are to be commended for clear straightforward work, "The Meet" and "Bristol Cathedral" being respectively the best pictures by these workers. Mr. R. Robinson has not succeeded in catching the judge's eye this year, but his prints and slides are good examples of straight photography, and Messrs. A. Rumsey and F. Russell, who exhibit this year for the first time, also show good work; "Rushing Waters," by Mr. Rumsey, is a fine rendering of a mountain torrent.

Mr. T. E. Smith shows four frames, of which "A Rough Sea Off Jersey" is the best, the sense of movement in the waves being well rendered. Mr. G. C. Spencer has a good thing, entitled "The Glory of the Autumn Woods," and Mr. W. H. Trigg's two prints show artistic feeling in their production. Mrs. Tugwell's two studies of "Pine Trees" are pleasing, and Mrs. Weaver has obtained a mention for "Apple Blossom," a beautiful still life study. Mr. F. Watson has a strong architectural work, "Majestic in Decay," and Guy Vachell shows several interesting and attractive prints. Mr. Vachell takes an award for "Study of a Girl's Head."

Mr. T. M. Weaver is one of the club's leading pictorialists, and though he has received no award this year, "A Difficult Problem," a strong figure study, and "Saxon Font—Wells Cathedral," well bear up Mr. Weaver's reputation, as well as illustrating his versatility. Mr. Smith Whiting, as last year, is the leading natural history worker in the club, and "Black-headed Gull, Returning to Nest," which takes an award, is only one of many prints that might have gained such distinction. Whilst nothing of the technical is sacrificed to that end, Mr. Whiting succeeds in giving a certain pictorial quality to all his work.

The full list of awards is as follows:—

### OPEN CLASSES.

Class A.—Any subject. Rose Bowls: 289, "Little Paul," Mrs. G. A. Barton; 299, "Pastoral," Arthur Marshall; 304, "Strawberries," H. J. Comley; 318, "Portrait of a Lady, A. v. F.," R. Dührkoop; 336, "The Last Chapter," Miss Hilda Stevenson; 444, "Dingy London," Basil Schön; 484, "Life Story of a Kingfisher," Alfred Taylor. Hon. Mention: 237, "Kartoffelausmacher," H. Y. Simmons;



279, "Flecked with Sunlight," C. H. Hewitt; 292, "The Early Boat," A. Keith Dannat; 297, "Jeunesse," Miss Agnes B. Warburg. Class B.—Lantern Slides. Rose Bowls: 604, "Sunshine and Shadow," G. J. T. Walford; 607, "The National Gallery," V. E. Morris; 622, "Magpies," Alfred Taylor. Hon. Mentions: 616, "A Dainty Task," A. G. Thistleton; 623, "Westward Ho!" Thomas Carlyle; 637, "Early Morning Sun," W. A. Clark; 640A, "Nautilus Pompilius," Dr. G. H. Rodman.

Class C.—Open to Residents in Hampshire and Isle of Wight. Rose Bowls: 207, "The Garden of Allah," L. J. Steele; 222, "Pictures," Rev. T. A. Cooper. Hon. Mention: 202, "Yellow Plums," A. E. Henley; 219, "Xmas Eve," Basil Schön.

#### MEMBERS' CLASSES.

Champion Award for the best four pictures by a member in the club classes: 6, 64, 69, 80, A. E. Henley.

Class D.—Pictorial. The "A.P." Silver Plaque for the best picture in the members' classes: 51, "The Hillside," C. Daw. Rose Bowls: 15, "Beacalm," H. W. Miles; 35, "Betsy," C. D. Kay; 38, "A Sunlit Glade," H. Essex; 80, "Flaked with Sunshine," A. E. Henley. Hon. Mentions: 9, "Cloudberry," H. Essex; 10, "Blackberry Blossom," A. E. Henley; 43, "Study of Iris," H. Essex; 48, "St. Albans," C. D. Kay.

Class E.—Pictorial (for those who have not previously received an exhibition award.) Cream Jugs: 113, "Winter," A. Gibbings; 130, "Study of a Girl's Head," G. Vachell; 141, "Beams of Light," R. E. Parson. Hon. Mentions: 111, "A Wintry Gleam," A. Gibbings; 131, "Apple Blossom," Mrs. M. Weaver; 136, "A Sunlit Lane," R. E. Parson.

Class F.—Technical. Rose Bowl: 185, "Black-headed Gull, Returning to Nest," Smith Whiting. Hon. Mentions: 178, "Viviparous Lizard," A. D. R. Bacchus; 182, "Three Flower Studies," H. Essex.

Class G.—Lantern Slides (the "P.N. Silver Medal for best slide in the class): 649, "A Sunny Walk," H. Essex. Rose Bowl: 649, "The Set," H. Essex; 653, "Frog Swimming," A. D. R. Bacchus. Hon. Mention: 650, "Blackberry Blossoms," A. E. Henley.

#### BEDFORD CAMERA CLUB.

The Bedford Camera Club held their second annual exhibition in the Town Hall, on November 6, 7, and 8, and secured a large and representative entry. Pictures by many prominent workers, including a good sprinkling from the Royal and the Salon, appeared in the open classes—the one exception in this respect being the architectural class, in which there were curiously few entries. Competition in the members' classes was very keen, and Mr. Horsley Hinton in his adjudication specially commented on the high standard attained.

One feature worthy of consideration by other societies was a special class for scholars, which attracted an entry of 104 pictures, many of which, though small, would not have been out of place in other classes.

The exhibition was quite up to date in respect of a very strong invitation colour section. The three-colour process was represented by Messrs. Henry J. Comley, O. Bartlett, E. Fell, Dr. Phillips, the Rev. T. C. Fitzpatrick, and the Rotary and Sanger-Shepherd Companies. No fewer than 42 Autochromes were shown, these being the work of Messrs. E. Blake, J. Brown, Child-Bailey, W. Cullen, W. F. Slater, E. Fell, Dr. Phillips, and Mrs. Eve. The illumination of the transparencies was spoken of as perfect, the club being fortunate in numbering among its members the borough electrical engineer.

#### CROYDON CAMERA CLUB.

The above exhibition opened on Wednesday last, the 20th inst. This day coinciding with our going to press, we are therefore unable to consider the many exhibits individually; collectively, they undoubtedly represent a most gratifying all-round advance. We are given to understand that the actual number of entries shows an increase of nearly 50 per cent., a state of things possibly due to the offer of silver cups as awards, instead of the more hackneyed medal or plaque. The open classes fully maintain their position and importance, a landscape on linen, by Viscount Maitland, standing out from its surroundings on account of its large size and wonderful luminosity.

The members' classes, taken as a whole, are certainly far and away stronger than formerly. Messrs. H. P. C. Harpur, F. W. Wicks, J. M. Sellors, and F. J. Terry all show excellent work, as might be expected from pictorial leaders of the club; but several others are "levelling up," Mr. J. Kean being a very good instance. The three-colour and Autochrome processes are well represented by known workers, including Mr. Comley, and we are pleased to note that most successful Autochromes are exhibited by the president (Mr. A. E. Isaac) and by Messrs. W. A. Long, E. J. Platt, and Dr. Knott, members of the club. The judges are Messrs. Furley Lewis, Harold Baker, and B. Gay Wilkinson, whose list of awards we shall publish later.

The hard-worked executive evidently do not rely on "pictorialism" alone for securing patronage and £ s. d. For the admission price of 6d. each visitor is presented with a mounted platinotype print—as a souvenir, more than worth the initial expenditure. Mr. F. Gunton and Mr. W. H. Smith give "Angelus-Brinsmead" piano recitals, the latter, in conjunction with Mr. G. W. Watson, also giving side lectures on "Wireless Telegraphy" (showing a form of coherer specially designed by him for demonstration in the lantern), "Spark Photography," "X-rays," and the like. Mr. J. Bawcomb brings a battery of fine microscopes to reveal some of the wonders of the "infinitely small." Each night Mr. E. A. Salt gives a popular lecture on the "Autochrome Process," and, with Mr. Smith, portraits on panchromatic plates are taken at a prodigious rate by means of the oxy-magnesium light. Dr. Mees is down to-night (Friday) for "A Talk on What we Have Learned on Coloured Light"; to-morrow, the Rev. H. O. Fenton discourses on "The Lakes and Villages of Northern Italy"; Monday, the gallery closes early; on Tuesday Mr. Smith reverts to "Photographic Tiles"; and on the closing day, Wednesday, the 27th inst., Mr. Geo. E. Brown, the Editor of the "British Journal of Photography," brings the proceedings to a close by distributing the awards. The exhibition is held at Price's Art Galleries, 16, Park Lane, close to East Croydon Station, and is well worth a visit.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been made between November 4 and November 9:—

**CONTACT PRINTING.**—No. 24,312. To obtain perfect contact between an inflexible surface and glass photographic negatives. Charles Thomas Gardiner, Clarence Place, Kingsdown, Bristol.

**PHOTOGRAPHS IN WATCH CASES.**—No. 24,321. Improved method of securing photographs and the like in watch cases. James Thomas Pendlebury, 12A, Thorniley Brow, Manchester.

**MOUNTS.**—No. 24,332. Improvements in photographic mounts. Howard Marryat, 28, Hatton Garden, London.

**SHUTTERS FOR CINEMATOGRAPH PROJECTORS.**—No. 24,525. Improvements in automatic shutters for cinematograph projectors. Ernest Francis Moy and Percy Henry Bastie, Greenland Place, Camden Town, London.

**PRINTING FRAMES.**—No. 24,617. Improvements in pressure printing frames. James Pritchard and Harold Pritchard, 53, Chancery Lane, London.

**POLYCHROME SCREENS.**—No. 24,844. Process for manufacturing polychromatic screens for colour photography. Charles Répin, 100, Wellington Street, Glasgow.

**COLOUR SCREEN.**—No. 24,845. Improved screen for use in connection with colour photography. James Rice, Jacob John Carroll Culbert, and John Campbell, 100, Wellington Street, Glasgow.

**MOUNTING PHOTOGRAPHS.**—No. 24,876. Improvements in and relating to the mounting of photographs and the like. Thomas Edward Francis, 27, Chancery Lane, London.

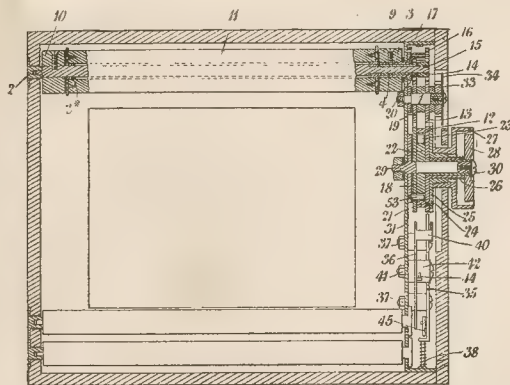
## COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**FOCAL-PLANE SHUTTERS.**—No. 3,810. 1907. The invention consists in the design of a focal-plane blind shutter, such that the width of the exposure aperture can be very readily varied before, or after, setting the shutter, and will remain of constant width during the exposure; the aperture itself being made when the shutter is released by allowing the first, or lower, blind, to first travel the distance for which the exposure aperture has been adjusted, and afterwards to cause the second, or upper, blind to be automatically released and to be instantly clutched with, and follow, the first, or lower, blind. Then, when the first, or lower, blind has nearly reached the end of its course, the clutch is automatically thrown out so as to allow the second, or upper, blind to continue its journey until its lower edge overlaps the upper edge of the first, or lower, blind, thereby closing the aperture when the exposure is completed.

The operation of working the shutter is as follows:—When the blinds are to be wound up for an exposure, the head, or handle, 27, on the adjustable wheel 25, is turned until the cam projection 47 on the lower blind winding wheel 12 engages with the first bolt 35. By this means both blinds are simultaneously drawn up as the clutch roller 23, immediately it is free from control by the pin 53, clutches both winding wheels (12 and 18) together.

For time exposures, the cam projection 49 on the adjustable wheel 25 should be adjusted in such a relative position with the lower blind winding wheel 12 that, when the last named wheel rotates until the cam projection 47 thereon catches on the first bolt 35, the cam projection on the adjustable wheel 25 should be out of reach of the lip 40 on the second bolt 36. To release the shutter, the button 46 is pressed so that the first bolt 35 is moved down, releasing the lower blind winding wheel 12 and at the same time allowing the second bolt 36 to move upwards and catch the projection 48 on the upper blind winding wheel 18, thereby holding the upper blind 8. When the lower blind 7 has nearly completed its course downwards, the clutch 23 comes into contact with the pin 53, which causes it to be pushed back and releases the clutch, allowing the upper blind to follow when its winding wheel is released from the second bolt 36. When the pressure is removed from the button 46, the first bolt 35 is pushed into its



original position by its spring 38, and draws down the second bolt 36 through the medium of the arms 43 and 44 on the collar 42, thereby releasing the upper blind and allowing it to close the aperture and complete the exposure.

For instantaneous exposures, the cam projection 49, on the adjustable wheel 25, should be so adjusted that when the cam projection 47, on the lower blind winding wheel 12, is caught by the first bolt 35, the cam projection 49 comes in contact with the overlapping lip 40 of the second bolt 36, when the shutter is released, the lower blind travelling first, and immediately the cam projection 49 on

the adjustable wheel 25 strikes the lip 40 on the second bolt 26, it pushes down that bolt and allows the upper blind to follow the lower blind, and when the lower blind has nearly finished its journey, the clutch is thrown out, leaving the upper blind free to finish its course.

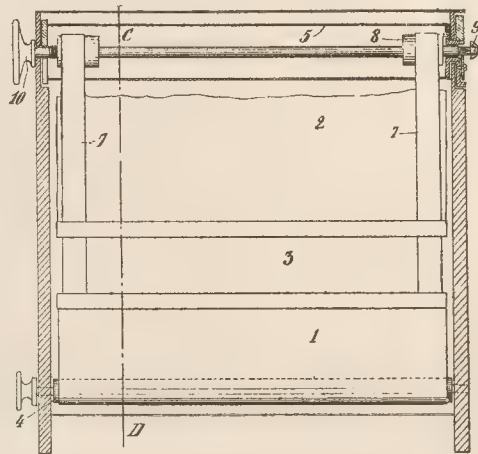
When it is desired to focus an object, the wing nut 28 of the upper blind winding wheel 18 is turned until the cam projection 48 thereon is caught by the pawl 51. To release this blind, all that is necessary is to turn the head or handle 27 of the adjustable wheel 25 when setting the shutter, and by so doing the pin 52, projecting from the clutch ring 21, pushes or turns the pawl 50 and removes the catch or tooth 51 from the cam projection 48 on the upper blind winding wheel 18, and releases that blind, thus closing the aperture before the clutch 23 comes into action. John Stuart, 3, North Side, Clapham Common; and Alfred Woods, 5, Richmond Park Road, Kingston-on-Thames.

**FOCAL-PLANE SHUTTERS.**—No. 7,235. 1905. The invention relates to focal-plane shutters, the aperture of which is adjustable. It consists in imparting the necessary stiffness of the blind by providing its lateral edges with flexible and light metallic bands or by reinforcing its tissue.

The shutter is formed by two blinds, 1 and 2, leaving an adjustable slot 3 between their ends. The lower blind is wound on a lower roller 4, actuated by a spiral spring, tending to wind the said blind 1.

The upper blind 2 is adapted to be wound on an open roller 5. The latter is hollow, and provided with a slot 6, through which pass two bands 7, the ends of which are attached to the lower blind 1, the bands being rolled on rollers 8, concentrically arranged inside the roller 5. The rollers 8 may be actuated from outside by means of a button 9.

By turning the cylinder 8, whilst the cylinder 5 remains stationary, the opening of the slot 3 may be adjusted, and an index-finger secured to the button 9, and, movable over a graduated arc, may



indicate the degree of opening of slot 3. The opening being adjusted, the bands are wound together on the roller 5. In order that, when the slot is adjusted, the bands shall not take along with them the blind 2, the latter must possess a certain rigidity, which is also indispensable for ensuring a good guide for this blind when the device is released. This rigidity is obtained either by providing the lateral edges of the blind 2 with flexible metallic bands or by reinforcing its tissue.

When the opening of the slot 3 is adjusted, the shutter is set by operating the button 10 of the upper roller 5, so as to put the spring of the lower roller 4 under tension through the intermediate of the blinds 1 and 2. The slot 3 is in this way raised so as to be entirely cut off the focal plane. When the upper roller is released by means of mechanism, such as used with instantaneous phot-



graphic apparatus, the spring of the lower cylinder is relaxed and draws the blinds with the slot 3 between them from the upper roller 5 on to the lower roller 4. Félicien Blanpain, 11, Rue Bunionceau, Brussels, Belgium.

The following Complete Specification is open to public inspection before acceptance, under the Patents Act, 1901:—

CINEMATOGRAPHS.—No. 15,902. Cinematographs and like apparatus. Mallet.

## New Books.

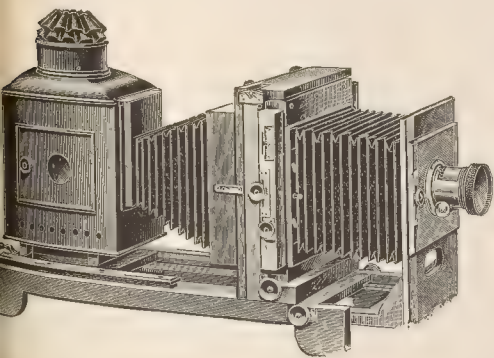
**COLOURING LANTERN SLIDES.**—The "Photo-Miniature" for November, 1907 (No. 83), is largely devoted to methods of colouring lantern slides, and contains instructive chapters on the use of oil and water-colours for this purpose. We read that the first wave of interest in the Lumière Autochrome process is about to sweep over America. Its point of origin is the enthusiasm of Mr. Alfred Streglitz, who, as we have already noted, has returned to the States laden with the spoils of his European labours in the process. Our miniature contemporary, as brightly produced as ever, is obtainable in this country from Messrs. Dawbarn and Ward, price 6d.

A WALL CALENDAR, with a tear-off page for every three days, has been issued for 1908 by W. Knapp, Halle a/S, at the price of two marks. It is handsomely produced on art paper, and on each page bears a reproduction, finely printed in half-tone, of an example of pictorial photography. In addition, the "Abreisskalender" contains numerous hints on practical work, presumably offered for perusal should the pictorial efforts pall. The calendar is certainly a wonderfully fine production at 2s.

## New Apparatus, &c.

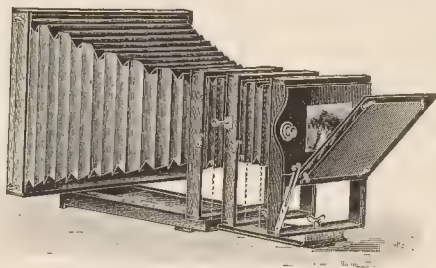
Enlarging Cameras, Lanterns, and Illuminating Chambers. Made by J. Lancaster and Son, Ltd., Broad Street, Birmingham.

In this model de luxe of their enlarging lantern the makers evince the greatest care in providing for the amateur or professional user all the necessary adjustments for certainly and rapidly producing enlargements or enlarged negatives. The lantern, as will be seen from the figure, is first of all adjustable behind the condenser by winch screw, and the exact position therefore for the most even



lighting is thus obtained to a nicety. But the portion of the apparatus which will appeal most strongly to enlargers of all classes is that of the negative carrier. This latter is removable from the lantern stage, and is taken in and out in a moment. The negative is held in a revolving carrier, which, as a whole, can be moved up and down independently of its rotatory movement. The negative can thus be adjusted on the enlarging easel most quickly and accurately, and any defects in regard to the position of the picture on the plate may be corrected in the enlargement. Further than this the

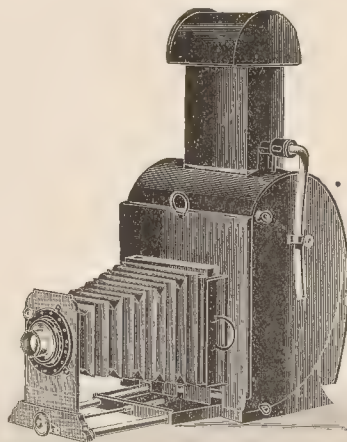
carrier, as a whole, may be drawn out of the upright position in order to correct converging lines due to the camera having been tilted up or down at the time the exposure was taken. These three adjustments are all made from the outside of the lantern by screws which are close to one another, and all three of them may be done in a few seconds, whilst the image is visible upon the easel. The apparatus



is made throughout in oak, and in the three sizes in which it is obtainable—namely,  $\frac{1}{4}$ -plate,  $5 \times 4$ , and  $\frac{1}{2}$ -plate—costs as follows:  $\frac{1}{4}$ -plate, £5;  $\frac{1}{2}$ -plate, £8, without objective. With objective,  $\frac{1}{4}$ -plate, £6;  $\frac{1}{2}$ -plate, £9 10s.

In a new pattern of apparatus, named the "No. 2 Amateurs' Enlarger," the makers have very conveniently placed all the adjusting screws at the back of the apparatus, so that the worker may focus and arrange the size of his enlarged picture whilst viewing the image on the screen. In addition to this, the negative carrier is so arranged as to raise or lower the negative and to tilt it out of the position of perpendicularity to the axis of the lens in order to remedy any defects of position and distortion when making the enlargement. This adjustment again is controllable from the back portion of the apparatus. A silvered mirror is also provided, so that the instrument has only to be placed level out of a window or any other position where it will get clear light from the sky, and the even illumination of the negative follows. Well made in polished wood and folding to convenient proportions, the apparatus costs 30s. and upwards.

In the new model of the "Ellipsoid" enlarging lamp, Messrs. Lancaster employ an opal reflector of elliptical shape, which provides a very even and brilliant illumination from a pair of inverted incan-



descent burners. Moreover, the lamp is provided with an adjustable reflector, which, within certain limits, will be of assistance in helping a negative by concentrating the light more or less upon one part of it. The lamp is obtainable to fit purchaser's own camera, or can be obtained complete, as shown in the figure, with tube extension

and iris mount for the instant adjustment of the user's own lens. Moreover, the lamp can be arranged to take an acetylene burner or an "Osram" electric lamp, which Messrs. Lancaster, we are pleased to find, recommend in preference to any others.

The "Sunlight" enlarging chamber is a new piece of apparatus, in which two inverted burners are employed some distance behind the ground glass and in front of a reflector placed at such an angle that the worker practically has as the source of light a rectangular area of four incandescent mantles. The reflector is of silvered copper, and the apparatus, which is stocked in all sizes up to whole-plate, and is obtainable in the still larger sizes, provides a most efficient means of illumination for negatives to be enlarged or for the making of lantern slides by reduction.

In addition to the inverted pattern, Messrs. Lancaster have produced one in which the ordinary vertical burners are used backed by a reflector of zigzag form, which again provides a very even and powerful illumination.

## New Materials.

"Rytol" Universal "Tabloid" Developer. Made by Burroughs Wellcome and Co., London.

In this new preparation Messrs. Burroughs Wellcome offer a developer suitable for plates, bromide and gaslight papers, and lantern-slides, and free from the stigma of affecting the skin, as does metol or its compound, metol-hydroquinone. Our short experience of Rytol certainly predisposes us in its favour. We found it an excellent reagent for gaslight prints, capable of being used repeatedly, and giving a fine black colour on the Barnet new glossy paper. Rytol, too, is prepared in more concentrated form than many "tabloid" developers, and will therefore be found a most economical developer.

"Oyster Shell" Glossy Gaslight Paper. Made by Elliott and Sons, Ltd., Barnet, Herts.

When in the early part of the year we were able to speak in praise of a new brand of gaslight paper placed on the market by the Barnet manufacturers, under the title "Oyster Shell," we alluded to the appositeness of the name in reference to the characteristic delicacy of the surface of the paper; since which time our judgment has been confirmed in the widespread adoption of the paper. Therefore it is well at once to stamp Messrs. Elliott's new paper as one in no way competing with, or supplanting, its predecessor as regards surface quality. Though it bears the same title, "Oyster-shell," it has a fully glossy surface, whilst the other paper is a half matt. In other respects the new paper, according to our trials of it, is worthy of whatever good things we said of its antecedent. It develops to a fine black colour—we used the new "Rytol" tabloids which happened to be at hand—with a fine range of details from the shadows of an archway to the high-lights of a sunlit pathway, both of which occurred in the negative selected for our prints. Glossy "Oyster-shell," which is sold at the standard prices, certainly deserves the approbation of the discriminating worker.

Silketeen Lantern Slide Binders. Sold by W. Tylar, 41, High Street, Aston, Birmingham.

Mr. Tylar sends us a sample box of a new form of lantern slide binder, which he is placing on the market under the name of "Silketeen." Whilst of more durable substance than the ordinary paper form, the "Silketeen" binder possesses great pliability, and adheres to the glass rapidly and easily, though perhaps its chief advantage lies in the fact that, being of a pale pink colour and fine smooth surface, the title of the slide can be easily written on it with ordinary pen and ink. These binders may be obtained either in lengths sufficient to go round a slide, or cut in short strips of sufficient length for one side only, the price of both kinds being 1s. per box, 1s. 1d. post free.

WELLINGTON XMAS POSTCARDS.—Messrs. Wellington and Ward send us examples of the Christmas greeting postcards which they have issued in all the brands of their printing papers—viz., Bromide,

S.C.P., and P.O.P. in each case of the matt, glossy and "carbon" varieties. There are six different designs in all, and these are assorted in the packets, or, if specially desired, packets can be supplied containing one, two, or three designs, as the case may be.

## CATALOGUES AND TRADE NOTICES.

CARBGRAPH.—A convenient booklet of the instructions and formulae needed for the ozobrome process has been issued by the Rotary Photographic Co., and gives in convenient form the full instructions published in our issue of last week.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

SATURDAY, NOVEMBER 23.

Aberdeen Photo Art Club. "Time Development." Kodak Co.

MONDAY, NOVEMBER 25.

Bradford Photographic Society. "Photographic Opportunities, on Holiday or Otherwise." A. Bracewell.  
Scarborough and District Photographic Society. "Marine Life at Scarborough." W. J. Clarke, F.Z.S.  
Oxford and Forest Hill Photographic Society. Jumble Sale.  
Kiddminster and District Photographic Society. "Hints to Beginners." H. W. West.  
Gravesend and District Photographic Society. Members' Lantern Evening.  
Halifax Photographic Society. "Rotary Carbograph Paper."

TUESDAY, NOVEMBER 26.

Royal Photographic Society. "A First Lesson in Photo-micrography." Martin-Duncan, F.R.P.S.  
Keighley and District Photographic Society. Siena, San Gimignano, and Other Medieval Cities of Tuscany." Thos. E. Green.  
Epsom and District Literary and Scientific Society. "Exposure and Development." Mr. Schafer.  
Manchester Amateur Photographic Society. "Ilford Lantern Plates." Mr. Brooker.  
Wallington Camera Club. General Meeting.  
Leeds Photographic Society. "Vesuvius and its Eruptions." Dr. Temper Anderson.  
Guiseley and District Photographic Society. "Enlarged Negatives on 'Rotary' Negative Paper."

WEDNESDAY, NOVEMBER 27.

Coventry Photographic Club. "Fruit and Flower Photography." E. Seymour.  
North Middlesex Photographic Society. "Autochrome Colour Photography." A. J. Woolway.  
South Suburban Photographic Society. "Recent Advances in Tabloids." E. C. Price.  
Central Technical College Photographic Society. "Colour Photography." S. W. de W. Abney, K.C.B., D.C.L., D.Sc., F.R.S.  
Dukinfield Photographic Society. "Photographic Chemicals." Everton Camera Club. "Flower Studies." J. Hawkins.  
Leeds Camera Club. "Rotary Carbograph Paper." Robert Gracie.  
Borough Polytechnic Photographic Society. "The Romantic in Landscape." F. C. Tilney.  
Worthing Camera Club. "Oil Printing." G. E. H. Rawlins.

THURSDAY, NOVEMBER 28.

North London Photographic Society. "Artistic Portraiture." C. Wille.  
Richmond Camera Club. "Lantern Slide Making." J. D. Gibson.  
Hull Photographic Society. "Norwegian Notes." E. L. Davis.  
London and Provincial Photographic Association. Open Night.  
Handsworth Photographic Society. Exhibition of Competition Slides.  
Liverpool Amateur Photographic Association. "Mountains and Valleys Switzerland." J. L. Robinson.  
Chelsea and District Photographic Society. "Pictorial Composition." A. C. Mountfort.  
Rugby Photographic Society. "Flower Photography." E. Seymour.  
Longton and District Photographic Society. "A.P. Prize Slides."  
Queen's Park Amateur Photographic Association. "Mounting and Framing." Pudsey and District Photographic Society. "Enlarged Negatives on 'Rotary' Negative Paper." Robert Gracie.  
Blenheim Club. "Russia: Her Peasantry and Poison." H. P. Kennard, M.I.  
L.C.C. School of Photo-Engraving and Lithography. "Half-tone Screen Negative Making by Dry Plates." A. E. Dent.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held November 19, Mr. W. T. P. Cunningham in the chair.  
A paper on "Floral Photography" was read by Mr. E. Seymour.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held November 14, 1907, Mr. Terry in the chair. Mr. A. W. M.



Dickens demonstrated "Scaloids," and his demonstration took the form of developing an Autochrome plate by the aid of the reagents as put up and sold by Messrs. Johnson and Sons. In these reagents the alcohol in Solution A is not used, its place being taken by a scaloid or pellet of pure pyro, hence one of the causes of frilling is eliminated. The reagents, as put up, are part in strong solutions and part in "scaloids," and the full set can be got ready in something under three minutes. A hardening bath was included in the set, consisting of chrome alum. Thirty seconds was the time mentioned for this bath to act—in the dark. In place of the hot wax for edging the plates prior to development, a new compound was now put up which answered perfectly, although it only needed putting on the edge of the plate with a linen handkerchief or duster: its appearance bringing strongly to mind the encaustic paste of olden days. In place of daylight after the reversal and prior to the second development, Mr. Dickens preferred to use 3in. or 4in. of magnesium ribbon. The plate experimented with developed up perfectly without the least sign of frill. Many specimens upon Autochrome plates were shown, and the one developed was dried and finally varnished before the meeting closed. Mr. Dickens further said that he thought one cause of frilling was the use for the washings of water which was colder than the developing solutions. Again, amidol could be used for the first developer, and this again tended to check frilling. When this was used, however, the time should be extended to three minutes. Autochrome plates could be reduced when needed by either the Howard-Farmer reducer or persulphate after fixing, the use of these in no way interfering with the colours. After intensification, the lecturer said, the washing should extend to two or three minutes, since any traces of citric acid left in the plate would tend, when in the clearing bath, to form a reversing bath. When fixed and washed the film could be—and he thought should be—blotted off with fluffless blotting-paper, as this gave quicker drying. Mr. Rapson said the time of preparing for work was a great consideration, his first set of solutions taking just 14 hours to prepare. Mr. Dickens remarked that, with the exception of the pyro and re-developer, the solutions could, if need be, be used more than once. Mr. Dickens then toned a bromide print by the aid of the sepia-toning scaloids, and said that when a good sepia was required it was necessary to develop the print well. Fresh sulphide should be used, the stale variety being the cause of yellow-brown prints.

## Commercial & Legal Intelligence.

**RECEIVING ORDER.**—Friday's "London Gazette" contains a notice to the effect that on the debtor's petition a receiving order was made on November 12 in respect to George Gibson (trading as late A. and G. Taylor), 23, Clarence Road, St. Philips, Bristol, Photographer.

**EDITOR WHO BECAME PHOTOGRAPHER.**—At a sitting of the Canterbury Bankruptcy Court last week, John Harry Gibson, of 16, Snar-gate Street, Dover, photographer, attended for his public examination. The liabilities amounted to £252 14s. 7d., and the net assets to £4 14s. 1d. Under examination by the Official Receiver, the debtor stated that formerly he was engaged on a Dover newspaper. He was in the office for many years, and for about eighteen months he was in charge, acting as editor and manager. He was in the office for eight or nine years before that. His salary as editor was £2 a week, and he had the benefit of the house. It was a limited liability company. In 1903 he relinquished that position, and for a short time was doing nothing. Then he commenced business on his own account as a photographer. For many years he had done amateur photography, and he entered into the business professionally because he thought as illustrations were coming into vogue in connection with newspapers he could turn it to some account. He started with a borrowed capital of £25, and at that time (1903) he had other liabilities up to the extent of about £100. Some of these had accrued while he was on the newspaper. The business had not

paid from the commencement. In 1905 he borrowed a further sum of £37. The rent of his premises was £40 and the rates and taxes came to from £16 to £18. He had a boy to assist him, and his daughter also helped him in the business. He estimated his turnover at about £250 a year. The reason he continued the business notwithstanding that it did not pay was because, like so many other people, he had been hoping for better times. He did not expect the business to pay the first year, but he thought it would the second or third year. Just prior to the Receiving Order a distress was levied upon his effects by the landlord. The examination was closed.

**UNACKNOWLEDGED PHOTOGRAPHS.**—In the Penzance County Court last week Messrs. Gibson and Sons, photographers, Penzance, brought an action against Mr. Uren, the author, and the publishers of a book entitled "Scilly and the Scillonians." The claim was as follows:—Contract price of sixty photographs supplied to defendants for reproduction in the book, on condition that the words "Gibson and Sons, Penzance," appeared beneath each reproduction, £15; damages for breach of the said condition, £35; making a total of £50. Plaintiffs also claimed an injunction to restrain defendants from producing the photographs in any future edition, or editions, of the book, unless in accordance with the condition. Mr. Edward Boase, representing plaintiffs, said Mr. J. B. Cornish appeared for defendants. They had agreed to ask his Honour to grant the injunction, and Mr. Cornish had consented to judgment against defendants for £40 and costs. His Honour made an order accordingly. Mr. Cornish said it was understood that this settlement covered all claims, even if they were not specifically mentioned. The matter was the result of an unfortunate misunderstanding.

**AN OLD OFFENDER.**—At Aberdeen last week, before Sheriff Begg, James Wilson (elsewhere described as "Nelson"), from prison, was charged with four acts of fraud in obtaining money from various persons in the Newhills district by falsely pretending that he would supply photographs at a cheap rate, and, having obtained part of the payment in advance, failed to fulfil his promise to take and supply the photographs as promised. The charges were that he had pretended to Robert M'Killigan, on July 26, that if M'Killigan would give him an order for twelve postcard photographs of himself and his family, accused would return on July 29 with his camera and take the photographs, and supply six of him and six of his two daughters for 2s. 3d., and thus induced M'Killigan to hand over 2s. 3d. without supplying the photographs or intending to supply them; that accused pretended to Duncan Thompson, on August 15, that he (accused) was a photographer carrying on business at Aberdeen, Edinburgh, Glasgow, and Dundee, and induced Thomson to pay him 2s. in advance to take a photograph of him and his wife and family on August 19, when he returned, the price to be 3s.; and that accused on the same day and at the same place pretended to Mortimer Thomson that if he (accused) received an order for a dozen photographs of Thomson for 2s., he would return to take the photographs on condition that 1s. of the price was paid in advance, and he thus defrauded Thomson.

Accused pleaded guilty, and said he had been promised the loan of a camera to take the photographs but did not get it. He had been in prison for a similar offence in a different county, and would like, if the Sheriff could impose, a limited penalty.

The Procurator-Fiscal Depute said accused had been sentenced to thirty days' imprisonment at Stonehaven for a similar fraud. Then, however, there were a good many other charges against the accused—twenty-five in all. The Sheriff sentenced the accused to twenty days' imprisonment.

**BRITISH MUTOSCOPE COMPANY.**—In the King's Bench Division, on Tuesday, before Mr. Justice Parker, a petition was presented by Linotype and Machinery, Ltd., for an order for the winding up of the British Mutoscope and Biograph Company, Ltd. Mr. Clauson, for the petitioners, said his clients were creditors for £606, and the usual order was asked for. Mr. Grover, for the Mutoscope Company, offered no objection, and his Lordship made the order.

**BIRMINGHAM PHOTOGRAPHER ROBBED.**—At the Birmingham Police Court last week, Albert Barrows, of Small Heath, was charged with smashing the window of a shop belonging to Mr. Baker, photographer, and jeweller, of Deritend, Birmingham, and stealing a quantity of

jewellery. The prisoner was committed for trial at the Assizes, bail being allowed.

**PHOTOGRAPHER CHARGED WITH THEFT.**—At the West London Police Court last week Austin Campbell was charged with stealing cameras by means of a trick from Messrs. W. B. Fielding, of Fulham Road, Joseph Wilson, of Chiswick, and Hardcastle, Ltd., of Brighton. In each case the prisoner had obtained the camera on approval and absconded with it. Campbell pleaded guilty, and the magistrate sentenced him to six months' hard labour.

## News and Notes.

**ENLARGEMENT FRAMES.**—Messrs. J. Epstein and Co., whose enterprise in the manufacture of picture frames is doubtless well known to the majority of our readers, are now going "one better" than heretofore, and are offering 20 x 16 enlargement frames, 3 inches wide, complete with glass and backboards, for the remarkably low price of 21s. per dozen. Such an offer should be of special interest to our professional readers at this season of the year, when orders for enlarged photographs as Christmas presents are usually extremely numerous, and such unobtrusive frames as those above described would be suitable for enlargements by practically any photographic process. Further particulars may be obtained from our advertisement pages, or from Messrs. Epstein and Co., Rupert Street, Bristol.

**A SHIPLEY PHOTOGRAPHER'S WILL.**—Mr. Stephen Stansfield, of Westcliffe Road, Shipley, Yorkshire, photographer, who died on October 7 last, left estate valued at £1,005 8s. 5d. gross, with net personality £690 14s., and probate of his will has been granted to his widow, Mrs. Annie Stansfield, of 18, Westcliffe Road, Shipley, and power is reserved to grant probate also to his daughter, Miss Elizabeth Stansfield.

**PHOTO-PENDANTS.**—Mr. F. Helmrich, lately trading at 158, Aldersgate Street, has joined the firm of Alfred J. Nathan and Co., at 17, Farringdon Avenue, where he is starting a special department for his well-known lines in photo-pendants, frames, miniature rims. A sample dozen of pendants in rolled gold,  $\frac{3}{4}$ -inch,  $\frac{7}{8}$ -inch, 1-inch, and 1 $\frac{1}{2}$ -inch, is offered at 9s. 6d.

**THE KRAYN SCREEN-PLATE COLOUR PROCESS.**—We read that a demonstration of the process has been given in Berlin on Friday last, November 15. It is likely that more will be heard before long of the process in this country. It will be remembered that the filter screen for the Krayn plate is prepared by cutting a section of coloured layers of celluloid, dyed to the suitable blue, red, and green colours.

**THE BIRMINGHAM EXHIBITION.**—The last day for entries is February 8, 1908 (February 1 from abroad); for pictures, February 19 (February 1 from abroad). Full particulars from M. Lewis Lloyd, Church Road, Moseley, Birmingham.

**THE STAFF OF SPEAIGHT, LTD.,** photographers, of Bond Street, have recently given a sign of the mutual consideration shown by them for their firm, and vice-versa, by their response to the firm's offer of a prize for the best photographs taken during the past holiday season. As a result, fifty photographs, representing about a dozen of the staff, are now brought together in a gallery at the Bond Street establishment. Among them is some most creditable work, the best of which was judged by Mr. Snowden Ward to be Nos. 21 and 22, "Monday" and "Now the Day is Over," by Mr. F. Smart. Mr. Smart has six prints, each with some claim to notice on pictorial grounds, and meriting our encouraging him to more ambitious work. Mr. Snowden Ward, in making the award, added a second prize, which he gave to "The Old Mill by Night," by Mr. A. E. Fowles. All the prints interested us from the evidence they gave of the aim on the part of Messrs. Speaight's assistants to take pains in their own amateur work. While all the photographs are undoubtedly the work of young workers, they are, in almost every instance, of a kind which exhibits more than the ordinary care taken by the amateur beginner. Mr. F. Bianchi shows in No. 2 a sense of the beauty of sunshine on a river backwater. No. 4, "A Wet Day," by Mr. F. Fraser, is not at all a bad rendering of the subject. Miss B. Meakin, in Nos. 6 and 7,

representing the launch of a lifeboat and an approaching train, is successful in getting the sensation of effort and excitement into the one and movement into the other. The figures are well placed in the latter. Mr. W. S. Smith's photographs are hardly equal in quality. His view of Swanage Bay is the best. Miss I. Shepherd must persevere. Mr. W. C. Robinson has a very good bit of woodland from Wimbledon Common (No. 28). Miss E. A. Sivelle is successful in her choice of open scenery, of which No. 32 "St. Lawrence's Valley, Jersey," is the best. The work of Miss M. E. Hider is clean, good photography. Mr. C. G. Rosher exhibits a curious preference for long narrow prints, either horizontal or vertical, but he shows that he recognises the subjects suitable for one or the other. The light bluff border to No. 45 should be a mere line, and the whole effect would then be excellent.

## Correspondence.

\*.\* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\*.\* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### SECTION-CUT HALF-TONE SCREENS.

To the Editors.

Gentlemen,—The description under this head has interested me from the point of view of screen-plate colour photography, as it seems obvious that by using alternate layers of red, purple and green celluloid the resulting veneer would make an excellent base or viewing screen as in the Warner-Powrie process. Presumably in sufficiently large quantity the cost would not be prohibitive.—Yours faithfully,

E. H. C. ATKINSON.

November 16, 1907.

## Answers to Correspondents.

- \*.\* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \*.\* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \*.\* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- \*.\* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- H. Osguthorpe, 18, King Street, Spennymoor. Photograph of Pulpit in St. Charles R.C. Church, Tuddhoe, Spennymoor.
- F. A. E. Skeen, 41, Chatham Street, Colombo, Ceylon. Photograph, Study of a Tamil Woman.
- W. H. Cole, John Street, Porthcawl, Glamorgan. Photograph of the Rev. D. J. Tiley.
- Mrs. M. A. Harrison, Hillside House, Horse Hill, Leigh-on-Sea. Photograph of Mrs. M. A. Harrison.
- Bridgman & Robbins, 2, Marina Arcade, Bexhill-on-Sea. Photograph, Presentation of the Freedom of the Borough of Bexhill to Lord Brassey by J. M. Glover, Esq.

**JNO. N. LIGHTBOURN** (St. Thomas, D.W.I.).—Autochrome plates in English and foreign sizes are obtainable from the Lumière Company, Great Russell Street, London, W.C. The process gives transparencies on glass. We have posted you a booklet on the method of working the process.

**A. J. DIX.**—The Autotype Company.

**J. W. PULLERING.**—The fault was ours. The words "will require a longer exposure than a 2 in. sitter to lens" should be deleted.

**AUTOCHROMES.**—In the "Morning Post" I read that "M. Gravier has succeeded in cutting short the manipulations (of this plate) at Stage C, by giving it a dip in a solution of sodium bisulphite.



This results in a whitish image which darkens in daylight, an excellent colour effect resulting," etc. 1. Is the manipulation cut short before or after Stage C?—i.e., is solution used, or not? 2. Are no further manipulations necessary, such as re-developing or fixing, etc.?—E. Y. E. N.

1. The plates must be treated in the C (reversing) solution before dipping in the bisulphite. 2. Only a brief washing.

**ELECTROPHOTOGRAPHY.**—Could you inform me where I can obtain particulars of specification of method of sending photographs by wire, as noticed in "Daily Mirror," etc.?—A. L. S.

From the Patent Office, 25, Southampton Buildings, London, E.C. Professor Korn's patents are abstracted in our "Patent News" on pages 257 and 772 of the present volume.

**COCKLES.**—You should read formulæ as—

Alum, 1 oz. in 20 ozs. of water,  
Or 10 gms. in 1,000 c.c.

It is hardly likely that ordinary alum has been used. Most probably it was a strong formalin hardener, say 1 to 10, or else strong chrome alum. Basic chrome alum is a powerful hardener. To obtain it, add ammonia, drop by drop, to 10 per cent. chrome alum solution, until a permanent precipitate is just formed.

**PHOTOGRAPHS ON IVORY.**—I should be very grateful if you could tell me aught on the transferring of carbon prints on to ivory. I have looked over several articles on carbon printing, and although transferring to opal is treated no mention is made of ivory. It is such an expensive substance that I do not care to experiment, and am fearful that the hot water development might injure the ivory.—IVORY.

The prints are not developed on the ivory; as to do so would stain the latter with the bichromate in the tissue. They are developed on the flexible support, and transferred to the ivory. After the picture has been developed, alumed, and dried, it is put with the ivory, in the following solution (warm):—Nelson's No. 1 gelatine, one ounce; water, twenty ounces; chrome alum, twelve grains, in one ounce of hot water. The two are brought in contact, removed, and then squeezed together, and allowed to dry, when the flexible support is stripped off.

**BUSINESS.**—The value of a business is based upon the returns, together with the net profit they yield. They are usually averaged from the previous three years. If you refer to page 382, of the issue for May 24 last, you will find an article on "Points for Consideration in Purchasing a Photographic Business." That will enlighten you specifically on the very points you raise.

**RESIDUES.**—Having considerable quantities of large size negatives and prints to handle, I shall be glad if you will please favour me with (1) full detailed instructions for recovery of silver from hypo baths; also (2) is the method the same for hypo in which plates are fixed and for that used for fixing bromide prints (the latter bath contains metabisulphite of potassium; and (3), if the method is the same, is it advisable to mix the negative and print baths during treatment or to keep them separate?—J. W. H.

The whole of the fixing bath may be mixed together, as the same treatment will do for all. The simplest, and, on the whole, the best, method of precipitating the silver is with sulphide of potassium ("liver of sulphur"). This will throw it down as sulphide of silver. No more of the sulphide should be used than is necessary, as an excess has a tendency to re-dissolve the precipitate. The best procedure is as follows:—Make up a strong solution of the sulphide, add some to the hypo, and well stir, and let subside. Then take a little of the clear solution and add to it a few drops of the sulphide. If turbidity is produced it will show that there is still silver in solution, and more sulphide must be added. Good fresh sulphide should be used, as that which has long been kept in badly corked bottles will have become deteriorated. A good test of its quality is its odour. If it "stinks well" it will be found all right. When the sulphide of silver is collected and dried it may be sent to the refiner. The silver can also be reduced by suspending strips of zinc in the hypo, but the method just described is preferable.

**REMOVING VARNISH FROM ACCESSORIES.**—I should be grateful if you could give me formula for a good detergent solution to remove (without firing) varnish (probably copal), from studio accessories, as as to be able to renovate, revarnish, etc.—**PHOTOPHIL.**

We are inclined to doubt if any photographic accessories are varnished with copal. Probably ordinary wainscot varnish was used. A strong solution of pearlsh (carbonate of potash), applied hot, will probably remove it. After well washing fresh varnish may be applied.

**ENLARGER.**—We prefer pattern A. A 5-inch lens will answer for a quarter-plate negative.

A. Z.—"Photographische Chronik," W. Knapp, Halle a/S. There is no agent in London.

C. PRITHEEN.—There is none published, and none likely to be, owing to the large proportion of "floating" photographers.

**RISEING OR SWING FRONT.**—I shall be obliged if you will inform me under which of the two following conditions a good anastigmat lens employed to take a view above its normal view in a horizontal camera, can be worked at the larger aperture to give equal definition:—1. When raised by the ordinary rising front so that its axis remains perpendicular to the plate. 2. When raised by a curved rising front so that its axis points to the centre of the plate.—W. D. B.

Under the first condition.

H. REEVE.—The developer is supposed to be made up strictly according to the formula. We suggest your chemicals are not up to the mark in purity.

**ENQUIRER.**—Apply to the Comptroller, 25, Southampton Buildings, London, E.C. We do not act as patent agents.

**ILL-USED ASSISTANTS.**—In April last I was engaged by Mr. —, of —, as operator and retoucher. I wanted £2 a week, and he offered me 35s. for a year certain, if he found my work suited him after a month's trial. This I accepted, and have been with him since. Last week he gave me a month's notice, saying the season's business was over, and he could not afford to keep on during the winter. I reminded him that our agreement was for a year certain, and he replied that he was sorry, but he could not help it, as he did very little business in the winter, and could not possibly keep me on. He said he thought he was dealing very fairly with me by giving a month's notice, when only a week was necessary. He also said he would give me a good reference. I should like to know, if you will please tell me, if I have any remedy for this shabby treatment. I have just been told that it has been the custom of Mr. — for three or four years past to engage an operator for a year certain and then discharge him when the season is over.—**HARD DONE BY.**

If the agreement is in writing, and bears a sixpenny stamp, you can claim your salary for the full term. If it was a verbal one, which we fear it is, you can obtain no redress, unless it was made in the presence of a witness who will substantiate it. Then, in the county court, you might possibly get a judgment. We have more than once warned assistants against relying on verbal engagements for a year, or a "permanency." All such engagements, to be binding, must be in writing, and bear a sixpenny agreement stamp. We have reason to believe that our correspondent's experience is not exceptional. Such conduct on the part of employers in getting services at a cheaper rate is very discreditable.

**FIXING BATH.**—A few days ago I left a few bromide prints in the hypo fixing bath, and on examining after about one hour found that the image had almost disappeared. I have since tried different samples of hypo and paper, and find that when the bath (4oz. hypo, 20oz. water), is freshly made the reducing action takes place and becomes noticeable after about 30 minutes in the bath. After the bath has been in use prints may be left for hours without any appreciable difference. I should be obliged if you could give me any explanation of the action.—**HYPO.**

Most probably your hypo is slightly acid, and in this condition bleaches the prints. As other prints carry alkali from the developer into the bath, the effect disappears.

**LENS FOR ENLARGING.**—What is the best lens to get for daylight enlarging up to 15 x 12 from all sizes? We have been using Dallmeyer's Portrait Lens, 3 B and 1 B, old make, and find great difficulty in getting edges of enlargement sharp, even when stopped down smallest, and that make such a long exposure necessary. We want a lens about 8 in. focus, which will enlarge from quarter-plate to 15 x 12, and give perfect sharpness at edges without undue stopping down, and price must not be high, and exposure necessary short.—A. E. G.

If you are not enlarging from a negative larger than half-plate, almost any good R.R. lens working at  $f/8$  will answer well. A portrait lens is not suitable for the purpose, since in many cases it is not intended to cover to the corners of the plate. Better still is an anastigmat working at  $f/5$  or  $f/6$ , any of which, as you can see from the Almanac, are listed at very moderate prices.

**CINEMATOGRAPE QUERIES.**—I have recently purchased a cinematograph, and should be glad of information on the following points concerning its use. 1. Using a lens of 4 in. equiv. focus, at what distance from the screen will it be necessary to have lantern to obtain an 8 ft. picture (length)? 2. Having this distance given, what size picture would a lens of 10 in. equiv. focus give from a standard size slide ( $3\frac{1}{4} \times 3\frac{1}{4}$ )? 3. In the event of a film breaking during exhibition, what is the method of effecting a quick repair? 4. Please recommend me to firms hiring out films. 5. Is it advisable to insure films whilst in my hands? 6. (a) What is the gauge of enclosed piece of film? (b) What are the standard gauges? 7. Would an acetylene jet with two burners be satisfactory as a luminant (Tyler's "Dreadnought," No. 1)? 8. Is it compulsory to have a fireproof screen around apparatus when showing in public?—LIVING PICTURES.

1. About 64 ft. 2. About 17 ft. square. 3. Make broken ends overlap and fix them within ordinary pin. Afterwards they can be cemented together. 4. Butcher and Sons, and many other firms do this. 5. Yes, if you want to be on safe side. 6. (a) Standard Edison gauge; (b) This is practically the only gauge used. 7. No use at all for distance given above. Would only serve for a very small disc quite close to lantern. 8. Yes, in any place under the L.C.C., and also in many places under other councils.

**RESTORING PRINT.**—Can you give me instructions as to how accompanying print can be restored somewhat? Can it be bleached and then developed? It is valued, and I must not risk its destruction. I have a good order if I can get passably good results.—PHOTOREX.

Without knowing something of the history of the print we cannot suggest any chemical method of restoration. You do not state either age of print or kind of paper. Any chemical method would involve risk of destroying the image. Why not try to produce a negative from it by contact printing?

**NORTH.**—(1) There is really no good text-book. The best is Johnson's "Retouching of Negatives and Photographs" (Marion and Co., 2s.). (2) Certainly. Apply to Houghtons or Butcher's.

**A DOG AND CHRISTMAS PHOTOGRAPHS.**—A few days ago I went out to try and get a few orders for Christmas cards, etc., taking my chap with me. I sent him to call at a house where I had done work before. When he got to the back of the house he saw a notice board; on it was "Beware of the Dog," but seeing no dog about he went on. About half between the gate and the back door the dog rushed upon him, seizing the camera cloth, tore the camera from his hand, smashing it in many pieces. Hearing the dog bark the servants came out of the house and took the dog off. I went to the front door to show the gentleman what his dog had done, but he refused to see me, so wrote him a letter asking him if he would pay for the damage his dog had done. But he has not answered my letter. Can I get compensation if I summon him? Is it a County Court job or otherwise?—J. B.

There being a notice, "Beware of the Dog," we think your man should not have gone forward; but, as the dog is evidently vicious, the owner would be liable for damages, if you can prove that the dog has done previous damage. Your action should be in the County Court.

**H. W. POND.**—Try the "Nobra" developer of the Kodak Company.

**W. GRANT.**—It is quite correct that enclosed arc lamps give a light rich in the ultra-violet rays, and so they enable rapid exposure to be given. The special construction of the enclosed arc lamp gives this advantage—you might as reasonably ask why all motors cars don't travel at sixty miles an hour! If your lamp was fitted in your studio by a competent electrician we should imagine the wiring is correct, but if the lamp was constructed by its makers to work on a 480 volt continuous current it is hardly fair to expect it to run at its best on a 200 volt alternating even though a lot of the resistance has been taken out. Why not write the makers and see if you have it fitted up to the best advantage. If the light appears yellowish to the eye you may be able to get shorter exposures by using the orthochromatic plate of the same makers, whose plates you are now employing. They only need ordinary care in development, and the experiment is worth trying.

**CARBON PRINTING TROUBLE.**—I am very pleased to note your article on "Matt Carbon." I have practised this method (opal as temporary support) for many years, and to me the soft matt result is far superior to that given by the semi-glossy flexible support. I am sorry, however, you have not said more about the final transfer. Although I have practised carbon printing more or less since 1885, I am still occasionally troubled with those small bright specks on the finished print. (1) Are those caused by air bubbles on the tissue in the first transfer, or by the same on the soaked print (on the opal), or on the final transfer paper? Any hints in this direction will be much appreciated. (2) Also, could you say where the net or renewable form of squeegee may be had? I see it is not included in Marion's latest catalogue.—W. J. B.

(1) The bright specks may be due to minute air bubbles between the tissue and the glass. If so, they should be seen when the print is dry if it is closely examined. The trouble in your case probably arises in the final transfer. It may be avoided as follows:—Soak the print (on the opal) in cold water for a few minutes, then bring the softened transfer paper in contact with it under the water, remove, and then squeegee the two together and allow to dry. In this way air bubbles are avoided in the final transfer. (2) Thornton-Pickard Manufacturing Company, Altrincham.

**ORTHOGRAPHIC LENS.**—A friend of mine, who is not a photographer, has a lens which he has offered me for twelve shillings. It bears the name of Voigtlander. It is a curious-looking thing, and I have never seen the like before. The front lens is about two inches in diameter, and in shape is like the front lens of a portrait lens, but the back is much smaller and is composed of two glasses, not cemented together. Can you tell me what the lens is, and what purposes it is suited for?—T. B. WARREN.

The lens is what is known as the orthoscopic. It is a very good instrument of its kind, and is suited for general work where great rapidity is not required. It does not give straight marginal lines; the latter are curved the reverse way to those given with a single lens, that is, it gives pincushion distortion. This form of lens has, years ago, been superseded by the R.R., which has a larger aperture, and yields straight marginal lines.

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## The British Journal of Photography

The Oldest Photographic Journal in the World.

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## SUMMARY.

The "British Journal Photographic Almanac" for 1908 will be obtainable throughout the United Kingdom on Monday next, December 2.

The exhibition of examples of portraiture by artificial light closes to-morrow (Saturday), November 30.

Some figures of the cost of artificial lighting are quoted from a recent lecture. (P. 907.)

An account of the personal photographic portraiture of Mr. E. O. Hoppe appears on page 900.

Some reminiscences of royal photography have been published by Mr. William Downey. (P. 902.)

A showroom for professional photographic requisites has recently been arranged. (P. 903.)

Copyright grievances, the light of the enclosed arc, and the drying of oil-prints during pigmentation figure in our correspondence columns. (P. 914.)

Mr. Pirie Macdonald has recently recommended his method of recovering the metal from platinum print developer and acid baths. (P. 899.)

Self-developing plates, tripod attachments, and focal-plane shutters are among the patents of the week. (P. 909.)

The first portion of the recent Traill-Taylor memorial lecture by Mr. S. D. Chalmers appears on page 903. Mr. Chalmers took as his subject the higher aberrations of photographic lenses. Some explanatory comments on the lecture appear on page 898.

A formula for a non-abrasion developer for gaslight paper has been recommended by an American worker. (P. 905.)

M. Guéhard has suggested the application of reversal by slight exposure to daylight to the Autochrome plate. (P. 898.)

Prince Albert of Belgium has consented to become President d'honneur of the Photographic Convention at the Brussels meeting next year. (P. 897.)

## EX CATHEDRA.

### Photo-Telegraphy.

The possibilities of photo-telegraphy are very great, and in a few years we shall probably see it in use for purposes that, at the present time, we cannot even guess at. It is cheering to see a new invention greeted with enthusiasm, for, as a rule, the pessimist is much in evidence at the birth of a new idea; but still we fear that the following paragraph from "Electricity and Electrical Engineering" is, if anything, somewhat too optimistic:—"The application of 'Photo-telegraphy' for illustrations in the Press is only one of the many instances in which it may be used. It may come in handy for the purposes of Scotland Yard, and, as Professor Korn indicated, it may lead to a new craze, i.e., that of collecting photo-telegraphic cards, as, for instance, it may be used for sending the picture of a new baby from one parent to the other in the case of one or the other parent being abroad at the time of the event taking place, which would be very interesting to the mother, if she happens to be the parent who is abroad."

\* \* \*

### News for Dry-plate Factories.

A most amusing product of the sensation-mongering of the yellow journalism has reached us in the shape of a paragraph from what appears from its typography to be an American journal. An "authority," who is described as a "psychologist of the University of Chicago," is quoted as asserting the objection of men, as well as animals, to red, in proof whereof the gifted writer and "authority" gives a description of a dry-plate factory which represents these establishments something more horrid than an Inferno. Dry-plate workers, we read, "have noticed ('noticed' is good) the rows and fights and brawls that distinguished their red-light rooms." Only in those rooms, where there was a "diabolical ruby glare" (= safe light) would be heard "oaths, groans, howls of rage, the sound of crashing blows, of falling bodies." Elsewhere all would be quietude and order, but in the red-light rooms, "pandemonium." We have often been informed that the dry-plate business was no slight trial of the temper, but we have never heard that the irritation arising from it affected others than the emulsion maker and his responsible assistants. The Dantesque description we have quoted can surely have been inspired only by some brief ejaculation of a plate-maker on hearing, say, that the weir of the coating machine had failed. There is only one thing to be done to a weir in these circumstances.

\* \* \*

### Next Year's Convention at Brussels.

Every good omen appears to attend the prospects of the 1908 meeting of the Photographic Convention at Brussels. We learn that His Royal Highness Prince Albert of Belgium (the Heir Apparent) has accepted the "Presidency d'honneur" of the Convention, and that His Royal

Highness, with the Burgomaster of Brussels, the Burgomaster of Antwerp, the Burgomaster of Ghent, the President of the "Cercle Artistique," and the Secretary General, will head the list of the local committee of organisation in Brussels. The elegant suite of rooms of the "Cercle Artistique" has (by the courtesy of the committee) been secured for the meetings and trade exhibition.

**Death of Sir Henry Colville.** In the sudden death of General Colville last Sunday evening the photographic world has lost one of its most ardent amateur workers. Sir Henry Colville was not given to talking of his own achievements, but during his long and distinguished career as a soldier he has constantly found in photography a relaxation sufficiently serious for one of his energetic habits. Moreover, in conjunction with Lady Colville, he has designed cameras suitable for military purposes. At the time of his death the drawings for an instrument of almost waistcoat pocket dimensions were in the hands of a photographic friend of his, Mr. R. C. Murray, who had undertaken to advise Sir Henry Colville as to its manufacture. In the deceased General the country has lost a dashing soldier and fascinating writer, but the news of his death will have been a severe shock to those who knew him as a generous and lovable man and firm friend.

**Reversal of Autochromes.** In a note presented to the "Académie des Sciences" of Paris, on November 11, M. Adrien Guébard draws attention to his studies on the inversion of the photographic image, and suggests that the principles might be applied in the Autochrome procedure. It is known that prolonged development of under-exposure yields a positive image, as does also continuation of development after a slight exposure to daylight. M. Guébard suggests that by the application of the principle of reversal the chemical method used in the Lumière procedure might be avoided, and at the same time with the production of increased contrast and reduction of the time of exposure.

#### A New Element—Lutetium.

The value of spectrographic analysis has received further support by M. G. Urbain's discovery of lutetium. M. Urbain, who is chargé de cours and lecturer on analytical chemistry at the Sorbonne, Paris, has been working on the chemistry of the rare earths for some fourteen years. The economic and scientific importance of these has steadily increased since Auer v. Welsbach's important discovery. M. Urbain, however, has by appeal to spectrography disposed of three "elements" in this group, and, in compensation, has succeeded in splitting one of them, ytterbium, into two others. He described his results at the Société Chimique de France on November 8. In conjunction with M. Griner, he has found by chemical and spectrographic analysis that the "so-called" "bauxium," obtained from bauxite by Bayer, is a mixture of vanadium and tungsten. Continuing his spectrographic researches on the cathodic phosphorescence of the rare earths, he finds that sulphate of gadolinum, containing terbium, gives the phosphorescent bands, attributed by Sir W. Crookes partly to the "meta" elements gadolinum  $\beta$  and gadolinum  $\delta$ , and partly to new elements, ionium and incognitum. As the bands in question are obtainable by simply varying the proportions of gadolinum and terbium, the existence of other elements is not a necessary postulate. Another long series of fractionations and measurements has shown that ytterbium, discovered by Marignac, with an approximate atomic weight 173, is composed of two elements, one of atomic weight approximating 168, the other having an atomic weight greater than 174. M. Urbain has named the one neo-ytterbium and the other

lutetium, after "La Ville lumière"; both show characteristic but complex band and line spectra. In his spectrographic work he uses a quartz spectrograph, with prism and lenses of quartz, working to wave-length 200 mm., the iron arc being photographed as a standard of comparison.

#### THE ABERRATIONS OF LENSES.

THE Traill-Taylor lecture by Mr. S. D. Chalmers, the first part of which we reprint this week, is a very important one to the optical student, as it deals with matters that are quite outside the scope of the ordinary text-book. It pays special regard to what are styled aberrations of the higher orders, which, in certain circumstances, have most important effects on the behaviour of photographic lenses. The text-books, however, generally confine themselves to aberrations of the first order, and by ignoring the others lead students to think that the correction of the first order aberrations is all that is necessary to produce a perfect lens.

The meaning of the terms first order and higher orders is perhaps quite incomprehensible to many readers, hence an attempt at explanation may be useful. The aberrations of the first order are the five commonly described under the names of spherical aberration, coma, astigmatism, curvature, and distortion. We dealt briefly with these in our leader of March 22 last, in which we touched on the von Seidel conditions of correction, including the much-discussed Petzval condition. Up to a certain point a great deal is known about these aberrations. Thus, for example, spherical aberration is known to increase in proportion to the cube of the aperture, so long as the aperture does not exceed a certain size, and while this rate of increase is maintained the defect may be described as spherical aberration of the first order. With bigger apertures, however, the ratio is incorrect. It is too small. Hence, if we allow only for the correction of aberration of the first order, a residue of uncorrected aberration will remain, which may be truly described as due to aberration of a higher order. Then, again, as Mr. Chalmers points out, if we attempt to compensate the spherical aberration of a positive lens by combining it with a second one possessing negative aberration, the two will not exactly balance one another at all apertures, hence a residue of higher order aberration will be left. Taking a particular case, if the aberration is, balanced at a small aperture a residue will be found at larger apertures that will increase as the fifth power of the aperture, this more rapid rate of increase justifying the use of the term higher-order.

It is manifest that a residual aberration such as this, though very small in amount at a moderate aperture, will, owing to its rapid increase, become very important at big apertures; therefore, a compromise has to be effected if a big aperture is necessary.

The general principle adopted for the correction of the higher order aberrations is that of compensation. A little first order aberration is left or introduced to correct that of higher order, which practically means that the theoretical conditions for the correction of aberrations of the first order are not always fulfilled perfectly. This explains why it is sometimes advantageous to apply the Petzval condition more or less exactly, and sometimes better to depart from it. The production of a perfect photographic objective is a matter of compromise and approximation throughout. The large apertures and the wide angles of view employed introduce difficulties that do not exist with other instruments such as telescopes, and these difficulties are mainly due to the higher order aberrations, the effects of which do not admit of rigid calculation owing to the extreme complexity of the mathematical work involved.



## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1908.

Edited by GEORGE E. BROWN, F.I.C.

On Monday next, December 2, THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC for 1908 will be obtainable from the counter of every photographic dealer and chemist, and from those of a good many booksellers throughout the United Kingdom. This forty-seventh annual issue of the ALMANAC is noteworthy for one or two reasons. First, the publishers have succeeded in reducing the ungainly bulk of the monster. Secondly, they have been prevailed upon by the editor to place all three indexes together at the end of the book. Thirdly, they offer a contents of more than usual interest, to which every justice has been done in the way of printing, paper, and arrangement for rapid consultation. Both the text and advertisement sections prove the claim of the publishers that the ALMANAC is the reference book of photographers to be no empty boast, but a fact accomplished by an autumn's incessant care of details, correspondence, and attention to the multifarious responsibilities involved in the production of 25,000 copies of a book of 1,382 pages. But not to dwell on these

herculean labours, some few features of the new ALMANAC may be mentioned:—

The new screen-plate processes of colour photography. By the Editor.

Epitome of Progress.—A systematic compendium of the hints, methods, and formulæ of the year.

New tables of weights and measures, chemicals, exposure, plate-speeds, etc., and new optical rules and formulæ.

Formulæ for the photographic processes, revised throughout, and with much additional information.

An abstract of the instructions of the leading plate and paper makers.

Reviews (illustrated) of recent novelties in apparatus.

The whole of the new features are more quickly at the disposal of the reader of the ALMANAC in consequence of the two innovations already mentioned, viz.:—

- (1). The reduced size of the "Almanac."
- (2). The collection of all indexes at the end of the book.

## FINAL NOTICE.

Our publishers desire us to say that almost the whole of the edition of the ALMANAC is booked for delivery December 2. Any further orders and any re-orders should be in their hands immediately in order to be assured of execution.

## PLATINUM RESIDUES.

[Pirie MacDonald, who is nothing if not practical, under the attractive title "Seven Per Cent. Discount on consummation is not one of negotiation, though the alert of a highly-developed business sense, but is based on the acid baths.—Eds. "B.J."]

You know, of course, that the whites of the print have as much platinum in them as the blacks, while the print is in the printing frame, and that in order to prevent the whites becoming black, we dissolve out the platinum, and that the first acid water does most of the work.

## The Money in Platinum Paper.

Then it follows, that if your prints are composed of one-half whites and one-half blacks, that the acid is dissolving out one-half of the platinum that was originally put on the paper and if you are making many white grounds, that it is dissolving out more than one-half, sometimes more than three-quarters, of the original platinum, and when you print with white margin, or vignettes, more yet, and most photographers throw that acid wash down the sink—and platinum worth five hundred and twelve dollars a pound!

When I started this article I knew that a big proportion of the readers would say, "stuff," "nonsense," "another waste-saving scheme, that will turn out as all others have—a lot of trouble, and no result; Theory!" But I made a test of exact quantities awhile ago, and found that from 100 rolls we got \$72 in cash for the precipitate at a cost of \$2.25.

On a basis of \$10 a roll—true, some papers cost less, but it's not far out as a basis—at \$10 a roll, we have a saving of within fraction of 7 per cent., and money talks.

How quickly we would turn our good ear to a salesman who would offer us our platinum paper at a discount of 7 per cent. or 6 per cent., or even 5 per cent., off any price we were buying at—so don't quibble with my \$10 a roll basis.

contributes to the "Photographer" a characteristic screed "Platinum Paper." His method of attaining this desired "photographer of men" may pride himself on the possession of a commonplace process of recovering the wasted platinum from

## The Method of Extraction.

The real way to do it is to take a twenty-gallon stone jar—not a dinky little five-gallon butter crock, or a keg that may spring a leak, and get mussy—but a new twenty-gallon jar—pour into it the first acid wash both from sepia and black, and if you have any developer to throw away, pour it in too.

Then cut two sticks and make a cross of them—large enough so that they will bridge the top of the jar, and won't fall in. and suspend from the cross by a stout string some strips of zinc (sheet zinc at a hardware store costs 30 cents per pound, but you can buy scrap zinc from photo-engravers, the odds and ends cut from their plates, at 5 cents per pound). Let the zinc hang down to within, say, three inches from the bottom of the jar, but don't let it touch the sludge, for it will become coated and inactive.

When the solution has stood twelve hours it will settle and should become colourless, but if it remains to any degree yellow, it still has platinum in suspension, and you must add, say, one-half ounce of muriatic acid. Scrape the zinc free from any coating it may have accumulated, and examine the solution again after another twelve hours. This, however, will rarely be necessary.

When the liquid has become colourless, dip out most of it, and let it go down the sink, being careful not to disturb the whitish-gray sludge that has been thrown down on the bottom of the jar, and when you have used 100 rolls, take out the mud, drain it on a cloth, which you have tacked on a stretcher, letting the drip go back into the jar, and when dry it is ready for the refiner—and if you are more careful than we were you will get a better discount from your paper bill than we did, and if you do, please let me know at once, for I need the money.

PIRIE MACDONALD.

## A MODERN NOTE IN PORTRAIT PHOTOGRAPHY.

[In giving an account of the entrance of one of the younger pictorial workers into professional portraiture, we could wish to reproduce some examples of Mr. Hoppe's work, an aspiration which the exigencies of speedy production compel us to check. Several typical portraits by Mr. Hoppe appeared in our contemporary "The Photographic Monthly" for October last in illustration of an appreciation by Mr. Snowden Ward. Possessors of the current "Photograms of the Year" may turn also to the example of Mr. Hoppe's work on page 132.—Eds. "B.J."]

THE recent revival of the "one-man" professional photography had its first beginnings in the United States. When the phrase "one-man portrait photography" first reached this country, some three or four years ago, and when the circumstances which it

Falk, Hollinger, Macdonald, or Strauss, do not follow their profession on the narrow line of personal attention to every operation, though their photographs show individuality. In Great Britain it cannot be said that the above type of "one-man



A CORNER OF MR. E. O. HOPPE'S STUDIO, KENSINGTON.

represented were understood, there was the feeling that the term was a catch-phrase, and the mode of appeal to the public only one prepared for the special purpose of offering the same thing as something different. In other words, the one-man photographer—the photographer who does everything from first to last with his own hands—entered the modern field quite convinced that the idea was a good thing, and that there was money in it. In proof whereof he offered to teach the little ins and outs of the business to anybody for a consideration. What is the exact number of this class of person in America at the present time we cannot say, but we believe his species is limited. The individualist leaders of portrait photography in the States, such as

photography exists at all. Examples we have of "one-man" professional portraitists, but the process of their creation and the works by which we know them are as different as possible from those associated with the same phrase across the Atlantic.

Moreover, it is the fact that the men in this country who have taken up portrait photography with the conviction that the portrait must be all their work from first to last have not done so in order to galvanize an existing portrait business, but have taken up portrait photography, or had it thrust upon them because it was more congenial to them than other occupation which, it may be easily assumed, were more profitable. The explanation of their existence, it would seem, is, first, the growing



public which can appreciate the difference between a photograph which has tonal qualities and composition and one which is innocent of these attributes of the artist-craftsman, and, secondly, the sincerity of purpose on the part of the "one-man" photographer. He aims at work of an order which he hopes may not be denied the title of "art": he aims at making a portrait which is something of a character-sketch of his sitter: he aims at photographs which have beauty of tone and line. It so happens that a public (size not stated) is ready to pay for these qualities, and hence studios such as that at 10, Margravine Gardens, South Kensington, inhabited by Mr. E. O. Hoppe, whose work is worthy of serious notice as an "example illustrating" of the new movement afoot in professional photography.



Photograph by]

MR. E. O. HOPPE.

[S. Elwin Neame.

Everything which has just been claimed on behalf of the "one-man" photographer can certainly be set down to the credit of Mr. Hoppe. Trained in the art schools of Munich, he was forced for a time to enter commercial life. He is almost ashamed to say that his serious study of portrait photography goes back but three years. But in that time he has worked and studied incessantly—with what result his portraits at photographic exhibitions have shown. In taking up photographic portraiture as a profession he is fortunate in adding to his technical skill a lively imagination and great earnestness of purpose. These, perhaps, would avail him nothing did not his bent lead him to prefer a likeness to an impression. The unrecognisable "study" of a sitter evidently has no charm for him, as we saw at once on looking through a portfolio of prints of both sitters and models. In the latter no less than the former there was scarcely an instance in which the photograph could not have been called a satisfactory portrait.

A dull November mist lay over the plains of South Kensington on the morning when we made our pilgrimage. At No. 10, Margravine Gardens only a small brass plate, "E. O. Hoppe, Studio," gave a sign of the occasion of our errand. Mr. Hoppe's studio, formerly that of Alfred Garrett, R.A., has nothing about it save a camera in one corner to suggest photography. Cheerful comfort, the fireside where one is a welcome guest, most aptly describes one's first impression of it. Then one looks around and notices that it is furnished with all regard to harmony between floor- and wall-coverings, the few tables and chests, and the pictures on the walls. Among the latter are a fair number of portraits by Mr. Hoppe. From these one sees that Mr. Hoppe is no faker or trickster in portraiture. He has no prevailing recipe for every occasion. He takes a dark background or a white one, and you may see one or the other used for a man's portrait or a woman's. If he has a *penchant*, it is towards setting a light object against a light ground, or a dark against a dark, and indulging in subtleties of tone-contrasts. And then he will burst away with some big effect, got by a bold contrast. The hands are a great feature in Mr. Hoppe's portraiture; they occur in the majority of his



"Accessories" (real) of the modern portrait photographer. A photograph in Mr. E. O. Hoppe's Studio.

work, and are evidently one of the means of characterisation which he employs. Of retouching Mr. Hoppe makes as little use as possible, and in the case of men's portraits, it may be said, none at all. Most of his negatives are taken with a slight diffusion of focus, but Mr. Hoppe grants himself very little latitude in this direction, and holds it as a rule that diffusion should not be pushed to an extent which destroys texture and structure. Nothing very novel or revolutionary in these methods; nothing which has not been talked about over and over again: Mr. Hoppe makes no pretence to have discovered new principles to be using unique apparatus, or to have devised new processes. Indeed, to claim anything for himself beyond an absorbing interest in his work is the last thing one would expect of this most modest recruit to the ranks of professional photographers. We wish Mr. Hoppe and all like him who are wedding their ideas of art to their practice of portraiture the best of luck. Such enterprise is in the nature of an experiment, and courageous are they who make it. Nevertheless, it should encourage Mr. Hoppe that the number of people who desire portraits such as he can give them is daily growing. Meanwhile all those who interest themselves in the progress of photography as a medium of portraiture will not lose sight of Mr. Hoppe and his work. It will be a surprise if he disappoints the achievement of the past three years: his influence is bound to be felt in portrait photography.

## FORTY YEARS A ROYAL PHOTOGRAPHER.

[The recent remarkable photographs of Royalties taken at Windsor during the visit of the German Emperor and Empress by Messrs. W. and D. Downey, have led to Mr. William Downey, the head of the firm and the doyen of Court photographers, to communicate some of his experiences to the press. The following article appears under his signature in the "Daily Dispatch."]

"You'll get on in life," said John Bright to me many years ago in South Shields, my birthplace, and the town in which I first started business, but little did I think then I should ever come to London to be photographer to the Court for over forty years, or that I should ever have the honour of photographing so unique a gathering of Royal personages as I did on Sunday last.

Never in all my life have I had the opportunity of taking such a remarkable group. The pictures were taken in the Red Drawing Room at Windsor Castle after luncheon. We were not allowed to make any preparations until half-past one, and

undue fuss. This was what the late Queen liked best, and His Majesty the King takes after her in that respect. When he honours me with a sitting he tells me at once how many minutes he has to spare, and, although the time is generally very brief, the sitting is always got over successfully. Although His Majesty has a very keen dislike of unauthorised snap-shots, he is a very patient sitter when facing the camera.

The late Queen Victoria so much liked one photograph of herself which I had taken that she had it reproduced three time in twenty-five years—that is to say, she assumed exactly the same pose as she had taken in the original photograph.

I took one of the first flashlight photographs ever taken in this country, in the days when such inventions were only just thought about. It was on the occasion of an operatic performance at Windsor Castle, and the Royal Family showed great interest in the experiment.

### The Picture Postcard.

I was also the first to take a series of cinematograph pictures of the late Queen whilst her Majesty was walking in the grounds of Balmoral, and we had a machine made and showed the pictures at Windsor Castle on a subsequent occasion; and we also took the first photograph of a Royal wedding in a church. It was on the occasion of the wedding of the King and Queen of Norway.

On one occasion I took a very fine photograph of the late Queen, with the late Empress Augusta of Germany, but for some reason or other, I do not know what, we had not permission to publish it. In consequence I was obliged to decline an order for a million cabinet copies.

Photographs do not sell so well as that nowadays—at least, not in that form. To-day the sale is enormous, but very quick, and a particular "boom" is all over in a very few days. The illustrated papers clamour eagerly for any new photographs of Royalty, and we sell hundreds of thousands of copies as picture postcards.

Whilst on the subject of picture postcards, I may note, although it has nothing to do with Royalty, but just as an instance of the craze, that we sold two and a half million postcard pictures of a well-known beauty in eighteen months.

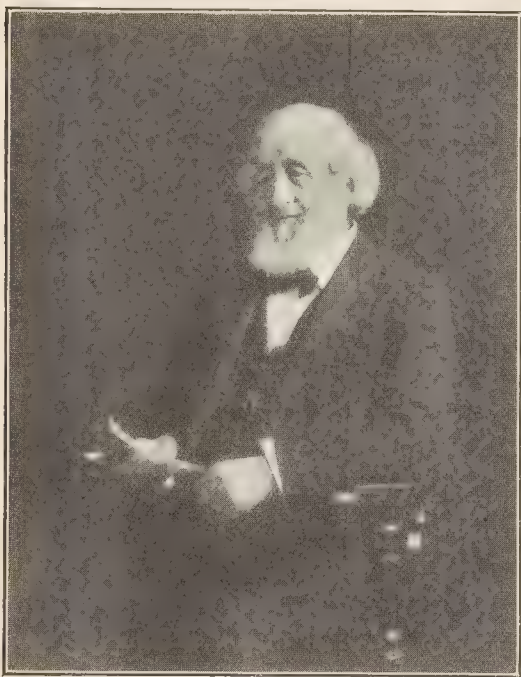
### The Queen's Domestic Tastes.

British Royalties are very domesticated, and seem to like domestic photographs best of all. Queen Alexandra, whose photographs are the most popular of any Royal person, is nearly always taken with her grandchildren or her pet dogs, and the Prince and Princess of Wales have also a fondness for similar groups.

My most popular Royal portrait is a group of the late Queen and her family, entitled "Four Generations," but another very popular picture was that taken very many years ago of the present Queen with the baby Princess Royal on her back. A great many people refused to believe that it was a genuine portrait. "You have got somebody to pose for it," they declared. It took a tremendous hold on the public, and over 300,000 genuine photographs of it were sold.

### Albums of Royal Photographs.

Many years afterwards I had the honour of taking a similar photograph of the Princess Royal with her baby on her back



Photograph by]

MR. WILLIAM DOWNEY.

[W. & D. Downey.

we had then to put up the electric light plant, fix the cable, and make all our arrangements before the Royal visitors had finished their meal. Then we took the photographs, five or six exposures in all. It was at our suggestion that the unique group of eight Kings and Queens was taken, and after that we had to do the best we could with a general group.

The first Royal photograph I ever took was one of the present Queen, more than forty years ago, at the York Agricultural Show. This was followed by the then Prince of Wales's command to go to Abergeldie, and the photographs taken there were so successful that the late Queen sent for me to go to Balmoral, and gave me her first sitting. Since then I have been taking Royal photographs nearly all the time.

### The King before the Camera.

I think I can attribute a great deal of my success with Royalty to my being perfectly natural, and by avoiding all



a unique record, I should think, in the way of photography. I have many photographs of the other celebrities taken at regular intervals from the age of short frocks up to middle age.

One of my most cherished possessions is an autograph album, in which many Royal personages, and nearly every celebrity

of note during the last forty years, have inscribed their names, in many cases adding some pretty little compliment to myself.

I have besides a unique collection of miniatures of all the Royal personages of Europe, and I have the Victorian and Coronation medals, presented to me by his Majesty the King.

WILLIAM DOWNEY.

## THE ABERRATIONS OF PHOTOGRAPHIC LENSES.

The Tenth Traill-Taylor Memorial Lecture.

It is a great privilege to share in the efforts of this society to commemorate the name of J. Traill-Taylor, and to share in its endeavour to further the progress in those departments with which his name is associated.

The subject to which I will invite your attention to-night is one that particularly appealed to him, and his great gifts of clear and concise exposition would have eminently qualified him for the work of expressing in systematic form the results of recent work on this subject. But, alas! this is impossible, and it has fallen to my lot to attempt such an exposition.

have a diameter (in inches) of not less than  $1/25000$  the F. number of the lens. In photographic lenses no attempt is made to reach the standard of definition, and we may regard a diameter of  $1/1000$  inch† as giving sufficiently sharp definition in the centre of the plate; under these conditions we could magnify the image from four to six times without appreciable falling off of definition, since the eye cannot appreciate the difference between a spot  $4/1000$  in. and one smaller in diameter unless they be magnified.

As regards general definition over the plate we may consider a standard of  $4/1000$  inch or  $1/10$ th mm. as giving excellent definition,

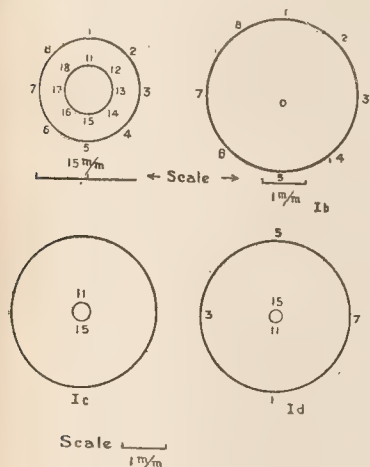


Fig. 1.



Fig. 2.



Fig. 3.

Although the results which refer to aberrations of higher order have been obtained independently, some of the results had already been obtained by other writers, particularly by Dennis Taylor, Von Rohr, and Schwarzschild.\* The theory of aberrations which I propose to describe differs only in detail from that of Schwarzschild.

I have always endeavoured to regard the subject of aberrations from the point of view of the user or designer of photographic lenses, and to me a defect of a lens is important in so far as it produces or tends to produce bad definition or distorted images on the ground glass or photographic plate. From this point of view the definition is determined by the size and shape of the "spot" or "patch" of light which is received on the photographic plate, from each point of the object. The distribution of light within this "patch" will also be of importance, as it will affect the appearance on the plate under different conditions of exposure; with under-exposure the fainter parts will not affect the plate. We should also know the effects on the definition of small changes in the position of either the object or the plate.

In some optical systems a limit is set to the size of the "patch" of light, depending on the nature of light. The patch of light must

and except where photographs are to be magnified for measurement purposes, there is very little to be gained by improving the definition beyond this limit. In fact, since the same type of system, increased aperture or field can only be obtained at the expense of the definition it is frequently desirable to set a rather lower standard for the sake of increasing the aperture or the size of the plate covered.

Whichever of these standards be chosen it is impossible to reproduce on the same plate the objects in different planes with the same degree of sharpness, and probably the photographer would not be pleased if his lens did this. But all objects in one flat plane can be produced with reasonable definition, provided the aperture and plate be not too large, as compared with the focal length.

Again, it is necessary that the image should be similar to the original object. Thus the patch of light from a point on the object must come to a certain point on the plate, depending on the position of the object and the focal length of the lens. We call this point the ideal image of the object, and the whole of the light from the object point should pass through this point.

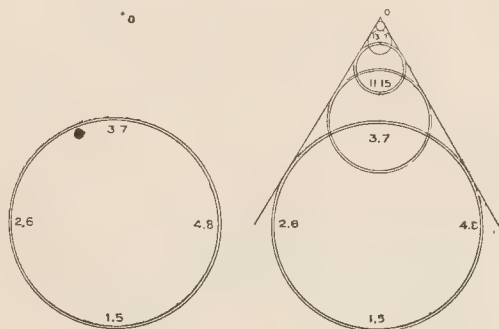
The distance between this point and the actual point at which any ray strikes the plane of the plate is called the "error" of the ray. This error may be obtained by calculation when the constants of the system are known, or it may be obtained by direct measurement. But though we could obtain information about any chosen ray in this way, we cannot deduce the error of any other ray. Fortunately, it

\* Dennis Taylor, "A System of Applied Optics"; Schwarzschild, "Untersuchungen über geometrischen Optik"; Von Rohr, "Die Bild-Erzeugung in Optischen Instrumenten."

† This is an approximate only, as the outer edge of this disc would be very faint.

is possible to obtain the error by adding together the effects of a number of aberrations. These aberrations may be considered as producing a certain displacement of every ray, and their effects in any given system will depend on the position of the image, the point on the aperture of the stop through which the light passes, and a constant depending on the construction of the system. The effects of each of these aberrations can be found for any ray as soon as the effects of each of the aberrations separately can be found for a standard ray.

In the case of a single lens the errors can be expressed as the sum



Scale 1 m/m.  
Fig. 4.

of the effects of the five aberrations with which we are all familiar, but when in photographic lenses we have almost balanced out the aberrations for one lens by almost equal but opposite aberrations in another lens, there still remain errors, which can be expressed as the sum of nine aberrations, depending in a different way on the aperture ratio and angular field.

By aperture ratio I mean the fraction which has a numerator 1, and the F number of the stop for denominator; by angular field, the

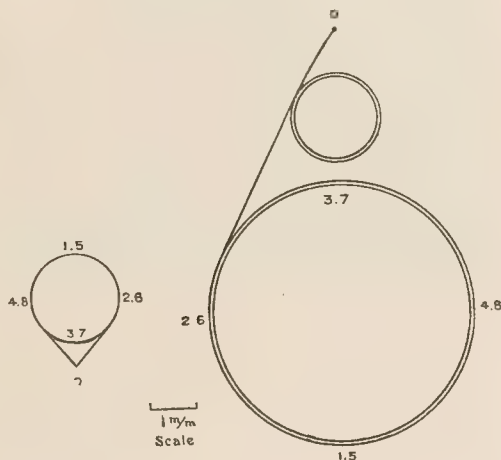


Fig. 5.

distance of the image from the centre of the plane divided by the focal length, or rather the angle of which this is the tangent.

If we divide the aperture into a number of very narrow circular zones, the stop will be set at a definite F number when each one of these zones is just exposed. We will call the corresponding aperture ratio, the aperture ratio of this zone.

The five aberrations which occur in the ordinary way for a single lens of reasonable aperture and field will be referred to as the aberrations of the First Order, since for these fields and apertures they are by far the most important.

The other aberrations, which are said to be of the Second Order, become of importance only when the aperture or field is excessive or when, as in ordinary photographic lenses, the aberrations of the first order are wholly or nearly corrected. The effect of the aberrations on a given ray will depend on the aperture ratio of the zone through which it passes and the angular field, but it will also depend on the actual position of the point on which the ray strikes the aperture. For this reason it is desirable to determine the figure which is traced out on the focal plane by the light from a small circular zone on the stop.

In Fig. 1a the outer circle represents a zone of 30 mm. diameter on a lens of 330 mm. focal length; the inner circle represents a zone of one-half the diameter. The effect of the ordinary spherical aberration calculated from the ordinary formulæ is shown in Fig. 1b, while 1c shows the circles formed on the focal plane by the light from two zones. It will be noticed that the smaller circle is only one-eighth of the diameter of the larger, and this arises from the fact that the spherical aberration increases as the cube of the aperture ratio. But if we examine this lens we find that the central definition is not properly represented by the Fig. 1c, even though monochromatic light be used.

We suppose that there must be some other aberration effect, and if we evaluate the spherical aberration of a single lens, for example,

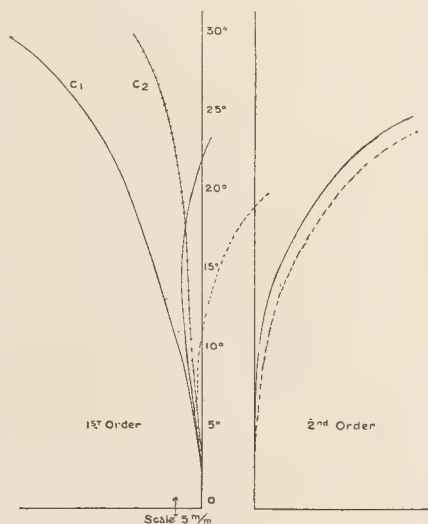


Fig. 6.

one of 100 mm. focal length and 45 mm. aperture, we note that the spherical aberration disc is not strictly proportional to the cube of the aperture when the aperture becomes large. In Fig. 2 a curve has been drawn showing the diameter of the circular zone of light corresponding to each point of the aperture for one special lens of 100 mm. focal length. The curve which would represent this aberration if it were strictly proportional to the cube of the aperture is also drawn.

For apertures of radius 10 mm. there is no appreciable difference; even at a radius of 15 mm. the difference is negligible, and even at 22.5—i.e., 45 mm. diameter or F 2.2—the difference is only about 1-10 of the actual aberration. But when such a lens is used in conjunction with a negative lens to produce an achromatic combination, the total focal length might be as great as 300 mm.; thus giving for the aperture ratio 1-6.6. At the same time an attempt will be made to compensate as much spherical aberration as possible by the other lens, but it will not generally happen that the differences which occur when the aperture is increased will be of the same amount so as to balance in the two lenses. The result will be that, as the aperture increases, a small residual amount of spherical aberration will be found. This aberration would, if the spherical aberration were



balanced at a low aperture, increase as the fifth power of the aperture; that is, there is an aberration of higher order, and this limits the possible increase of the aperture.

In Fig. 3 curves are drawn representing the diameters of the circles on the focal plane corresponding to the various zones on the stop. It will be noticed that in one curve the abscissa increases as the cube of the aperture, and in the other curve as the fifth power of the aperture; the . . . . curve represents the difference or resultant effect.

Instead of choosing the curves so that the spherical aberration is corrected for small apertures—i.e., before the differences of Fig. 2 begin to be important—the curves have been chosen so that the light through the outside zone comes to a point—i.e., the larger circles of Figs. 1c and 1d are equal but oppositely placed.

In this way the diameter of the patch of light has been reduced to about one-fifth of the value we would have obtained by correcting the spherical aberration for a small aperture.

This principle of leaving a certain amount of a defect for an intermediate value of aperture or field in order to compensate a defect, which increases more rapidly with the aperture or field, is of very great importance in designing photographic lenses. In fact, we leave small amounts of the first order aberrations for the sake of compensating some of the effects of higher order. It is the aberration of higher order that really limits the aperture for which we can correct, as any attempt to increase the aperture, say from F 5 to F 4, means an increase in the residual aberration in the ratio of ( $\frac{4}{5}$ )<sup>3</sup>, i.e., 3:1.

Thus we see that there are two defects of the nature of spherical aberration, one depending on the third power of the aperture ratio, the other on the fifth power; and, in the particular lens system I am using as an illustration, these defects have been arranged so that they compensate as nearly as possible. When we examine the effect of these two aberrations towards the edge of the field we find that they depend on the actual value of the aperture ratio at these places;

and as the actual aperture of the beam is diminished, owing to the oblique incidence the figures are no longer circular, but elliptical.\*

*Coma.*—When we examine the image formed by a single lens, we frequently notice a one-sided blurring out of the image, either toward the axis or away from it; this effect is due to the presence of the aberration of coma; and, in fact, any one-sided flare may be attributed to this defect, though in many cases it is the result of an error in centring rather than an aberration.

In the case of a single lens the coma effects will vary as the square of the aperture and the first power of the angular field, and even in complicated systems there will be an aberration of this type; though some of the defects will probably be due to aberrations which vary as the angular field and the fourth power of the aperture or the square of the aperture and the cube of the angular field. The effect of ordinary coma is very curious; a half zone on the objective will produce a complete circle on the plate, and the centre of this circle will be at a distance equal to its own diameter, from the spot produced by the centre of the aperture, as in Fig. 4. The final figure produced by all the zones is also shown in Fig. 4.

The coma of higher order which depends on the fourth power of the aperture is similar, except that the point corresponding to 0 is at a distance from the centre equal to  $\frac{2}{3}$  radius (Fig. 5). In combination with ordinary coma the whole effect is no longer so regular; and the larger circles are smaller or larger than they would be in coma of the ordinary type. The coma which arises from an extension of the angular field depends on two constants, and so may have various forms, but it is best considered after we have dealt with the aberrations of astigmatism and curvature of field, and oblique spherical aberration.

S. D. CHALMERS.

(To be continued.)

\* The circles are diminished in the ratio of  $\cos^2 \theta : 1$  in one direction and  $\cos^2 \theta : 1$  in the other for the first order aberration, and  $\cos^4 \theta : 1$  in one and  $\cos^4 \theta : 1$  in the other for the second order aberration.

## NON-ABRASION DEVELOPER FOR GASLIGHT PAPERS.

[The following article, in the "Photographic Times," deals with a formula for a developer of gaslight papers which shall avoid the occurrence of so-called "abrasion" markings. The writer points out that it supplies also a easy check on the misuse of the fixing-bath.—Eds. "B.J."] ]

RECENTLY, in one of the photographic magazines, there appeared a formula, which was given as the regular Velox formula for making glossy gaslight prints without abrasion marks. It recommended the addition of ten grains of potassium iodide to every fluid ounce of developer. Upon trial, the formula was found to differ widely, in the results obtained, from the regular Velox N.A. developer. Paper printed the usual length of time, with the same light, negative, and under exactly the same conditions that were used with the Velox N.A. developer, was found to develop very slowly and with a sickly yellow tinge. The final result, after fixing, showed an apparently much undertimed print with a rather rusty tone. Thereupon, a series of experiments was begun, with the object of finding a developer which gave the same results chemically and pictorially as the ready-mixed developers that cost 50 cents per 4oz. bottle.

### A Colour Test for Exhausted Fixer.

The desired end was soon reached, and the formula that is given in this article will be found to possess all the good qualities claimed for any developer now on the market. It entirely prevents abrasion marks, improves the tone of the finished print; but what is perhaps best of all, it furnishes the printer with unmistakable evidence of the complete fixation of the print. When the print comes up in the developer it assumes a canary-yellow colour, which in no way affects the density of the print. The print is developed to exactly the same apparent density as is done when ordinary developer is used. The yellow colour, not having any appreciable effect on the print's density, cannot confuse the operator, and becomes of great importance when the print is placed in the fixing-bath, as it completely disappears when the print is thoroughly fixed, and not before, leaving it a beautiful blue-black, the tone so much desired by all gaslight printers and so hard to get by amateurs. This colour, then, removes all the elements of uncertainty from the operation of fixing, and also gives warning when bath becomes exhausted,

as in that case it will not disappear until the prints have been placed in a fresh solution.

It is often necessary, in commercial work, to get gaslight prints out in the shortest possible time consistent with proper fixing and washing. By using this developer, the print may be taken out of the hypo as soon as the fixing is completed, thus saving many valuable minutes and making it certain that any deterioration of the print later will not be due to insufficient fixing, but to the washing. Even here the element of chance has been removed, as the Velox people publish a formula for testing prints to find when they are thoroughly washed. The formula is:—

Water (distilled) .....	8 ounces.
Potassium permanganate .....	8 grains.
Caustic soda .....	7 grains.

Drain the prints into a graduate and pour a few drops of the above solution in it. If the colour of the solution remains pink the prints are done, but if the water turns green they are not ready to come out of the water.

### Preparing Non-abrasion Developer.

Now to return to our developer. It has been found that it is good for glossy and matt surface papers alike. In fact, after using this developer once, one is not at all inclined to return to the plain developer as the non-abrasion has undeniable advantages over any developer that does not make it possible for the worker to accurately decide when the print is thoroughly fixed.

However much the results differ from the ordinary Velox developer, the composition differs but very slightly. The formula is:—

Water .....	10 ounces.
Metal .....	7 grains.
Hydroquinone .....	30 grains.
Sodium sulphate (dry) .....	110 grains.
Sodium carbonate (dry) .....	200 grains.
Potassium iodide .....	10 grains.
Potassium bromide (10 per cent. solution) ..	18 drops.

The chemicals should be dissolved in the order named. The developer should be used full strength. No additional bromide is necessary, as the solution contains all that is required for a properly timed print. If the tones are not all that they should be, the fault is due to either under or over exposure. It is important that the developer and the fixing-bath should both be kept as cold as possible during the summer months. The temperature of these solutions has a direct effect on the colour of the prints. Warm developer gives brownish-blacks, while cold developer gives blue-blacks.

HARRY S. HOOD.

#### PROFESSIONAL PHOTOGRAPHY AT MESSRS. HOUGHTONS LIMITED.

MANY who know the High Holborn establishment of Messrs. Houghtons Limited may not be aware that a department has recently been set aside in that building for the purpose of coming directly into touch with professional photographers, and of receiving their personal instructions and commissions. Messrs. Houghtons have placed this department on an upper floor, and made it inaccessible to the unauthorised customer, so that the professional may discuss his wants and such minor matters as discounts without the chance of his conversation being overheard by, say, one of his own customers—not such an improbable event in the more public retail shop of Messrs. Houghtons. A brief tour of inspection which we recently paid to this new sub-section of the Houghton business proved to us it was not simply a “move” on the part of the firm to heighten the effect of their claims to be professionals’ providers, but was in fact a step which needed to be taken to permit of adequate opportunity of inspecting the many articles of their own manufacture produced for the professional, and largely for him alone. Though the department is not many weeks old, it already contains an installation of enclosed arc lamps which a photographer can arrange to use with a view to testing the suitability of the lamps for his own studio or for the printing of his negatives. Of backgrounds and general studio accessories we saw a great variety, and were particularly pleased to find Messrs. Houghtons giving a prominent position to oak-panelling as a background for the portrait studio. Such a substitute for the painted ground allows the photographer to give a warm and home-like appearance to the studio in contradistinction to the chill with which the painted ground invariably strikes a sitter. The panelling

supplies quite enough gradations of light and shade to make it adaptable to the requirements of the portraitist, and £5 or £6 will purchase an area of it sufficient for the customary use of the studio.

In the way of apparatus, Messrs. Houghtons may justly claim to be peculiarly well able to supply the professional at first hand from their own factories, and an enumeration of their many specialities



A Corner of the Professional Showroom at Messrs. Houghtons Ltd.

would occupy a whole issue of this journal. Reference may be made, however, to a new model of studio camera of the firm's manufacture which can be seen in the professional department. Its solid construction, range of movements, and handsome appearance may be commended to the notice of the business photographer. In the matter too of other modern necessities for the professional, such as rapid



A View of Messrs. Houghtons Ltd.'s Recently Arranged Professional Department.



bromide printers, dry-mounting machines, and portfolio stands for the reception room, the purchaser will be able to see and select at his leisure.

One new and important line of goods is specially noteworthy on account of its economy of time and labour—we refer to the various forms of card index and vertical-file cabinets. These modern tools of the business house are peculiarly applicable to the business of the photographer, since they permit of a precise estimate of the orders in hand being made in a few moments, and the state of any given piece of work being ascertained at a glance. Those who recollect a recent article by Mr. Pirie Macdonald in our pages will be interested in hearing of the adaptation to British studios by Messrs. Houghtons of the system commended by him. A card is then allotted to each sitter on which is first entered the name and address, and the date for the sitting in the case of an appointment. The negatives taken all receive the same "sitting" number, but are further distinguished by *a, b, c, d*, etc., according to the position. The card then passes into the section for "proofs in hand," thence to "proofs out," and is then transferred to a section or special holder for "orders in hand," being finally filed with a complete record of the transaction. This is what the successful Mr. Macdonald calls "keeping tabs on your business," and the means provided for it by Messrs. Houghtons allow of it being employed in an amplified or restricted form, according to the needs of a business.

But it is in the choice of mounts more than any other requisite for his business that the professional will appreciate the opportunity of examining what is available, since even the best kind of illustration is as ineffective as verbal description in giving a useful idea of a mount. And Messrs. Houghtons can show an enormous variety, the majority of which, it may surprise some to hear, are of their own manufacture. We have spent the best part of a morning in turning over a collection of specimens and have nothing but commendation for the great variety of styles and the convenient way in which a specimen of each mount is mounted in conjunction with particulars of the prices and the colours, and other sizes and styles of lettering in which it can be obtained. The facility of choosing suitable mounts is certainly one strong inducement to pay Messrs. Houghtons a visit.

### AN EXPEDITION INTO EGYPT.

ARRANGEMENTS are being made in Berlin for a scientific expedition to Assouan, to start in January next, under the direction of Dr. Adolf Miethe and Dr. Kurlbaum. The party is going prepared to make a number of meteorological observations in the clear atmosphere of Upper Egypt, and photography, also colour photography, will figure largely in its programme.

Dr. Kurlbaum intends to make a number of photoheliometric observations with an apparatus of his own construction, and to undertake new measurements of solar constants.

Dr. Miethe and an assistant have drawn up a lengthy syllabus of work for themselves. They propose to study, by means of colour photography, the sunset phenomena, which in those latitudes are particularly regular and beautiful. For this purpose they will take two three-colour cameras, with lenses of different focal lengths, in order to register in colours the changes in the phenomena at frequent short intervals. It is hoped that in this way the typical course of the sunset will be registered more accurately than has hitherto been the case. Observations are also to be made on the ultra-violet of the solar spectrum at different positions of the sun. Previous work which has been done in this subject has been with apparatus in which the shortest wave-lengths (the absorption of which by the atmosphere was to have been measured) could not be defined with the necessary sharpness, owing to stray light in the spectrograph obliterating the finest detail on long exposure. The spectrograph to be used by Dr. Miethe is fitted with lenses of quartz and a prism of calc-spar, in order to obtain greater dispersion in the ultra-violet than with the customary quartz prism. In order to cut out stray light on long exposure, a second prism, identical with the first, but with its base crossed, is placed behind the first quartz prism, so that the resulting spectrum is formed by both prisms and the stray light completely removed.

Observations are also to be made on the lines of the zodiacal light,

for which a camera, mounted on clockwork mechanism, is to be used for keeping the instrument in parallelism during photographic exposures on the spectrum. By this means, in conjunction with a telescopic finder, it will be possible to make exposures of one hour in length. It is hoped that by the use of ultra-sensitive plates, the precise limits of the zodiac light and its alterations in size and shape will be fixed.

Still another apparatus is to be used for the study of the apparent flattening of the sun at the horizon, this latter, a description of telephoto lens, giving a very sharp image of the sun of one inch diameter. The apparatus is provided with fine adjustments for the simultaneous registration of the sun's altitude, and the photograph will thus allow of the measurement, from the horizontal and vertical diameters, of the horizontal refraction, the exact estimation of which would appear to be easy by this method.

The expedition will remain in Assouan for six weeks, and will be lodged in one of the disused forts.

### ARTIFICIAL LIGHTING.

(Abstract of a paper read before the Royal Cornwall Polytechnic Society, Falmouth.)

AFTER an historical survey, the author said his object was to show the provision science and commerce have made for those villages and country houses where coal gas and the electric light are not available. Proceeding he said, as early as 1872 carbide of calcium, from which acetylene gas is generated, was manufactured commercially by fusion of lime and carbon in the electric furnace. It was not, however, until the last few years that the apparatus for producing the gas was sufficiently perfect for general use. It has, however, now been very largely adopted for country house lighting, and indeed, although to a less extent, for village lighting. The apparatus is comparatively low in first cost. It consists of a generator wherein the gas is evolved, and a small gasometer which receives it, the action of which regulates the quantity of gas generated in proportion to the number of lights actually in use. There is in addition to this, generally, a purifier containing materials, the object of which is to separate the sulphur from the gas and so prevent smell. It is entirely automatic in its action. In use acetylene gas has all the advantages and disadvantages of ordinary coal gas, while in addition it has a very characteristic smell, and is more highly explosive. The apparatus is very simple, and anyone can with ordinary care manage it. The process of removing the used carbide is a very dirty one, and very nasty smelling. Still, in the evolution of gas-making plants, it has served a very useful purpose, and has been highly valued by many who have, and are still using it.

The most recent advance in gas-making plants which has been made is known as the Litz gas lighting apparatus. Its object is to produce gas for heating and lighting purposes, from petrol or other suitable spirit. It is a marked advance. The producing plant consists of a motor blower which drives a current of air to the carburettor containing the spirit, which has to be evaporated. From this carburettor the gas passes into a small gas-holder, the real object of which is to maintain a steady supply of gas to the burners. The amount of gas stored in the smallest possible quantity, the whole apparatus being entirely automatic, and produces the exact amount of gas required by the number of lights in use. The motor is of the hot-air type, the heat being obtained from the gas that is generated. It is one which will run for a week without lubricating or attention, the work it does being automatically regulated by the lights in use. The whole apparatus occupies only a few square feet of floor space, and may be placed in an outbuilding. The gas is the product of oil vapour and air in so dilute a carburetted mixture, that it can only be used with a patent burner in conjunction with a cotton or platinum mantle.

Owing to the quantity of air that is mixed with the oil vapour, there being 1.52 per cent. hydrocarbons, 98.48 per cent. air, the whole of this air necessary for consumption being actually carried in the gas-pipes, the result is that no air is taken from the room to support combustion. Further, the mixture of gas and the air is so complete, and the form of burner such that combustion is practically perfect. There is no trace in the after-products of the deadly carbon monoxide, and the percentage of carbon dioxide, for the reasons

above stated, is so small that it is declared to have no deleterious effect on the health—a claim which no coal gas or acetylene lighting system has ever before been able to successfully substantiate. The perfect combustion produced by the form of burner is such that there are no particles of carbon escaping into the air, which with the action of carbon dioxide has such serious effects on pictures, books, decorations, etc. This gas is found in practice not to produce blackening. Another distinct feature is that owing to the weakness of the gas, it cannot be lighted at a leakage, neither can it be exploded in the event of an escape into the room, as with the coal gas. Further, it has no unpleasant smell. It also has a high efficiency for heating purposes. Its last claim is that it is enormously cheaper than any form of gas lighting for equal illumination. The manufacturers claim that with spirit at 1s. per gallon, 1,000 candle power hours of light are produced for 1½d., whereas with the best form of incandescent gas lighting it costs 3d. The writer from a considerable practical experience does not hesitate to confirm these claims. A plant is on view in the exhibition, and its properties can be clearly demonstrated.

The efforts of inventors have not been lacking in their desire to make electricity suitable for the use of isolated residences or mansions. The latest improvement in this direction has been that gas is generated on the spot, and used in the gas-engine, the most popular form being that known as suction gas. The advantage of this has been, while somewhat increasing the first cost, to enormously reduce the lighting cost, as will be seen from the table given below, and the fact that makers claim to produce a horse power of energy for one-tenth of a penny per hour, which is roughly equal to ten 16 c.p. lights, or put in another form, one hundred 16 c.p. lights for one hour for one penny. The generating apparatus is very simple; indeed, it is the simplest part of the whole plant. The plant, however, which can be seen in the hall is entirely outside the means of a very large number of people. Within the last two or three years the petrol motor, of a somewhat similar form to that used in motor cars, has been applied to the production of electric light, by being used in combination with a dynamo. Apart from its distinctive feature of high speed, which reduces the size and weight of the plant, as well as reducing the cost of the dynamo, the running of the engine is so simple that it is not found objectionable to use the engine for running the lights direct, a small battery only being provided to supply the lights necessary when the household have retired to bed. These engines run at considerably higher speed than the ordinary gas-engine, so that the dynamo can be coupled direct to it without the use of a belt, and without very considerably increasing the size of the dynamo. The effect of these characteristics has been to reduce the weight of the plant as compared with a similar gas-engine installation to probably one-sixth, and the floor space to an equal extent.

Then again, this engine is so easily started and stopped, requiring so little attention, and making comparatively little noise, that we can dispense with the large storage battery, as the engine may be allowed to run till the users retire to bed, the battery then supplying the night lights. Perfect steadiness can be obtained when running direct in this way by a proper arrangement of the battery, so that it will, while being charged at times when only a small number of lights are being used, have the effect of taking up the extra volts of the dynamo, or actually supplying the lights should the dynamo actually drop down or a greater demand be made than it can easily supply. This plant properly fitted and complete is found to answer all requirements where a reduced outlay is desirable, and its effect has been to reduce the first cost to anything from one-fourth to one-sixth, as compared with the gas or oil engine plant before described.

I shall hardly obtain my object without giving figures which will enable one to compare the costs of lighting by any or all of the apparatus to which I have referred. The true value of such figures is, however, largely affected by the distinctive characteristics of the lights to which they refer, such as attendance necessary to produce the light, the first cost, the deteriorating effect on the object in proximity to it, as well as on decoration, thus adding to the real or actual cost; at the same time not forgetting the possible incidental increase of cost due to the more or less danger from fire and explosion of the system, more or less hygienic perfection. Most of the figures here given are results of experiments of leading scientists, or from the tests made by independent professional engineers at the instigation of the manufacturers. I have given these figures in the form of the

price per candle power one-thousandth of a penny, as being the most convenient form:—

Giving cost per candle power per hour in thousandths of a penny.

	Thousandths of a 1d. per candle power
1. Paraffin at 8d. per gallon, common lamp.....	55
2. Paraffin at 8d. per gallon, modern lamps .....	9
3. Candles, composite, at 8d. per lb. ....	160
4. Gas, Bray's burners, gas at 3s. per 1,000.....	11.25
5. Gas—75 p.c., Welsbach, averaging 48 c.p.....	3.125
6. Electricity, at 4d. per unit, 16 c.p. lamp .....	14.28
7. Electricity, arc lamp, 500 watts, 875 c.p .....	2.37
8. Acetylene gas, ½ cubic feet burner of 24 c.p., 1,000 feet, costing 40s.....	10.0
9. Litz spirit gas, spirit 6d. per gallon .....	1.0
10. Litz spirit gas, spirit 1s. per gallon .....	1.5
11. Electric incandescent tantalum lamps .....	8.6
12. Electric mercury vapour lamp .....	2.04
13. Electric flame arc lamp .....	0.92
14. Petrol dynamo, incandescent lamps .....	6.05
15. Suction gas engine dynamo .....	0.58

E. E. ALGER.

## Exhibitions.

### SOUTHAMPTON CAMERA CLUB.

OWING to the darkness which enveloped the neighbourhood of London in Wednesday in last week, the following concluding part of the report of the Southampton Exhibition was delayed in transmission:—

As usual, the "open" competitive classes have been well supported by the exhibiting public, and in one or two instances the newer school of exhibitors have forced recognition from the judge by superlatively beautiful work, although for the most part the old-time winners have well sustained their reputations.

The Misses Aitchison have each two exhibits of excellent quality, especially noticeable being "The Ghetto—Prague," and "Houses of Parliament." Mr. Herbert Bairstow shows four good prints exquisitely mounted, and Mr. F. W. Beker's two pictures are fine pictorial renderings of topographical subjects—a naval review and a schooner-rigged yacht. Mrs. Barton's "Little Paul" takes a well-deserved award, but her two other prints are of almost equal merit, and Mr. W. H. Bullock has a splendid mist effect in "Hazy Morning on the Medina." Mr. Graystone Bird's slides are up to that worker's high standard, and the same may be said of the slides by Messrs. Thomas Carlyle and W. A. Clark. W. Coats, jun., sends a picture of the great liner "Mauretania" leaving the Tyne, Mr. R. L. Cocks shows a fine woodland picture, entitled "In the Pinewoods," and Mr. and Miss Crouch are also represented by good work. Mr. Henry J. Comley is rightly regarded as one of the world's leaders in "colour" work, and "Strawberries," which takes an award in the pictorial class, is perhaps the best "three-colour" picture that has yet been produced. The Rev. T. A. Cooper wins, in the "Hampshire" class with "Pictures," a well thought-out genre study, and A. K. Dannatt makes a decided hit with "The Early Boat," though "The Close of Day" runs it very close for popularity. Mr. Dan Dunlop exhibits a magnificent head study, "The Old Professor," and Mrs. R. Dunlop, H. M. Haines, C. J. Hankinson, and the Rev. R. E. V. Hanson are responsible for several fine prints. Mr. C. H. Hewitt has received an hon. mention for "Flecked with Sunlight," which, with "Water Meadows," another picture by the same artist, is quite one of the gems of the "show." Mr. E. T. Holding's best picture is unquestionably "Mother's Veil," one of his inimitable child studies; and Miss Brenda Johnson exhibits a most attractive, albeit remarkably weird, figure study which rightly bears the title "Fantasie." Mr. J. B. Johnston, Colonel Johnstone, and Messrs. G. A. Jones and Fred Judge must be highly commended for some excellent work, and two sets of beautiful slides have been sent in by Mr. Ellis Kelsey. Mr. H. Mortimer Lamb, a Canadian worker, shows three fine portrait studies, and the remarkable professional work of Herr R. Dührkoop



has proved to be as popular with the judge as with the general public, for the portrait of "Lady A. v. F." has been granted one of the principal awards. Mr. Arthur Marshall's "Pastoral" is another picture that has gained for the artist one of the coveted rose-bowls, and though it has not obtained the same hall-mark of excellence, "Nocturne" is equally popular with visitors to the exhibition. Messrs. S. E. Max Mills, Robert Marshall, and E. W. Pannell are all strongly represented; Mrs. E. Peake shows a fine technical rendering of "Clematis"; and Mrs. Ambrose Ralli sends six frames of great interest, the best being, perhaps, "Cologne." Mr. V. E. Morris, with an award, and Dr. G. H. Rodman, with an honourable mention, have both received distinction for their splendid lantern slides, whilst other awards and "mentions" in the lantern slide class go to Messrs. G. J. T. Walford, Alfred Taylor, and A. G. Thistleton. Miss Hilda Stevenson also takes an award for "The Last Chapter," an exquisite picture in the new oil process, although little, if any, better than the "Study in Oil," Miss Stevenson's other exhibit.

Mr. L. J. Steele takes an award in the Hampshire class with his "Garden of Allah," which is only too well known. It is a great pity that the undoubted merit of this picture prevented the judge from passing it over, for this is the third occasion upon which a print from the same original negative has been exhibited in competition at Southampton. Exhibition committees should frame a rule to preclude such work from competition.

Honourable mentions in the "open" class go to H. Y. Summons and Miss Agnes B. Warburg, who maintain a high class of work; Mr. Alfred Taylor receives an award for his splendid natural history work in "The Life Story of a Kingfisher"; and good landscape, genre, and still-life work is exhibited by Mr. F. A. Tinker, especially noteworthy being "Whitby," "Binding the Wheel," and "Honesty."

Some interesting Indian pictures are contributed by the Tuberaj of Tippetah; and other exhibitors we may note in passing (for space will not permit of a detailed account) are Miss Bolton, Norman L. Craig, Geo. Easonsmith, and Dr. Grindrod; G. H. Capper, F. C. Hayes, Dr. A. T. Lakin, J. Maddison, C. W. Pearson, W. J. Penrose, Mrs. E. Perry, Walter Selfe, Miss Kate Smith, Mrs. Sutherland, A. J. Taylor, P. G. Terras, A. W. Ward, and Harrop P. Wight.

The loan collection comprises examples of the pictorial work of J. H. Anderson, J. Craig Annan, Harold Baker, Mrs. G. A. Barton, Walter Benington, A. H. Blake, W. R. Bland, David Blount, Archibald Cochrane, Reginald Craigie, W. Crooke, Miss Constance H. Ellis, F. H. Evans, A. Horsley Hinton, Fredk. Hollyer, Chas. Job, Alex. Keighley, Arthur Marshall, F. J. Mortimer, Cavendish Morton, J. C. S. Mummary, the late H. P. Robinson, F. M. Sutcliffe, W. Thomas, J. B. B. Wellington, and J. M. Whitehead. Some of the seventy-nine pictures are old favourites, others, again, are this year's work, but one and all are masterpieces of the different schools of photographic art, and the names of the artists are alone sufficient to show that Southampton has, in this loan section, perhaps the finest collection of British work that has ever been gathered together. The "colour" section fully shows what strides have been made in this branch of photography, and a fine lot of work has been contributed by Miss Acland, E. T. Butler, Henry J. Comley, George E. Brown, A. W. Everest, and A. G. Rider; and also by the Autotype Company and the Rotary Company in their respective processes.

It is exceedingly gratifying to Mr. Kimber and the local committee to know that Mr. Horsley Hinton, who judged the exhibition, thought most highly of the way the pictures were arranged and hung; and it is a happy augury for the general success of the show to hear nothing but praise for the very thorough and careful judging, which has given complete satisfaction on every hand.

**THE PHOTO-SECESSION.**—An exhibition of photographs by the members of the Photo-SeceSSION is being held at the Little Galleries of the Photo-SeceSSION, 291, Fifth Avenue (between Thirtieth and Thirty-first Streets), New York, closing December 30. The Galleries are open from 10 a.m. till 6 p.m. daily, Sundays excepted. Between 10 a.m. and 12 a.m., and 2 p.m. and 3.30 p.m., Autochrome colour photographs by members of the Photo-SeceSSION are being shown.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been made between November 11 and 16:—

**CINEMATOGRAPHS.**—No. 25,074. Improvements in and relating to cinematographs. Robert Thorne Haines, Chancery Lane Station Chambers, London.

**PROJECTION BANDS.**—No. 25,165. Metallised photographic bands for projection by reflection. Edouard Dupuis, 52, Chancery Lane, London.

**COLOUR SCREENS AND PLATES.**—No. 25,396. Improvements in the manufacture of screens and colour-sensitive plates, films, or the like, for photographic "process" printing, and like purposes. John Fuller Spong, 18, Southampton Buildings, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**SELF-DEVELOPING PLATES.**—No. 24,667, 1907. The invention relates to the application of developer to the back of a plate or other sensitive surface. Among the claims are:—

1. Separation of the acid and alkaline parts of the developer by a neutral or acid, paint-like substance.

3. The spreading of the developer on a separate sheet.

4. Distributing the acid substance of the developer at the edges of the plate, with or without tinting or colouring.

6. The use of hydroxylamine and an ammonium salt in self-developing plates.

7. The use, with the acid constituents of the developer, of acid, sulphites, or acid and sugar-like bodies, either separately or together.

8. The use of a bicarbonate as the alkaline ingredient of the developer.

As an example of the mixtures employed the following may be given:—

The acid constituent A may contain the reducing agent:

Metol ..... 1 grain.

Hydroquinone ..... 2 grains.

Milk sugar, mannite, and other sugar like preservative ..... 1½ "

Bisulphate of soda or a bisulphite ..... 1½ "

Starch partly boiled and partly in grains 6 "

Water in sufficient quantity to give a paint-like consistency on a thorough incorporation or grinding of the ingredients.

Instead of metol and hydroquinone, other reducing agents may be employed.

The alkaline accelerator B may contain the following ingredients:—

Carbonate of soda or bicarbonate of soda 10 grains.

Gum arabic ..... 2 "

Water in sufficient quantity to give a paint-like consistency to the mixture upon grinding.

The inert or slightly acid separating material C may contain the following ingredients:—

Sulphate of lime or sulphate of baryta ... 2 grains.

Gum arabic ..... ½ grain.

Water in sufficient quantity to form a paint-like mixture on grinding.

The above-mentioned quantities of A, B, and C respectively are such as are suited for coating a quarter-plate surface, or a surface measuring about 3in. by 4in.

When the separating layer, C, is to act not merely as an inert buffer between the compositions A and B, but also as a definite chemical barrier to intercept the passage of any alkali from the coating B to the coating A, the addition of a small amount of an acid to the composition, C, is desirable—for example, from about one-tenth to one-fifth of a grain of such an acid as tartaric, citric,

or the like, but if desired one-fourth of the sulphate of lime or baryta may be replaced by bisulphate of lime, making the composition sulphate or lime or baryta  $1\frac{1}{2}$  grains, bisulphite of lime  $\frac{1}{2}$  grain, gum arabic  $\frac{1}{2}$  grain, water in sufficient quantity.

According to the modifications shown in Figs. 2 and 3, the distribution of the coatings is such that the reducing or acid constituent, A, is brought near the margin, and the alkaline constituent, B, occupies the main area of the plate, but A and B are separated by an intercepting material, C, as before. One of these marginal arrangements is often desirable in the case of films or paper. When, however, the marginal material consisting of the acid constituent is brought to the face of the sensitive material, as explained above, the support and sensitive film then act as a means of separating the two constituents of the developer.

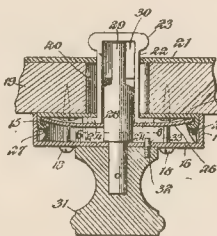
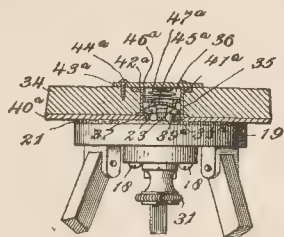
In making the improved separate sheet bearing the developing materials it may frequently be desirable, instead of painting or spreading the materials in sections, areas, strips, or margins on the same side of a sheet of paper or cloth, to employ an impervious film or sheet as a separating medium and spread the acid constituents of the dry developing preparation on one side and the alkaline constituents on the other side. If thin paper be employed it may be soaked in a gelatinous solution, the gelatine being then made insoluble by a chromium salt or formaline and varnished with celluloid varnish on the side adjacent to the acid composition. Coating separate sheets and cutting out the requisite portions and attaching them together is a convenient alternative to sheets covered by separate areas. The back of the sensitive surface, plate, film, or sheet may be coated uniformly or all over with one of the two elements or constituents of the dry developer—namely, the acid constituent or the alkaline constituent—the other constituent being on a separate sheet of the kind already mentioned.

In all cases the alkaline constituent must be in such abundance as to thoroughly neutralise or more than neutralise the acid constituent, and any acid in the intermediate composition.

In practice ordinary bicarbonate of soda or a mixture of bicarbonate of soda with bicarbonate of potash or with bicarbonate of lithia and made or mixed up to a convenient consistency with sugar, gum, or the like serves admirably. Thomas Bolas, 60, Grove Park Terrace, Chiswick, London, W.

**TRIPOD ATTACHMENTS.**—No. 695, 1907. This invention relates to means for fastening two articles together of the type wherein a bolt carried by one article is adapted to enter a recess provided in the other, such bolt being split and adapted to be expanded within the recess so that a head provided on the end of the bolt will engage with a shoulder formed in the recess and thus hold the two articles together.

The object is to provide an improved form of connecting device whereby a camera can be quickly and effectively secured to the tripod, and be as readily detachable therefrom. Under normal



conditions or when the structure is not in use, the shank 28 is turned so as to permit the spring plate 26 to act upon the bolt sections and hold them in closed condition. The head is then small enough to pass into the lower end of the collar 35 in the bed 34 of the instrument. Consequently, to secure such instrument to the tripod, it is only necessary to place it upon the tripod head, allowing the head of the bolt to pass into the collar by forcing the closure 45a inwardly against the action of the spring 47a.

When so positioned, a quarter turn of the knob 31 rotates the cam 29, and separates the head sections 23 against the action of the spring. When so separated, said head sections 23 are engaged over the retaining shoulder 38a. It will be evident that this is a quick action device, and that it constitutes an effective connection between the two parts. Moreover, the bolt sections are not only separated, but are held in the separated relation, obviating any danger of the connected parts becoming uncoupled. Furthermore the instrument can be rotated on the tripod or placed thereupon without regard to its direction, and without in any manner affecting the security of the connecting means. Nathaniel Bennett Stone, Outlook, County of Yakima, Washington, U.S.A.

**PRINTING FRAMES FOR FLEXIBLE NEGATIVES, ETC.**—No. 1,359, 1907.

The device consists of a front sheet of celluloid and a flexible opaque backing sheet, each sheet having end transverse pieces of wood, the sides of which are plane and without tongue or groove. The end pieces of the backing board are adapted to fit within the space formed by the end pieces of the front sheet, and to lie parallel and in close juxtaposition the one with the other. Means are provided for bending both sheets. Charles Jennings Hillman, No. 6, Dyers' Buildings, Holborn, London.

**COLOURING CINEMATOGRAPH FILMS.**—No. 9,306, 1907. The invention

relates to a machine which consists of three special arrangements, the concordant movements of which effect the mechanical colouring of the films by means of perforated or cut-out bands of which the number corresponds successively to those of the colours which are to appear on the film.

The first arrangement consists in making the bands to move directly above and in contact with the film to be coloured. These two elements, the film and the cut-out band being displaced together by reason of their common lateral or other perforations. The second arrangement is a number of colour-feeding devices, by which feeding is produced in an intermittent manner so as to colour successively a certain number of images before the colour is exhausted.

The third arrangement is represented by a combination of an upper mechanically moved brush with a lower fixed brush which have for their purpose the taking of the colour by the one above and the discharging from itself of any possible surplus on the one below, as well as equalising the colour taken at the same time then afterwards following a continuous or alternate movement of rotation, distributing the colour used on the projection film through the cut-out parts of the perforated band. R. W. James for the Compagnie Générale de Phonographes, Cinématographes et Appareils de Précision, 5, Rue Richempanse, Paris.

**FOCAL-PLANE SHUTTERS.**—No. 2,485, 1907. The invention relates to focal-plane shutters of the type in which both the blinds pass during either exposure or re-setting from a closed position at one fixed point to a closed position at another fixed point independent of the size of the aperture between their contiguous edges.

In shutters of this type one of the blinds (the "upper") is wound on to a roller located above the lens aperture, and this blind has tapes attached to the two sides of its lower edge, the other ends of which are attached to a spring roller below the lens aperture; the other blind (the "lower") is attached to a spring roller below the lens aperture and has tapes attached to the two sides of its upper edge which tapes are wound on to a roller above the lens aperture. The two rollers above the lens aperture are geared each to one of two gear wheels concentrically mounted on the same shaft on the side of the shutter case, so that according as the gear wheels are positioned with relation to each other at any given time, so are the blinds positioned with relation to each other and the space or opening (if any) between them is determined, thus regulating the exposure.

Hitherto in apparatus of this kind there have been several drawbacks, one of the most important of which is that the position of the two blinds in relation to each other is liable to alter during the process of exposure; this being caused, for example, by the lower blind travelling faster than the upper one, in which case the space between the blinds will be increased. It has hitherto been found impracticable to remedy this defect by supplying the lower rollers (i.e., the rollers below the lens aperture) with springs of different strengths, and making the stronger spring act as the operative one in effecting the exposure, as this is unreliable in



working; but according to the invention the two blinds are so connected together otherwise and more securely than by friction during the exposure that it is impossible for the space between them to vary in any way; whilst the said connection is released at the end of the exposure to allow the edges of the blinds again to come together (i.e., the lower edge of the upper blind to overlap the upper edge of the lower blind) so that on re-setting the shutter the blinds will be drawn across the lens aperture in such closed position. Arthur Lewis Adams, 26, Charing Cross Road, London.

### New Trade Dames.

**PROEX**.—No. 296,760. Photographic cameras and apparatus included in Class 8. John J. Griffin and Sons, Ltd., Kemble Street, Kingsway, London, W.C., photographic apparatus and paper manufacturers. October 3, 1907.

**BRANORA**.—No. 297,566. Cinematographic apparatus. Charles Urban, 48, Rupert Street, London, manufacturer. October 30, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### Development of Autochromes with Three Solutions.

I have been experimenting for some time (writes Mr. A. J. Woolley in "Photography") with a view to reducing the number of solutions used in development of autochromes, and have succeeded in bringing so to a very close degree. Probably a few more experiments will perfect the process.

The developer used is rodinal. Pyro-alcohol ammonia is very wholesome on account of its rapidly oxidising properties, and also on account of the great tendency to air-bells.

Briefly then, I exposed two plates for the same time, developed as usual. Then I took two drams of rodinal in twenty-four ounces of water—1 in 12—and developed for six minutes at a temperature of 60 degrees. I then poured the developer back in the saucer, reversed the image as usual, turned up the light and poured the original rodinal developer. This I let work for six minutes, fixed the plate, and fixed as usual. When dry I compared the two plates. Result good. The rodinal-developed plate was not quite so brilliant as the other, but in all other respects quite as good, and it did not seem to require intensification. The slight loss of brilliancy is due to faulty exposure. The light fell slightly while exposing the second plate, so I think if a little more exposure had been given and the developer had been allowed seven minutes instead of six the two plates would have been equal. At any rate, if the original-developed plate had been developed by itself, and I had not another plate for comparison, I should have been quite satisfied with it, the rendering of colour being excellent.

### Mounting with a Ruling Pen.

A ruling-pen is required (writes Mr. A. E. Tendell in "The Photographic Monthly") and a tube of secotine. Both may be purchased for a shilling. A short flat rule and a basin of water and sponge are also required.

Squeeze a little of the secotine into an egg-cup and thin with a little water until of the consistency of cream. Charge the ruling pen with some of this mixture by means of a fine camel-hair brush. Dip a bit of stick sharpened to a fine point. The prints being already trimmed and lying in a pile face down, take the top one and along the whole length of the four back edges rule a fairly thick line under one-eighth of an inch thick, using the rule as a guide. The line of adhesive is to extend to the extreme edge of the print, and must not be kept even a little way in. If the adhesive does not flow it is too thick and must be thinned; but beware of making it too thin, or the prints will not stick. When all are ruled in this manner let them dry before proceeding. When dry, lay the print before the mounting is done in this way. With the sponge and water damp the face of the mount, and while still wet lay the print (face up, of course) quickly in position; a piece of

clean blotting paper is then placed over it, and the whole placed under light pressure.

Do the other prints in the same manner, placing one on the other as they are completed and maintaining an even pressure as the pile grows. In half an hour or even less they will be dry.

## New Books.

"The A.B.C. Account Book for Retail Businesses." Published by J. McQueen and Co., Moat Road, Leicester.

The thousands of professional photographers whose knowledge of bookkeeping is limited, or who have not the time to devote to the elaborate method of double entry, should welcome Mr. J. McQueen's system, which one might almost term a short-cut to bookkeeping, whilst at the same time giving reliable results. The system adopted appears to be the acme of simplicity and conciseness. The account book, which is now enlarged and in its fifth edition, is divided into sections ruled and arranged to extend over a period of twelve months. It can be commenced at any time during the year, and enables a person to tell at once exactly how his business stands. The price of the book, strongly bound in half leather, and containing copious explanatory notes, is 7s. 6d. post paid. A set of examples, exhibiting in detail one year's working of the system, is included free of charge with first orders, whilst a prospectus explanatory of the system is obtainable free.

"Toning Bromides." By C. Winthorpe Somerville. (Second Edition.) London: Dawbarn and Ward, Ltd. 1s. net.

The revised edition of this useful little book contains a multiplicity of toning formulæ which are sorted out into three sections—verified formulæ, selected formulæ, and miscellaneous formulæ. This is a useful mode of classification, as it enables us at once to distinguish the formulæ that the author specially favours and has personally tested from the rest.

In some passages we think the author is somewhat astray, as, for example, when he asserts that with platinotype you can get a doubtful apology for a sepia, but only with a tremendous amount of uncertainty. Then again, in speaking of washing the prints, he suggests that if washing in running water is inconvenient, frequent changes, extending over about double the time, should be given. We would rather say that washing in frequent changes is far more rapid than washing in running water. Another slip is the statement that citric acid must not be kept in too concentrated a solution, otherwise a fungous growth occurs. As a matter of fact, such a growth appears rapidly in a weak solution, such as 10 per cent., while a strong 50 per cent. solution may be free from it for an indefinite time.

Many of the formulæ in this book are probably unknown to a number of workers, hence it should prove interesting as well as useful to those inclined to experiment.

**HELD OVER.**—Owing to pressure on our space a number of reviews of apparatus and materials, news items, etc., have to be held over. These include a description of several new printing papers and a number of news paragraphs of special interest, and will appear in our columns next week.

**THE CHRISTMAS NUMBER** of the "Christchurch Weekly Press" is an excellent example of the continued progress which is taking place in the journalistic world of New Zealand. It is now some years since the first copy of this publication's Christmas Number reached us, and during that period we have noted, year by year, the steady improvement, both of the text and illustration portions of its pages. The illustrations of the 1907 issue, however, are of an exceedingly high standard, and the printing of both text and illustrations might put to the blush that of many similar publications issued in this country. The cover is an excellent example of colour printing, and the whole of the contents, both letterpress and illustrations, gives the English reader a good idea of New Zealand scenery, industries, and domestic life. It is accompanied by a coloured illustration of The Wharfs, Wellington, 30 inches by 15 inches in size. The price of the whole is one shilling.

## New Materials.

**"LILYWHITE" CHRISTMAS POSTCARDS.**—A series of greeting postcards suitable to the Christmas season has been sent us by the Halifax Photographic Company, Halifax. They are issued in the glossy, gas-light, and P.O.P. of the Lilywhite band, and are obtainable with a selection of four different mottoes. An illustrated circular, posted by the Halifax Company on application, shows the designs, and quotes prices for these cards.

**SCALOID AUTOCHROME CHEMICALS.**—A few weeks ago we reviewed a very compact and useful set of Autochrome chemicals, in fluid and scaloid form, sent out by Messrs. Johnson and Sons, of Cross Street, Finsbury. In the review we had to draw attention to a mistake in the instructions relating to exposure. We now understand that the instructions have been reprinted and the mistake rectified. The contents of the case have also been modified as regards the frilling preventative. Instead of the cake of paraffin, which was intended to be melted so that the edges of the plates could be dipped into it, Messrs. Johnson now enclose a tin of waxing paste. This is applied by taking up a little on a soft cloth and rubbing it well into and over the edge of the plate for a space of  $\frac{1}{4}$ -inch. It is then removed before varnishing by the simple process of wiping it off with a soft rag. This is a more simple process than the other, and though there is some doubt whether Autochromes are now liable to frill, Messrs. Johnson and Sons are to be commended for making their outfit as complete and convenient as possible.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, NOVEMBER 29.

Sutton Photographic Club. "The New Colour Photography." A. P. Hoole.  
Aberdeen Photographic Association. "Stromoll Printing." Wm. Mackay.  
Wakefield Photographic Society. "Rotary Carbograph Paper."

#### MONDAY, DECEMBER 2.

Scarborough and District Photographic Society. "Y.P.U. Portfolio of Prints."  
Bradford Photographic Society. "Rambles in Upper Wharfedale." Thomas Ryder.  
Catford and Forest Hill Photographic Society. "Pictorial Photography." Rev. F. C. Lambert, M.A.  
South London Photographic Society. Lecturette Competition.  
Harrow District Photographic and Scientific Society. "Autochrome Plates." W. G. Cullen.  
Luton Camera Club. "Rotary Carbograph Paper."  
Equitable Photographic Society (Oldham). "Photographic Chemicals."

#### TUESDAY, DECEMBER 3.

Royal Photographic Society. "The Florence Heliographic Plate" (The Warner-Powrie Process.) John H. Powrie.  
Sheffield Photographic Society. "Ozobrome." Thomas Manly. Photography Competition Prize Lantern Slides.  
Rotherham Photographic Society. "Birds in the Garden." Rev. Bernard Butler, S.J.  
Stafford Photographic Society. "Elementary Pictorial Photography." Herbert A. E. Hay.  
Kelisley and District Photographic Association. "Through the Canadian Rockies." H. Day.  
Worthing Camera Club. Carbon Demonstration by F. J. Stedman, with the Illingworth Tissue.  
Wishaw Photographic Association. "Photographic Chemicals."

#### WEDNESDAY, DECEMBER 4.

Bristol Photographic Club. "Lenses." R. W. Thomas.  
Mill Camera Club. "Lantern Slide Making by Reduction." W. Mansfield and W. Swindon.  
Fuln Photographic Society. "Exhibition of Prints and Slides."  
Borough Polytechnic Photographic Society. "The Photographic Lens." C. P. Gozard and the Tasmanian Society's Slides.  
Leeds Camera Club. "The Platinotype Process." The Platinotype Co.  
Everton Camera Club. "Among the Dutchmen with a Camera." J. T. Ferguson.  
Central Technical College Photographic Society. "Photomicrography." G. Roche Lynch.  
South Suburban Photographic Society. "Photography in Natural Colours." T. K. Grant, F.R.P.S.  
Coventry Photographic Club. Amateur Photographer (1907) Prize Slides.  
G.E.E. Mechanics' Institute Photographic Society. "Rotary Carbograph Paper."

#### THURSDAY, DECEMBER 5.

Rodley, Farsley and Calverley District Photographic Society. "Microscopic Photography." Wm. Robertshaw.  
Wimbledon and District Camera Club. "After-treatment of the Negative." E. W. Taylor.

Tunbridge Wells Amateur Photographic Association. "Scaloids." Johnson and Sons.  
Bath Photographic Society. Practical Evening.  
Stenheim Club. "Oil Processes." G. E. H. Rawlins.  
Liverpool Amateur Photographic Association. "The Theory and Practice of Time Development." W. E. Slater.  
L.C.C. School of Photo-Engraving and Lithography. "Gradation of Half-Tone Negatives." C. E. Kenneth Mess.  
Handsworth Photographic Society. Amateur Photographer Prize Slides.  
Widlotherian Photographic Association. "Irish Life and Character." H. W. K.  
Longton and District Photographic Society. Photography Prize Slides.  
Richmond Camera Club. "Reducers." G. Ardaseer.  
North West London Photographic Society. "Rotary Carbograph Paper."  
Baltham Camera Club. "Photographic Chemicals."

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held November 26, the Rev. F. C. Lambert, M.A., in the chair. A lecture on the elements of photo-micrography was delivered by Mr. F. Martin-Duncan, who interestingly explained a number of points in the photographic use of the microscope, and showed a number of examples, including three autochromes, illustrating the methods recommended.

CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.—The first general meeting of the session was held on Wednesday, November 20, when Mr. G. W. O. Howe took the chair. Mr. Illingworth, of the well-known firm of the same name, gave a demonstration entitled "The Three Z's" (Zigas, Zelvo, and Zigo), which was much appreciated by all present.

SOUTHAMPTON CAMERA CLUB.—Meeting held November 25, G. E. H. Rawlins lectured on oil printing. Mr. Rawlins first laid down the procedure of sensitising the print, which consisted of specially coated paper the gelatine coat of which was of extra thickness. This prepared paper was sold in an insensitive condition, the bichromate solution by which it was sensitised was one of five to five per cent. Sensitising was effected by a two minutes immersion of the paper, which became thoroughly sensitised without being thoroughly dry. The exposure speed when under the negative was eight times that of ordinary P.O.P., and a faint image was obtainable similar to platinum. After exposure the print was to be soaked thoroughly in water, anything up to twelve hours being permissible, the sensitiveness of the print vanishing immediately it was immersed. Mr. Rawlins proceeded to take a print out of the sensitising bath and then laid it on wet blotting-paper, it being essential that it should be kept wet while the paper was being pigmented. This pigment, which is specially prepared, was then worked into the print, the principle being that the high lights rendered insoluble by exposure rejected the oily pigment, while the shadows in the varying tones accepted it. The pigment was imposed by stiff-haired brushes by two methods, one a percussion action which Mr. Rawlins called "hopping," and which was done by a spring hand the other by dabbing, a firm stippling pressure. It was advised that the image be faintly produced by the previous method, the pigment being obtained from a palette, then the shadows made in by the heavier touch, and the varying tones of the picture produced by the hopping method, the effect of which was to take or put on the pigment according as the brush was charged or the touch light or heavy.

Mr. F. E. GERMAN has taken over the business of Mr. H. G. May, photographic studios, 11, Hill Rise, Richmond, Surrey.

HOUGHTONS v BUTCHERS.—The football match between the teams of Messrs. Houghtons Ltd. and Messrs. W. Butcher and Sons Ltd., took place on Saturday last at Messrs. Butchers' ground, Highams Park. The game resulted in a victory for the "Enslaved" team (Messrs. Houghtons Ltd.) by two goals to nil.

ROYAL ZOOLOGICAL SOCIETY OF IRELAND.—In the recent photographic competition instituted by the above society, the silver medal for the four best pictures taken in the Gardens was awarded to Mrs. Helena C. Sutherland of Clogheen, and the bronze medal was open to amateurs under the age of eighteen, was gained by John H. C. Gainford, of Bray. It is hoped that next year there will be a larger number of competitors, especially in the bronze medal class, the winners in which obtain a number of free admissions during the year.



## Commercial & Legal Intelligence.

**A SURBITON BANKRUPT.**—Alfred Augustus Woodward, director of a public company, and photographic postcard dealer, of Effingham Road, Surbiton, and lately carrying on business as a photographic postcard dealer at Clacton-on-Sea. At the first meeting of the creditors interested under this failure it appeared that the receiving order was made on November 5 on the petition of a creditor, and the Official Receiver stated that the debtor had not yet filed his statement of affairs. The debtor claimed to hold the lease of a shop at Clacton-on-Sea, under which he could close up the shop in the winter and re-open it in the summer months, but whatever interest the debtor had in the lease would pass to the trustee under the bankruptcy. If it was found that there was a goodwill attached to the shop the trustee would have no difficulty in disposing of the lease. He had requested the debtor to file certain accounts, and if the creditors decided to adjourn the meeting he would no doubt be able to give them further information at the adjourned meeting. After further discussion it was decided to adjourn the meeting for a week.

**A BOSCOMBE BANKRUPTCY.**—John Harris, of 75, Haviland Road, Boscombe, where he carries on the business of a photographer, was examined in the Poole Bankruptcy Court last week. His gross liabilities were £107 14s. 3d., and there were no assets. His cause of failure was stated to be "transactions with moneylenders." The debtor acknowledged that he had had a rather varied career. He had been in a mineral water factory, a brush factory, a hosier's assistant, employed with his father in a brewery at Kingston-upon-Thames, a hotel-keeper, then a traveller in sewing machines, watches and Bibles, and finally a photographer. His photographic business did not pay, and he had recourse to moneylenders, and this proved to be the first step to bankruptcy. He was forced to borrow, partly in order to meet liability in regard to a mortgage, judgment having been obtained against him for £85 14s., with costs. The debtor was allowed to pass.

**CAMPBELL-GRAY, LTD. (PHOTOGRAPHERS, LONDON).**—Issue on November 7 of £350 6 per cent. debentures, part of a series created same date, to secure £1,000, charged on the company's undertaking and property, present and future, including uncalled capital. No trustees.

**THE CERIO PHOTO CO.**—At a general meeting of the Cerio Photo Printing Company, Ltd., held last week at their offices in Great Winchester Street, E.C., resolutions were passed to voluntarily wind up the company. Mr. P. W. Strauss has been appointed liquidator.

**A RECEIVING ORDER** has been made in the case of Harry Flach, photograph dealer, etc., 235, Cricklewood Broadway, formerly known as 9, Chaddesden Parade, High Road Cricklewood. The first meeting of creditors is to be held on December 6, and the public examination is fixed for January 23.

### NEW COMPANIES.

**HATTON PRESS.**—Capital, £2,000 (£1). To take over (1) the "British Optical and Photographic Trade Journal" and the "Optical Almanac," carried on by T. B. Sewell, at Temple House, Temple Avenue, E.C., and elsewhere; and (2) the "Optician and Photographic Trades Review," carried on by the Gutenberg Press, Ltd., at 123-5, Fleet Street, E.C. Agreements (a) with Colonel T. B. Sewell and (b) with the Gutenberg Press, Ltd., and C. Hyatt Woolf. No initial public issue. First directors—Colonel T. B. Sewell (chairman) and C. Hyatt Woolf (both permanent, subject to each holding 500 of shares allotted to him under purchase agreement). No remuneration for first directors. Qualification (except first directors or successors nominated by them), £100. 123-5 Fleet Street, E.C.

**DANIELL BROS., LTD.**—This company has been registered with a capital of £1,500 in £1 shares. The objects of the company are to take over the business of photographers, etc., now carried on at 38, Morley Road, Lewisham, S.E., under the style of Daniell Bros. The company has been registered without articles of association, and there will be no initial public issue.

## News and Notes.

**THE HEPWORTH CINEMATOPHOTOGRAPH FACTORY**, Walton-on-Thames, was considerably damaged by fire last week, and one of the employees, a lad named Lane, was burned to death.

**THE WARNER-POWRIE PROCESS AT THE R.P.S.**—On Tuesday in next week, December 3, Mr. John H. Powrie is to lecture on the "Florence Heliochromic Plate," that is, the linear screen-plate which is the basis of the Warner-Powrie process.

**WORTHING CAMERA CLUB.**—The annual exhibition is fixed for March 9, 10, 11, and 12, 1908. Entries close February 29. Exhibits should be delivered on Friday, March 6. There will be the usual open and club classes. The hon. secretary is Mr. Edmund F. H. Crouch, 11, South Street, Worthing.

**50s. ANASTIGMATS.**—Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C., ask us to notify that their special offer of the "Nulli Secundus" lens at reduced prices closes positively at the end of the month. To those ordering from abroad the lens will be sent at the present price in the case of all orders received up to December 31.

**£10 FOR A PHOTOGRAPH.**—A sum of £10 is offered for a suitable advertisement photograph by the proprietors of the "Eudes Carnes" cordial. Particulars of the firm's offer appear in our advertisement pages, from which it will be seen that photographs can be received up to January 1 next. We gather that it is the aim of the proprietors to get a photograph which need not necessarily be of a kind suitable for direct reproduction as an advertisement, but must possess an advertising idea, which may be worked up in other forms. This is not to say, of course, that technical excellence of the photograph is any drawback.

**THE RIGHT TO THE PORTRAIT.**—A curious case hinging upon French law as to divorce came before a Paris court last week. A shopkeeper, in a divorce case, learnt that a photograph of his child, confided to the care of the mother, had been reproduced on postcards. He immediately instituted legal proceedings against the photographer and the publisher of the postcards. His argument was that the fact that his child was confided to his wife did not deprive him of his paternal rights. Notwithstanding the authorisation given to the photographer and the publisher by the mother, he was opposed to the child's portrait being reproduced. The Court found that the father had not lost his paternal power over the child, and forbade the photographer and publisher from putting into circulation postcards bearing the child's portrait, under a fine of 10 francs for each infringement.

**ATTEMPTED SUICIDE.**—Mr. G. W. Eastoe, of Caistor, was charged at the local police-court last week with attempted suicide. Dr. Gaman found the prisoner in a state of collapse, and stated that he was distinctly sane, but suffering from mental strain. On being charged, the prisoner said all he could recollect was feeling compelled to do it, that it was an act of remorse brought on by trouble, and expressed his sorrow. He was committed for trial at the next quarter sessions, bail being refused, as in the opinion of the doctors it would be unsafe.

**EASTMAN KODAK COMPANY OF NEW JERSEY.**—The usual quarterly dividends of  $1\frac{1}{2}$  per cent. (being at the rate of 6 per cent. per annum) upon the outstanding preferred stock, and of  $2\frac{1}{2}$  per cent. (being at the rate of 10 per cent. per annum) upon the outstanding common stock of the Eastman Kodak Company of New Jersey, will be paid on January 1, 1908, to stockholders of record on November 30, 1907. Cable advice has been received that, in addition to the usual quarterly dividends payable January 1, an extra dividend of 5 per cent. upon the common stock has been declared, payable on February 1 to shareholders of record on November 30.

**MAGIC MIRROR EFFECTS.**—Mr. Douglas Carnegie writes to "Nature":—"I had occasion recently to coat with collodion a silver surface mirror on patent plate 2 millimetres thick. During the operation the mirror was held with one of the rubber pneu-

matic holders frequently used by photographers when coating or varnishing plates. As the film of collodion set, a series of interference colours disposed in concentric circles appeared immediately over the region of the suction disc or the holder. I could scarcely bring myself to encourage the idea which at once occurred to me, viz., that the slight suction of the pneumatic holder was actually deforming so thick a plate of glass and producing an appreciable concavity in its vicinity.

But this seems really to have been the case. For when the beam of light from a lantern (placed with its back to the screen) was reflected back on to the screen by the mirror held with the pneumatic holder, there appeared in the rectangular patch of light determined by the size and shape of the mirror a much brighter internal circular patch which changed its position conformably with any alteration of the position of the pneumatic holder.

I have never seen any reference made to deformations produced in this way; yet such deformations might be found to have a practical significance in critical coating operations where absolute uniformity in the thickness of the coating is desired.

**MR. STEICHEN ON AUTOCHROME.**—To the announcement of the forthcoming appearance of the number of "Camera Work" to deal with the new Autochrome process we should add that the text will be from the pen of Mr. Edouard Steichen, to whom is due the modification of the procedure which has been adopted by other American workers.

**THE HOUGHTON SMOKER.**—Houghtons Ltd.'s annual "smoker" takes place on December 20, in the Georgian Hall, Gaiety Restaurant. A fine array of professional talent has been engaged.

**COLOUR-PHOTOGRAPHY DEMONSTRATION.**—The Central Photographic Society have arranged for the delivery of two popular lectures (illustrated by lantern slides and practical demonstrations) on the subject of "Colour Photography," by Mr. Henry J. Comley, of Stroud, Glos., on Friday, December 13 and 20 next, at 7.30 p.m., at 346, Strand (new "Morning Post" building). Full particulars may be obtained on application to Mr. Hobday at the above address.

**A PHOTOGRAPH WHICH WILL BECOME HISTORIC.**—The Boardman Electrical Patents Company, Ltd., writes:—"It will doubtless be of interest to many of your readers, and particularly so to upwards of 400 of our professional customers to know that the (reflected rays) open arc lamp apparatus that was used when the five Queens and three Kings were photographed together at Windsor Castle a few days ago was one of our triple pair carbon open arc lamps and reflector that we supplied to Messrs. W. and D. Downey, Court photographers, of Ebury Street, W., some six years ago. The carbons were taking 60 volts across each pair, and the current was 30 amperes thus producing a light of 10,000 candle power, and we hear that the exposure was instantaneous."

**MR. JAMES KERR**, photographer, of Swan Park, Monaghan, died suddenly on the morning of the 24th inst.

**ARTIFICIAL LIGHTING FOR STUDIOS.**—Messrs. O. Sichel and Co. advise us that they have made arrangements to show the working of the mercury-vapour and of the enclosed and open arc lamps at their West-End showrooms, 52, Regent Street (near Piccadilly Circus). Messrs. Sichel will be pleased for intending purchasers to bring their own plates and test the lamps on the spot. Messrs. Marion and Co., Ltd., also notify us that they have fitted Schottmercury-vapour lamp in their showroom at 22-23, Soho Square, and will be pleased to show the working to customers at any time.

**PROFESSIONAL ACCESSORIES.**—A catalogue which may be commended to the professional photographer is that newly issued by the Billcliff Camera Works, Richmond Street, Boundary Lane, Manchester. It contains specifications and particulars of studio cameras and stands, of a variety of repeating backs for midget works, a specialty of the firm, together with descriptions of other apparatus which are of special service to the business photographer. Among these may be mentioned the rapid bromide printing frame and printing table, the Billcliff enlarger, a moon accessory and incandescent gas installations for portraiture. The catalogue will be sent free on application.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### INFRINGEMENT OF COPYRIGHT.

To the Editors.

Gentlemen,—There is one subject which almost invariably crops up in your answers to correspondents every week, that of copyright. In most cases your enquirers seem to have had their photographs pirated, and they ask your advice as to how to tackle the pirates. You generally say, "Go for 'em," but those of us who would like to see the fight between the robbed and the robber never do so. Is it that those who have had their photographs pirated have no courage to "go for" the pirates, or is it that they have no faith in the law of the land? This law says plainly that anyone who repeats copies, colourably imitates, exhibits, etc., etc., any repetition, copy imitation, etc., of a copyright photograph shall forfeit to the proprietor of the copyright a sum not exceeding ten pounds. That is ten pounds or less for each copy made, or sold, or exhibited.

Judging from the number of photographers who write you, Sir, each week, there must be at least fifty piracies in each year, yet how rarely do we ever hear that any of these pirates are "had up" for breaking the law.

You would not advise those who have suffered from piracy to take action if you did not think it would pay. It would be most interesting to most of us who have suffered in this way if we could learn what success your correspondents have had in getting the butter out of the dogs' throats.

My own experience in fighting these rogues is that it does not pay. Even if one wins one's case one has to prove to the Judge's satisfaction how much pecuniary loss the identical piracy has caused us; this is, of course, an impossible thing to do. Even if the Judge thinks he will be generous and gives an award of £10, this sum never has yet paid the out-of-pocket expenses.

Solicitors who have had any experience with copyright actions know what poor consolation the victims ever get, and always advise their clients to "grin and bide it" rather than fight.

There must be many photographers who have had their photographs pirated by postcard publishers in all parts of Britain, and they would, I am sure, be glad to fight the pirates if they could only find a Judge who would be willing to award even £1 for each pirated copy sold, but, and a big but too, where is the Judge who would award a photographer £1 for each copy pirated? A photographer may spend the best part of his life in making a few good photographs, and any postcard publisher may reap the benefit from these instead of the photographer himself.

I may add that although the Copyright Act of 1862 says plainly that a "colourable imitation" is a piracy, yet I have lost more than one case because a few unimportant details had been altered in the pirated copies.

One thing also puzzles me. Is it compounding a felony to accept so much from a pirate to hush a case up and say no more about it? In last week's "B.J." you advised a sufferer to ask £1 ls. from a pirate if he, the pirate, sold his stolen goods for a penny, or £2 2s. if he sold them for 2d.—Yours obediently, F. M. SUTCLIFFE.

25, Skinner Street, Whitby, Yorks.

November 20, 1907.

**P.S.**—The poor tramp who steals a pennyworth of bread from a rich baker gets far more than a pennyworth of punishment. Why should the rich publisher who steals a photograph from a poor photographer be let off without any punishment at all?

[Our usual advice has been to square matters with the infringers out of court, as instance the reply quoted by our correspondent in his last paragraph. The double-rate charge for unauthorised reproduction is adopted, to our knowledge, by photographers making a special business of reproduction rights. Our correspondent ignores the fact that the penalty of at least one coin of the realm (a farthing)



every infringing copy has been set aside by several judgments, notably those of "Nichols v. Parker" ("B.J." May 17, 1901, p. 312) and "Hildesheimer v. Faulkner" ("Times" Law Reports, 1901, 757).—Ens, "B.J."]

## THE ULTRA-VIOLET RADIATION OF ELECTRIC LAMPS.

To the Editors.

Gentlemen,—In the abstract of Baron A. von Hübl's paper, in your issue of November 22, it is stated that "the mercury vapour (lamp) extremely rich in ultra-violet rays, but in practical work the latter of very little value." I presume that the latter portion of the said sentence is intended to signify that the glass walls of the lamp absorb the greater part of the ultra-violet radiation.

In a previous paper, November 15, von Hübl, treating of the enclosed arc, states that "the glass cylinder surrounding the lamp absorbs the greater part of the ultra-violet rays."

Assuming that the mercury-vapour lamp is intrinsically richer in ultra-violet radiation than the enclosed arc, and assuming what I assume is generally true, that the thickness of the glass of the mercury lamp is less than the thickness of the glass cylinder of the enclosed arc, one would anticipate a richer emergent ultra-violet radiation from the mercury lamp than from the enclosed arc lamp.

I have been recently in communication with Mr. Arthur Payne on the subject of fluorescence, and Mr. Payne sent me the other day a secret message, consisting of a printed paper in which certain words conveying the message were underlined with an invisible ink of quinine citrate. The underlining was brilliantly apparent on the sheet of print was examined in the light of an enclosed arc lamp, but absolutely no indication of the underlining could be detected in the light of a mercury-vapour lamp. Yet from all I had read concerning the richness of ultra-violet rays in the mercury-vapour light I anticipated a very brilliant fluorescence of the quinine markings in this light. Can it have been that the greenish-blue fluorescence there but not apparent, owing to lack of contrast due to the lack of greenish-blue illumination dispensed by the lamp?

Blackheath, London, S.E.

DOUGLAS CARNEGIE.

November 25, 1907.

## PORTRAITURE BY ARTIFICIAL LIGHT.

To the Editors.

Gentlemen,—It may be interesting to you to know that since the Artificial Light Exhibition opened I have been visited by five well known photographers from all over the North of England, to each whom I have demonstrated the mercury-vapour lamps, as used for portraiture. I have also answered a number of letters from persons from over England and Scotland, dealing with questions arising from the article on the mercury-vapour lamps, in the "B.J." of last week. I think it is only right that you should know that your article has been so greatly appreciated, and I hope you will attain the same success in your other articles. Yours very sincerely,

GEO. R. HENDERSON.

2, Elliston Street, Hebburn-on-Tyne.

November 25, 1907

## DRYING OF OIL PRINTS DURING PIGMENTING.

To the Editors.

Gentlemen,—The matter of the temperature of the external air during the pigmenting of the image in the oil process has been dealt with both by Mr. Rawlins and myself, in our communications on the subject. It has an effect, not only in the drying of the print, but on the viscosity of the pigment, in each case tending to give flat prints as it rises above 60 deg. F. I find that to prevent the print drying too quickly whilst pigmenting, it is a good plan to first lay the plate glass basis two layers of old clean linen, then over two pieces of white blotting-paper. The blotting-paper should be used more than three times, as frequent wettings have the effect of making it to be less porous; doubtless also the "dabbing" has some effect on this loss of porosity. The tendency of the pigment to the too thin can be obviated by allowing some of the excipient to evaporate, after it is spread on the palette, and before charging the brush.—I am, yours truly,

A. R. F. EVERSHEED.

Harley Street, Cavendish Square, W.

November 25, 1907.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

W. C. Harrison, 69, Southtown, Great Yarmouth. Photograph of River Steamer "Tilly," lying at Burch Castle Great Yarmouth.

R. Thirlwell, 21, Bridge Road, Stockton-on-Tees. Six Photographs of Model of Steam Ship "Maurelania."

L. W.—We should say the print is on a matt collodion paper, toned with gold and platinum, but some of the dead matt gaslight papers come very near to the same effect. We should not call the paper at all a suitable one for the negative.

COLOURED PICTURES.—Would you kindly inform me the best way to avoid the following? After having coloured a portrait in water-colours on rough platinotype paper, with the light on the picture from over the left shoulder, when reversed the work on it shows the touches of the brush, whereas in the other light it looks more even and smooth. Customers often judge their photographs from the reverse light. Do you think the above would be due to the roughness of the paper?—COLOUR.

As a rule, most pictures look best when they are illuminated from the same direction as that in which they were painted. This would be more palpable with those on a rough surface than with those on a smooth one.

GUM COLOURS.—Can you inform me where I can obtain "gum paint"? C. HILL.

We scarcely know what you mean by "gum paint." With all water colours the pigment is ground up with a solution of gum. The moist water colours are ground with a solution of gum and glycerine; the latter is to preserve the colours in the moist condition. Of course, these colours are sold by all dealers in artists' materials, and also by most stationers.

GRAINING ZINC.—I should be glad if you could favour me with the following information—viz., to make a dead matt surface on sheets of zinc, which are used for purposes of the dry-mounting process.—DOGGIE.

The usual method of graining zinc is to wet the plate, dust it over with graining sand, such as is used for graining lithographic stones, and then grind with a piece of thick plate glass or a piece of litho stone, until a smooth and even surface is obtained.

J. L. ZADIK (Johannesburg).—The Schroeder lamp and powder obtainable from Fallowfield, 146, Charing Cross Road, London, W.C., or other London dealers.

MILDEWED LANTERN SLIDES.—I made some lantern slides some time since. On inspecting some of them recently I observed what appears like spots of mildew or fungi, though they are sealed up at edges in usual way, and have been kept in a fairly dry place. Do you think if new ones were treated with formalin before finally dried it would prevent this? One could understand it better if they had been exposed, as gelatine is so hygroscopic.—ALPHA.

Undoubtedly it would, as the gelatine is rendered less absorbent of moisture, and retains some proportion of the antiseptic formaldehyde.

ENLARGEMENT SPEED NUMBERS.—Is there any way of converting the density of negatives, as found from Dawson's densitometer to

Watkins' method, as given in his "Manual," third edition, page 53, and vice-versa? If so, what is the calculation and how made?—J. H. STRODDART.

We know of no conversion rule.

J. H.—(1) The title in the case of the card you send is evidently written in Indian ink or "photopake," on the negative with a fine brush. (2) The card appears to have received a baryta coating.

P.O.P. AT NIGHT.—Will you kindly let me know if P.O.P. prints can be made by artificial light? Electricity is not available. I believe there is some way also of partially printing and then developing. Does this give equally good results? How is it done? Is there any paper which prints in artificial light and gives as good results as P.O.P., and with the purple tone of these?—THE ABBOT.

Except electric enclosed arc or mercury-vapour there is no satisfactory means of fully printing out by artificial light. By using the development process, incandescent gas or magnesium ribbon can be employed, but the process of taking off a fair number of prints will be rather slow. The results, if toned after development, are equal to those by printing-out. Formulae for the developers are given on page 817 of the 1908 "Almanac." A fairly good imitation of P.O.P. is a bromide print toned by hypo-alum. See "Almanac," 1908, p. 825.

FORMULA WANTED.—Could you give me a formula for reducing toned bromide prints (ferricyanide and sulphide)?—PUZZLED.

One method of reducing is to treat prints in the usual way, in the hypo-alum bath. About the best reducer is a mixture of equal parts of copper chloride solution (5 per cent.) and salt (15 per cent.). See the "Almanac," 1908, p. 652.

J. W. PICKERING.—The paragraph should read: "A 2-inch head, with a 16-inch lens, will require a longer exposure than a 2-inch head with a 10-inch lens, because of the greater distance from sitter to lens."

YELLOW BROMIDE.—The whites of some of my bromide prints (done within a year) are yellowish tinge. What is the fault in working? My procedure is to develop with metol-hydroquinone or metol, place in plain hypo bath for 15 minutes at least, give six changes of water, place in alum solution a few moments, then wash for an hour or two in running water, but without as many hand changes as I should like. I do not use any clearing bath. Hypo bath is 12 ozs. of hypo to 60 ozs. water, often only 50 ozs. of water. Alum bath also is variable in strength.—BROMIDE.

Stain is probably due to not washing out developer before fixing. You should always wash after hydroquinone, and use an acid fixing bath for preference.

CALCIUM CHLORIDE COMPOUND.—May I ask you to give me some information as follows? What amount of asbestos is used (say per lb.) with the calcium chloride in making the tablets used in the tubes containing platinum paper to attract the damp? Also what quality of calcium chloride is used? Do you know of any manufacturers of this compound?—PERCY S. DOUGHTY.

The more calcium chloride you can use the better. We have made the compound by mixing calcium chloride with hot water to a saturated solution, soaking the asbestos in the liquid and drying on a stove. We know of no firm which manufactures the compound.

SCREEN-PLATE PROCESSES.—I should be much obliged if you will inform me, through your "Correspondents" column, as to the date of the first patent application (presumably in Germany) for the Krayn screen-plate colour process, and also the number and date of the British patent for same.—SCREEN-PLATE.

The date (of sealing) of the German patent (No. 167,232) is September 24, 1904. The dates (of application) of the British patents are September 22, 1905, and January 25, 1906.

REFLECTOR FOR ENLARGING.—I shall esteem it a great favour if you will tell me if a reflector can be used instead of a plano-convex condenser for enlarging. I have made an enlarging box for 5 x 4 negatives, lighted by two incandescent gas burners, but do not get equal illumination, as I have not been able to

afford a condenser. I have tried ground glass, and tried paper in front of the lights, but still they show when covered the screen. If a reflector would answer can you tell me what they are procurable?—A. SMITH.

J. Lancaster and Son, Birmingham, make apparatus suitable for your purpose.

ENLARGEMENT QUERIES.—1. What strength of an incandescent light is required for making enlargements? 2. What class of lens do you recommend, also condenser? 3. Please describe how to discover a "good" from a "bad" condenser when chasing. 4. Please state names and prices of books on enlarging by artificial light, etc., also working up enlargements in black and white and colouring.—ECCLES.

1. For small work, say 15 x 12 from thin negatives, incandescent gas of, say, 50 to 60 candle power is sufficient. The highest power burner sold by the gasfitters will answer for description. For enlarging to greater dimensions, and negatives which may be hard and dense, a more powerful penetrating light, such as the "Sol" incandescent or similar light, is necessary; for commercial work an arc, best of enclosed pattern, is practically essential. For very weak negatives a professional enlarger will use an oil lamp for best results. 2. A good anastigmat is advisable, but for this, a rectilinear of good quality will serve excellently. Use long a focus as your space will permit. If using arc light, not use a lens with vulcanite or celluloid iris, as the heat will probably destroy it. With incandescent gas it will be safe. The usual double condenser of two plano-convex lenses is commonly used. 3. You can do little more than note colour of glass, regular form of surface, and freedom from striae. The glass should be clear and not green in colour. 4. "Brook's Enlarging," by S. H. Fry (6d.); "Photographic Enlargements," by G. Wheeler (1s.); "Retouching Negatives and Photographs," by Robert Johnson (2s.).

SYDNEY H. CARR.—You need not take the lens into consideration but the light-filter should be adjusted to suit the plate. Messrs. Sanger Shepherd or Messrs. Wratten and Wainwright can advise for this for you. It is important for you to have the best of qualities. We would suggest "optical flats" for the glass and the filters. A graduated filter will have no particular advantage for your purpose.

REMOVING PAINT FROM PHOTOGRAPH.—Can you please inform me whether, and how, I can remove the oil painting from a photograph, probably an enlargement about twenty-five years old. The likeness was lost when the paint was put on, and if it could be removed without spoiling the photograph the picture would be of far more value than at present. Thanking you in anticipation.—CHARLES MARSHALL.

We do not think that, by any means, you will succeed in removing the paint without injuring the photograph. As long as a time the oil in the paint will have become thoroughly oxidised. The only thing we can suggest is that you try the effect of benzol on a small portion of the picture and see what it acts.

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## SUMMARY.

The "British Journal Almanac," 1903.—At the time of going to press, 24,782 copies of the total edition of 25,000 have been sold. The remaining 218 copies will probably be in the hands of the trade by the time these lines appear.

Mr. Alexander Mackie, in an article on "Stand Development," page 919, takes exception to recent dicta of Messrs. Wratten and Wainwright, and supports this method of developing as economical, satisfying practical conditions, and sufficiently free from unavoidable drawbacks.

The Autochrome Pyro Developer.—MM. Lumière and Seyewetz have found that a quite small proportion of sodium bisulphite is as good a preservative as any for the Autochrome solution A, which they recommend to be made with water in place of alcohol. (P. 920.)

The Warner-Powrie process came before the R.P.S. on Tuesday evening last. (P. 928.)

We regret to announce the death of Mr. Martin Jacolette. (P. 929.)

## "COLOUR-PHOTOGRAPHY" SUPPLEMENT.

The present issue concludes the volume of the "Colour-Photography" Supplement. The index will appear with the "British Journal" of December 27.

Signor Achille Cararra, of Messina, sends us the results of experiments in preparing a non-screen panchromatic plate by the bathing method. (P. 89.)

MM. A. and L. Lumière and A. Seyewetz on the control of Autochrome plates during development. We publish the full text of the paper a brief abstract of which appeared in our issue of a fortnight ago. (P. 90.)

A note by M. Wallon on when to intensify an Autochrome, by M. Gravier on a three-solution Autochrome outfit, and on spectrum tests for over and under exposure of Autochromes appear on page 93.

The Krayn Screen-plate.—Information gathered from the current German journals appears on page 93.

A German patent has been granted to still another screen-plate process. (P. 94.)

A note written after witnessing a performance of colour cinematography by Mr. G. A. Smith, of the Urban Co., appears on page 94.

The "Patents Chronology" commenced twelve months ago concludes in the present issue of the "Colour Photography" Supplement. (P. 95.)

## EX CATHEDRA.

### Even Illumination in Printing.

A writer in the "Photographic Times" has evolved a somewhat new theory with regard to the best method of obtaining even illumination when printing from a negative. Considering that the plate is not evenly illuminated in the camera owing to the obliquity of the light near the margins, and to the cutting off of light by the lens mount, etc., he argues that a negative is, of necessity, denser at the centre than at the edges, and, therefore, that we should endeavour to counteract this want of uniformity by printing with a small illuminant placed approximately at the focal length of the lens from the plate, or a little less. At first sight this seems a very plausible argument. The margins of the plate often receive less than half the light that reaches the centre of the plate, and therefore the rest of the argument seems to follow quite naturally. But if we look at a number of negatives made under these conditions, we shall see very little evidence of this uneven illumination, and if we print from them with a small light as suggested, we shall probably get a print showing a vignettèd effect. The fact seems to be that the writer referred to is treating the matter from a purely optical standpoint, and is neglecting the chemical effects of exposure and the practical methods of exposure. Even though it is true that the illumination of the plate falls off rapidly from the centre to the margins, this effect will not be apparent unless we expose in such a manner as to record it. If the exposure in the centre is just "correct," the falling off will be recorded by decided under-exposure effects everywhere excepting just at the centre, in which case we shall certainly consider the whole to be under-exposed. If, however, we increase the exposure, then, in accordance with the photo-chemical laws governing exposure, the gradation from the centre to the margins will be flattened and the differences will become invisible. Another point that this writer seems to have overlooked is the fact that the deposit forming the negative image will transmit a larger proportion of direct than of oblique light. The light from the lens has not to pass through a scattering medium before it reaches the sensitive surface, whereas that from the light used for printing has to do so, which fact introduces a factor that our writer does not seem to have considered.

\* \* \*

### A Stereoscopic Reflex Telephot.

We recently had the opportunity of inspecting a unique camera of the reflex type manufactured to the special order of that most accomplished photographer of scenery, Mr. H. G. Ponting, F.R.G.S. The camera is provided with a pair of lenses of 24 inches focus, but by twice turning the beam of rays back at a small angle to itself the distance between lens and plate is reduced to one-third the "back focus" of the lens. This is done by interposing two mirrors in the path of the rays from each

lens, and thus securing large images of distant objects at a short camera extension, and without sacrificing the rapidity of the lens. As thus made by the Vegea Société in Geneva, cameras of this description have been in use for some year or two, but the model we have examined is, we believe, the first in which reflex focussing has been introduced. The separation of the lenses is 12 inches, and by adjustment of the mirrors any necessary registration of the two stereoscopic pictures can be done most conveniently while focussing. Such an apparatus, if as beautifully made as the instrument we have seen, is most useful for obtaining striking stereoscopic photographs of subjects, a clear view of which can be had from a distant standpoint. For topographical purposes it can often be of the greatest service.

\* \* \*

#### Exposure with Autochromes.

We see from "Photography" that Mr. Child Bayley has made some experiments on exposure that fully confirm previous statements of our own with regard to the uncertainty that prevails when dealing with variable conditions of light. In our little book, "Colour Photography," in which we had the advantage of collaborating with Mr. Welborne Piper, it was pointed out that, while in bright sunlight even a very little over-exposure was a thing to be avoided, and it was better to err on the side of under-exposure, yet later in the day and in the shade under-exposure was a most important thing to avoid. In speaking of under- and over-exposure we were, of course, considering a "correct" exposure to be that indicated by the meter, but it was quite obvious that in the circumstances the meter could not be giving a correct reading. Our experience was that the meter was only reliable, even in the summer, during a few hours of the day, and with a certain limited class of subjects. If exposure thus varies with the changes of light that take place in the course of the day we must expect similar variations to occur as the season alters, and this we find to be most distinctly the case. Mr. Bayley considers that at this time of the year a speed of Watkins 1 is more nearly correct than a speed of 2 for outdoor subjects. If anything, this probably understates the difference, for we have noted bigger variations than this in a single day.

\* \* \*

#### Half-tones By Wire.

The "Matin" reports that Mr. Pascal Berjonneau, an engineer, has succeeded in transmitting half-tone images by wire. Little detail is given, it only being stated that a Morse instrument is used, and that it can be adapted either as receiver or transmitter. It is not necessary to work on telephone lines, as very feeble currents suffice. A reproduction of the facade of the "Matin" Office, said to be made by the process, is given, and it is stated that when certain improvements which Mr. Berjonneau and his co-worker, Mr. Grineaux, are carrying on at their laboratory at Neuilly are complete, experiments will be made on the State telegraph lines.

\* \* \*

#### The Legal Weight of a Photograph.

There are some few consolations in the photographic business after all. One of them came to a photographer the other day on his asking for the committal of a customer who had been photographed but had not paid. The judge asked for evidence of the debtor's means. The photographer therefore exhibited the picture he had taken, showing his recalcitrant sifter clothed in purple and fine linen and surrounded by a numerous progeny. The photograph was admitted as evidence, and an order to pay issued against the defendant, who did not appear.

#### Gold Chromate.

A short paper in the "Chemical Zeitung" for November 27 last (p. 1.) gives the results of some experiments by Dr. N. A. Orlow on the chromate of gold, a compound which may be assumed to have some interest to makers of P.O. ordinary and self-toning. Dr. Orlow finds that perfectly soluble gold chromate can be prepared by the formula  $\text{Au}_2(\text{CrO}_4)_3 \cdot \text{CrO}_3$ . This formula represents first analyses of small quantities of the compound he has given. The chromate was prepared by treating freshly precipitated silver chromate with a solution of gold chloride. An orange-coloured solution results, and on evaporation deposits gold, leaving crystals corresponding to the above formula.

#### A YEAR OF COLOUR PHOTOGRAPHY.

THE personal acquaintance of three-colour photography which photographers have been able to make during the present year, thanks to the Lumière Brothers, has undoubtedly stimulated interest in other processes of colour photography, while there is equally substantial proof that the advent of the Autochrome plate has revived the zeal of many who, but for it, might have transferred their allegiance to some newer form of recreation; and yet again there is also the accession of raw recruits, who, by their first purchase and use of a camera have been made soldiers for the purpose of obtaining records in colour by the direct process. The photographic trade has reason, therefore, to foster these new departures not for what is to be immediately got out of them, but in order to strengthen the conviction that colour photography, divested of its awesome aspect, is to be taken as a matter of course and to be studied and practised like carbon printing, bromide-enlarging. In discharge of this duty the trade has already been helped by one or two of its members who have been quick to perceive the opportunities offered by the manufacturer in the Autochrome process. Other processes, it may be fairly assumed, will be no less prolific in their generation of saleable accessories, and thus colour photography will be given all the representation in the dealers' catalogues which is thought necessary for adequate chaperonage in the eyes of those who, let us suppose, have not seen the twenty-four pages of the "British Journal Almanac" which Messrs. Sanger-Shepherd devote to a price-list of its appliances and materials. But there are other less evident phenomena which press for the day of colour photography, and will, no doubt, much to hasten it. Anyone who peruses the applications for Royal letters patent which are published in our paper week by week must have noticed the large number which relate to colour photography. That many of these are impracticable ideas of enthusiastic visionaries we, who are a few of them before they reach the authorities at Southampton Buildings, are fully aware, but the fact remains that much work is being done in colour processes with commercial aims, and destined—some of it—to commercial success.

Then who shall deny the imminency of colour photography when an ancient and dignified body like the Royal Photographic Society, with nearly sixty years of tradition, gathers its friends and neighbours together and seeks to find how it may best employ the weight of its authority in aiding the progress of colour photography. To class this ancient body with a mere stripling such as the year-old Society of Colour Photographers would be an impertinence, yet the youth with hot enthusiasm has metaphorically taken his coat off and rolled up his sleeve, has made himself known in every quarter of the globe, has held one exhibition, and will hold another in the ear



summer of next year, and under the administration of its hon. secretary promises to grow to a career of usefulness.

One further sign of the growing interest in colour photography may be discerned in the interest taken in the monthly supplement to our own journal under the title of "Colour Photography." It has been our policy to deal in these special pages with whatever seemed deserving of permanent record. At the risk of loading the columns of "Colour Photography" too heavily with matters of historical interest we have published a "Patents Chronology," in which we have given a précis of the British specifications of inventions from the date of the first of these documents until the time (1904-5) when a systematic record of patents is to be found in the "British Journal." This "chronology" is fortunately completed in the present issue of "Colour Photography," and its absence from future issues of the "Supplement" will thus

give us the opportunity of devoting greater space for matter of more immediate practical interest. Still we may feel some satisfaction at having compressed into the first annual volume of the "Supplement" a chronological record of what has been patented, in the way of colour photography, in the United Kingdom, since the first classic application of Du Hauron. We would only add that with the last issue of the year will be issued both the general index to the "Journal" and a separate index to the "Colour Photography" supplement. The latter may thus be separately bound, and may, we hope, rank as a reference volume in colour photography from the fact that to its index will be appended a separate set of references to colour matters in the "Journal." One single consultation will thus refer the reader to all the articles, papers, patents, etc., which have appeared from the office of the "B.J." during the year.

## STAND DEVELOPMENT.

ALTHOUGH the method of developing plates known as Stand Development has been advocated and proclaimed for several years, and experience has shown that the departures from the usual conditions of development which may be made on adopting this method at times give rise to results abnormal, or at least unexpected, it is curious that no systematic inquiry has been made into the causes of the variations that are noticeable. Messrs. Wratten and Wainwright in instituting an investigation into the subject will deserve our thanks, and it is to be hoped that they may be induced to continue these experiments on the same lines but broadening their enquiry.

The paper which was recently published in THE BRITISH JOURNAL OF PHOTOGRAPHY was, I believe, issued originally as a leaflet primarily addressed by Messrs. Wratten to the users of their plates, and presumably their remarks and strictures were intended to be read in connection with the use of those plates. With this limited application, criticism of their precepts would be as much out of place as criticism of the formula they give for the development of their plates on their plate boxes. They make the plates and should know what may and may not be done with them. But as the publication of the paper in the "B.J." and elsewhere as a substantive article causes the publication to be taken as general, no apology is needed for my venturing to differ from them in some of their criticisms and disagreeing with some of their statements.

### A Query as to Extravagance.

The economy of the system is impugned on the ground that the tanks made for the purpose, ingenious and convenient as they are, require a very large quantity of developer." Presumably it is intended to say, they require an unnecessarily large quantity, and it is the fact that the commercial articles generally do. But that goes to prove that the tanks are really neither "ingenious nor economical." The fault is with the tanks therefore, and not attributable to the system. But according to Messrs. Wratten's measurements the quantity employed in "one of the smallest" of the commercial tanks constructed for six half-plates is 29 oz., say 30 oz. to make a round number, and as throughout the paper a solution consisting of a normal developer diluted ten times is given as typical, and therefore the equivalent amount of normal developer for six half-plates would calculate out at 3 oz., it can hardly be conceded that they have made good their case against economy.

### Stand Development, Quick and Slow.

It seems more than possible that Messrs. Wratten have used the expression "Stand Development" in a limited and somewhat misleading sense, without realising that they have done so.

The context of their papers shows that they regard stand development as essentially connected with the use of extremely diluted developer. It does not necessarily mean anything of the kind. The objects of the method of placing the plates upright in a rack are, primarily, two: in order to save the table space required when a number of dishes are used, and in order to prevent the mottling that frequently occurs when plates are developed in dishes without constant rocking. A more dilute developer than usual is generally, but not necessarily, employed, but the precise strength of the developer is very much a matter of personal convenience. A developer that acts too quickly to allow the plates to be removed from the tank without risk of showing a marked difference in the stages of development between the first and the last is naturally not a convenient one, while, on the other hand, a developer that requires an hour or more is likely to cause inconvenience in another direction. Probably the balance of advantage will be found in arranging for development to take from 15 to 30 minutes. This will not involve extreme dilution of the developer, and thus the risk of those troubles arising, which Messrs. Wratten have referred to as incidental to the method of development, will be reduced, and with a really ingeniously designed tank the cost of the developer will still be well under that required with the ordinary tray method. The tank arrangement should preferably be a rack closely fitting into a tank, and so constructed that, while sufficient space was left between the plates, where the developer is required, no unnecessary space is left elsewhere. This arrangement is especially convenient from the facts that the operations of fixing and washing can be carried out without transferring the plates from the rack in which they were held for development, thus minimising the necessity for handling them while wet, and that the plates can be removed from the tank and the developer stirred from time to time if necessary.

### The Unimportance of Stand-Development Irregularities.

It is to be gathered that Messrs. Wratten's deprecatory attitude towards stand development arises from their having approached the subject from a particular point of view, that point of view being that some system of development based upon the calculation of the time occupied is the only desirable or correct method to employ. It is perhaps a natural point of view for the plate maker to take, and it must be conceded that for plate testing it is useful, and in some special applications of photography a time system is the only system possible. But because dilution of the developer upsets or renders more difficult the application of the time it takes to complete development it does not follow that the employment of dilute developer is

either unscientific or undesirable. The majority of photographers do not practise any timing method. They cover their plates with the developer and take them out when, according to their judgment, development has reached the proper stage. In using stand development they do the same. The time occupied is longer. It is purposely arranged to be so, but as in either case time is not a matter of consideration, it is only a matter of convenience and not of necessity to know even approximately how long development will take. It is interesting to learn that the time of development increases out of proportion to the degree of dilution of the developer, and that the proportion further differs with some developers according to the amount of air in the water, but the knowledge of these facts, which seem to Messrs. Wratten to have so important a bearing on the utility of the stand method of development, is really of quite minor importance except from the particular standpoint from which they view the position.

In concluding their paper Messrs. Wratten deal with tank markings and fog, and here they give a lugubrious list of pitfalls to be encountered, and it must be admitted that their list is not complete. There are others they have not alluded to, probably have not met with. But though some of the reasons they give for defects are obviously sound, there are some that are a little far fetched. It is hardly conceivable, for instance, that the air of a dark-room that one could breathe without discomfort could be sufficiently bad to affect appreciably the whole of the solution in a tank, seven or more inches deep, in the space of time that development occupies. That there are certain precautions necessary to be observed in adopting the stand method just as there are in the ordinary method, and that the neglect of observing these precautions under any circumstances is likely to affect results injuriously, is axiomatic. It is well to point out what these precautions are, and in doing so general terms were sufficient, but it was unfortunate that general terms were maintained throughout the papers. To say that the use of pyro-ammonia as the developer will cause green fog as a general statement is not true, but to apply the same statement specifically to a certain plate, or, more broadly, to add, with some plates, alters the position entirely. It is reasonable to suppose that Messrs. Wratten intended their depreciation of the system to apply to its employment with their own plates, but they do not say so. They mention incidentally a particular variety of

their plates, but that is only in connection with time calculations. The omission was probably an oversight, or was though unnecessary in a communication addressed to users of the plates, but its effect is to reduce much of what they say to the level of the general statement concerning pyro-ammonia as above illustrated. That is faulty from want of specific application.

#### A Future for Stand Development.

The plate is a most important factor, and the behaviour of particular plate under conditions of development normal, and the quality of the results thus produced are no guide whatever to what it will do under the modified conditions of stand development. Some good plates behave badly under stand development, especially with extremely diluted developer, just as some good plates behave badly with pyro-ammonia. That it is so does not imply a general condemnation of the plate, but knowledge of the fact broadens out the scope of an enquiry into the theory and practice of stand development immensely. The subject is growing in interest and importance. The convenience of the method in the saving of space, and indirectly of time, when many plates have to be developed, is an advantage which, I venture to prophesy, has only to become better known and appreciated to lead to a revolution in development methods. If, as I contend, the plate is an important, if not the most important, factor, plate makers are equally concerned with plate users in clearing up the difficulties, accounting for the discrepancies that exist and formulating the condition for success. It is, therefore, appropriate that the investigation should be carried out by firm of plate makers, and particularly appropriate that Messrs. Wratten and Wainwright should be that firm. Among the first to take up the commercial manufacture of gelatine plates, not nearly three decades since, when the supremacy of Britain in that branch of industry was unchallenged and unchallengeable, they were accorded at once a leading position among British plate makers, and although the science of plate-making has advanced enormously, and we are assailed on all sides, they maintain their position, and thus put us all under at least a sentimental obligation to them in assisting to keep up our national prestige. They can put us under a direct obligation by continuing their experiments and allowing us to benefit by the results of their investigation.

ALEXANDER MACKIE.

## ON THE ALTERATION AND PRESERVATION OF PYROGALLIC ACID IN SOLUTION.

It is well known to every practical photographer that solutions of pyrogalllic acid in water require to be used as quickly as possible after making, owing to their rapid alteration and development of a brown colour. This coloration, which is evident very soon after the preparation of the solution, is produced more slowly in a solution prepared with boiled water and kept in a hermetically sealed bottle. Hitherto in preserving solutions of pyrogalllic acid additions have been made of considerable quantities of sulphite of soda, together with small proportions of acid to neutralise the alkalinity of the sulphite. This method of preserving pyro solutions, however, can only be employed when the presence of considerable quantities of sulphite of soda is no disadvantage. But in the case, for example, of the development of Autochrome plates with pyrogalllic acid, the sulphite of soda is not admissible, owing to its solvent action on the silver bromide of the film: it would prevent the necessary intensity being obtained on the plates.

Solutions of pyro in alcohol discolour much more slowly than those in water of the same strength, and therefore this

method of preparing the pyro solution has been preferred for the developer of Autochrome plates. Still, the alcohol developer does eventually discolour—at a rate which appears to depend upon the make of the pyrogalllic acid. We have found on leaving both sealed and unsealed bottles of 3 per cent. alcoholic solution of pyro (re-sublimed) of three different manufacturers, that the solutions in bottles which were filled and hermetically sealed discoloured slightly more rapidly than those exposed to the air, a fact for which, up till recently, we were unable to find any explanation. We tried the addition of small quantities of pyro to alcoholic pyrogalllic solutions of small quantities of many other substances, as well as those of a reducing character, in order to prevent this discoloration. These substances had to be used in very small doses, in order to preclude their injurious action on the Autochrome developer. The substance which in small quantities has given us the best result is bisulphite of soda. About one drop of the commercial sodium bisulphite is sufficient to keep bright 100 ccs. of 3 per cent. alcoholic pyrogalllic acid solution of any manufacture.

The results obtained with alcoholic solution have led us



Further experiment with the action of bisulphite on solutions of pyro in water, which latter are, as is well known, much more amenable to alteration. Our experiments have been made on solutions of pyro in water, the strength of which has been from 1 to 50 per cent., to which has been added from one to three drops of commercial sodium bisulphite solution per 100 ccs. of pyro solution. They have been made both in the light and in the dark, and with the employment of both ordinary and distilled water. The following are the conclusions from these experiments:—

1. Solutions of pyrogallic acid in water discolour both in and out of contact with the air, but the discoloration is considerably more rapid in the former case.
2. Light appears to have no appreciable action on the change.
3. Solutions prepared with ordinary water discolour more

rapidly than those in distilled water. In both cases the rapidity of discoloration increases with the strength of the solution.

4. The addition of commercial sodium bisulphite in very small quantity prevents the discoloration of these solutions. The portion of bisulphite necessary decreases with the strength of the pyro solution. For one litre of 3 per cent. pyro solution 1 cc. of bisulphite solution is needed; for the same volume of 50 per cent. pyro solution 2 ccs. of bisulphite are required. The solutions of pyro and bisulphite in water can be conveniently employed in place of the solutions in alcohol for the development of Autochrome plates, as also for almost all other photographic processes.

A. AND L. LUMIERE.  
A. SEYEWETZ.

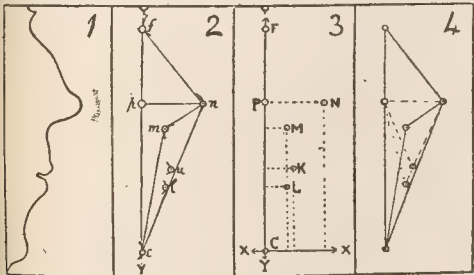
THE CLASSIFICATION OF PORTRAITS.

[In the following communication to "Nature" Mr. Francis Galton endeavours to establish a method of charting the features of various types of face in such a way as to allow of the classification of portraits of human portraits made by photography, it should be possible, of a formula.—Eds. "B.J."]

EXPERIMENTS of various kinds that I have made to define the facial peculiarities of persons, families, and races by means of measurement led to the following results that seem worthy of publication. The most elementary form of portrait will alone be considered here, namely, the outline of the face from brow to chin, as in a shadow in a silhouette. It contains no sharply defined points whence measurements may be taken, but artificial ones can be determined with fair precision at the intersections of tangents to specified curves. It will be shown that it is easy to "lexiconise" portraits by arranging the measurements between a few pairs of these points in numerical order, on the same principle that words are lexiconised in dictionaries in alphabetical order, and to define facial peculiarities with greater exactness than might have been expected.

The Arithmetic of Beauty.

The individuality of a portrait lies more in the relative positions of its cardinal features (see the figures below) than in the shapes of the



lines that connect them, so long as the general character of the connecting lines is roughly indicated. A few standard types, perhaps ten in all (though I prefer to use more), represent as many concave, convex, and sinuous varieties of outline, between each specified pair of the six cardinal points, as need to be noted. I may recur to this in a future letter.

This will be apparent to the reader's satisfaction if he compares portraits under unfavourable conditions, as through a blurring medium, or out of focus; or, again, if he substitutes connecting links that differ somewhat from the true ones. Consequently my first endeavour was to define accurately six points that should severally be good representatives of the six cardinal features in the outline. These features, the limits of which are vague, are expressed by *italic* letters in Fig. 2, and their representative points by the same letters in capitals in Fig. 3. The features are these:—*c*, the tip of the chin; *u*, the lower, and *u*, the upper lip; *m*, the hollow between the upper

lip and the nose; *n*, the tip of the nose; *f*, the hollow between the nose and the brow. In order to find their respective representative points, proceed as shown in Fig. 2, by drawing (upon tracing paper) a tangent, *YY*, to both *c* and *f*. Then draw a short tangent to *n* parallel to *YY* (accidentally omitted in the Fig.). A tangent to both *c* and *n* intersects the first of these lines at *C* and the second at *N*, and determines them. A line drawn from *N* tangential to *f* determines *F*. Thus the fundamental triangle *CNF* is obtained, in which *YCFY* is used as the axis of *Y*, and the length of *CF* (divided into 100 equal parts, here called "cents") determines the scale of measurement. In the life-sized portrait of an adult, 1 cent may be regarded as roughly equivalent to 1 1/4 mm. or to 1/20th of an inch. *M*, and consequently the triangle *CMN*, is determined by the intersection of one line drawn from *C* with another from *N*, both tangents to *m*. *U* and *L* lie at the intersections of tangents drawn in either case, parallel to *X* and *CN* respectively. They require less attention than the preceding letters, because *u* and *l* are usually small.

The positions of the six cardinal points may be expressed in either of two ways—(1) as in Fig. 3, by rectangular co-ordinates, *YCY* being the axis in *Y*, and *XCX* perpendicular to it, the axis in *X*. Or (2), as in Fig. 4, by triangulation. Here an additional line, *NP*, drawn perpendicularly from *N* to *YCY*, is convenient. I have compared both of these methods, and found each to have its advantages and disadvantages, depending on many variable causes, of which the scale of the portrait is one and the available instrument is another, and am inclined, on the whole, to prefer the methods of co-ordinates.

The Use of Codified Portraiture Criminology.

In my experiments I have chiefly used the side-view portraits, by George Vance, R.A., of his distinguished contemporaries, published in 1809 (two vols., folio, Longmans), which yielded sixty-eight pure profiles of about one-third the natural size. I lexiconised these in respect to the measures (entered to the nearest cm.) of the two co-ordinates of *N* and *M* respectively (4 measures in all), and found, first, that no two of the numerical formulae were the same; and, secondly, that in two-thirds of them the *smallest* difference between the most nearly resembling pairs was 3 cms. in one or more of the four measures. This conspicuous difference, equivalent to between 1/6th and 1/7th of an inch in a portrait of the natural size, could never be due to the inherent imperfection of the art of measurement, but to some gross blunder. It follows that the collection of sixty-eight portraits was lexiconised with remarkable precision. The data were insufficient to enable me to speak with much assurance of the gain that would accrue from taking *L* and *U* into additional account, but their correlations with *C*, *M*, *N*, and *F*, seeming to be very small, the gain ought to be great. I am content to under-rate this gain considerably, and to allow only fifteen-fold for it. On that basis a collection of 1,000 profiles from brow to chin could be lexiconised

and searched with great ease. In 667 cases each portrait would have a clearly distinctive formula; in the remaining 333 there would be doubtful duplicates, and even triplicates, just as in any list of the names of 1,000 British persons there would be more than one Smith.

In the report of a committee appointed by the Secretary of State in 1894 (C.—7,263, price 10d.) to inquire into the best means available for identifying habitual criminals, the following remark appears on p. 18:—"An enormous amount of time is spent in examining the book of photographs. It will be seen from the figures furnished by Chief Inspector Neave that on March 1 last twenty-one officers searched for twenty-seven prisoners—the total time spent being 57½ hours—and made seven identifications. This was an average of more than two hours for each prisoner sought for, and more than eight hours for each identification." A similar search in a lexicon of portraits of the same size would occupy apparently fewer minutes than the above occupied hours.

I will go no further now into the results of my experiments than to say that I have applied the above method to portraits of persons of very different races, and have thus far found it efficient in all of them.

FRANCIS GALTON.

#### ILFORD, LTD.

THE eleventh ordinary general meeting was held December 3 at Winchester House, Colonel Ivor Philipps, M.P., presiding. The chairman stated that the profit on the trading account showed a decrease, compared with the previous year's figures, of about £14,000. Last year, however, the company established a record in their sales, but some of the causes contributing to that result were abnormal, and had not continued. The business had been affected by the unfavourable weather of the past season, and they had also been adversely affected by other circumstances, with the disappearance of which considerably better results might be hoped for in the future. The volume of the company's business continued satisfactory, but the fierce competition and reckless price-cutting seriously reduced the profits. So long as the price-cutting continued, the manufacturer of photographic plates and paper would be unable to make the large profits on his turnover to which the shareholders had been accustomed in the past. If they compared the company's sales of 1903 with those of last year, they found that they were the same within a very small percentage, and yet the additional discounts they had had to concede in 1907 amounted upon the year's turnover to a sum equal to about 10 per cent. on their ordinary share capital. It was also very well known that the trade was more divided up than it was formerly. The directors were not without hope that the price-cutting might be put an end to in the interests of all concerned by means of a proper understanding among the trade itself. He could not hold out any immediate prospect of relief in this respect, but the matter was having the very serious attention of the directors. They were also devoting much thought to effecting economies in the working of the company's factory, and they believed that much could be done in this direction without endangering the efficiency of their manufactures or the quality of their production. They did not take a desponding view of the future. In spite of competition, the company held their own, although at the sacrifice of profits. The turnover was as large as it was when a dividend of 10 per cent. was being paid on the ordinary shares, and every effort was being and would be made to increase the turnover and to hold their present and secure new markets. He afterwards referred to circumstances which had arisen in connection with the termination of the agreement with Mr. E. B. Knobel, the late managing director, who, however, retained his seat as a member of the board, but who had to come up for re-election that day under the articles of association. The articles provided that, unless some one else was elected in the place of a retiring director, the latter continued in office, and in those circumstances the directors would have felt it necessary to submit to the meeting the name of some other gentleman for election in Mr. Knobel's place. They had, however, been unwilling for various reasons to take this course, and Mr. Knobel had expressed his willingness to meet them in the matter by voluntarily retiring if he were re-elected. His re-election, therefore, was to be regarded as only formal. Two of their colleagues had consented to discharge the duties temporarily of

managing directors; the duty was purely honorary, without an extra fee. They were acting rather as a committee of the board to supervise temporarily the daily working of the business. Although Mr. Knobel had ceased to be managing director, no change whatever had been made in the personnel of the factory or in the scientific or commercial staff; and no alteration whatever had been made in the quality of Ilford goods. He concluded by moving the adoption of the report. Mr. A. R. Smith seconded the motion. A long discussion followed, principally in connection with the circumstances which had led to the differences between Mr. Knobel and the directors.

## Exhibitions.

#### LANCASTER PHOTOGRAPHIC SOCIETY.

At the recent exhibition the following awards were made in the open classes by the judge, Dr. C. Thurstan Holland:—

Class A—Landscape, Seascapes, and River Scenery.—C. E. Hewitt, silver plaque, "Flecked with Sunlight" (No. 1); C. E. Hewitt, placed 2nd (medal withheld under rule), "An Essex Homestead" (2); H. Lindoe, bronze plaque, "The Deserted Mill" (15).

Class B—Portraiture and Figure Studies.—C. H. Hewitt, silver plaque, "The Mirror" (35); E. Lee, bronze plaque, "Condemned" (58).

Class C—Architecture, Interior or Exterior.—C. H. Hewitt, silver plaque, "In Canterbury Cathedral" (71); G. J. T. Walford, bronze plaque, "Touched with Sunlight" (81).

Class D—Lantern Slides (sets of four), any Subject.—J. Ludlow, silver plaque, "Winter" (85); G. A. Booth, bronze plaque, "Thrush" (33).

Class E—Postcards (sets of three), any Subject.—Silver plaque (silver medal withheld); J. Maddison, bronze plaque, "Bunch of Currants" (92).

#### SOUTHSEA PHOTOGRAPHIC SOCIETY.

This exhibition was held as usual in the extensive rooms of the society, 5, Pembroke Road, Portsmouth, from November 29 to December 5, and fully sustained its high reputation among the most important exhibitions of the country. The exhibits numbered between 700 and 800, and included a loan collection of some of the best work of our leading photographic artists, among whom are A. Horsley Hinton, Reginald Craigie, Alex. Keighley, F. Hollyer, Arthur Marshall, J. Craig Annan, W. Thomas, F. J. Mortimer, Mrs. Barton, Harold Baker, J. C. S. Mummery, and many others of equal talent.

Mr. H. Snowden Ward acted as judge and the prizes given were silver vases 8in. high.

In the large open class (any subject) the prize-winners were Mr. G. A. Barton, Robert J. Cocks, R. Dührkoop, Dan Dunlop, Oscar Hardee, H. Mortimer Lamb, Arthur Marshall, and Miss Agn. Warburg, all the awards being of equal merit. Messrs. Henry Comley and Alfred Denton received special mention, and the following obtained hon. mention: Miss Gertrude Aitchison, Herbert Bairstow, Bertram Cox, Dr. Grindrod, C. H. Hewitt, E. T. Holding, Harold Jacob, J. B. Johnston, S. G. Kimber, Mrs. Elizabeth Peak, Miss Ambrose Ralli, Miss Hilda Stevenson, H. V. Summons, and Miss Edith Willis.

In Class B (lantern slides) vases were awarded to W. H. Taylor and Ellis Kelsey; special mention to A. L. Watiss and hon. mention to R. Hancock, Victor Morris, and G. J. T. Walford.

In the open class for Hants and Isle of Wight only there were a large number of exhibits, the winning exhibitors being F. A. Swaine and A. W. Ward, hon. mention being given to pictures by Miss Mary Best, Rev. T. A. Cooper, Colonel Johnstone, C. B. Basson, and Louis J. Steele.

In the members' classes this year there were more exhibitors and many more exhibits, and the work was above the standard of previous years.

In the class for framed prints (any subject) the vases were awarded to S. Dawe (two, one of which he did not take, as he preferred to take the one awarded to him in the lantern class, the



rules not allowing one competitor to receive more than two prizes in all), Colonel Johnstone, F. J. Lawton, E. H. Plumpton, L. J. Steele (two), and A. W. Ward (two), special mention being given to pictures by S. Dawe, L. J. Steele (two), and A. W. Ward, and hon. mention to works by M. W. Cliffe, S. Dawe (two), Colonel Johnstone, C.B. (three), Louis J. Steele (six), and A. W. Ward.

In Class E (for those who had not previously won any award), also framed prints (any subject), vases were awarded to A. J. Luke and J. C. Thompson, hon. mention being given to pictures by W. H. Barrell (three), A. J. Luke, and W. Stimson (four).

In the lantern slide class the winners of the vases were S. Dawe and Colonel Johnstone, and hon. mention was given to F. S. Hoyte. The Canning Challenge Shield, presented by Henry A. Canning, Esq., to the exhibitor of the best average work in the members' classes, was won by S. Dawe.

The hon. secretary and the Committee of Management of the Exhibition are very gratified with the success of the exhibition, and are particularly grateful to those who have contributed to the loan collection so many of their valuable works. They are also very gratified with the exhibits sent for competition, which comprise works of the highest standard. The average quality throughout taken collectively is excellent.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been received between November 18 and 23.

**ELECTRIC LAMPS.**—No. 25,511. Improvements in electric portable photographic lamps. Oscar Thomas Banks, 49, Mortimer Street, London.

**SHUTTERS.**—No. 25,537. Improvements in or connected with roller blinds or shutters. Arthur Wells, 4, South Street, Finsbury, London.

**PRINTING.**—No. 25,730. Improvements in making tones for use in photographic processes. William Charles Masser and William Hudson, Hatfield Street Works, Stamford Street, London.

**REFLEX CAMERAS.**—No. 25,875. Improvements in folding reflex cameras. Herbert Holmes and Houghtons Limited, 88, High Holborn, London.

**CAMERAS.**—No. 25,966. Improvement in photographic cameras. John Kershaw and Charles Henry Watson, 313, High Holborn, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**FIXING BATHS.**—No. 25,869, 1906. The claim is for ammonium hyposulphite as a fixing agent for plates and papers. In order to obtain a suitable bath it is not necessary to use pure ammonium hyposulphite itself, but sodium hyposulphite may be dissolved in water to form a fixing bath and then a suitable proportion of an ammonium salt added, such as for instance ammonium chloride or ammonium sulphate. In preparing a fixing bath in this way it is preferable to arrange the bath so that it contains substantially ammonium hyposulphite, but an excess of one of the ingredients may be present.

The improved fixing agent may also be provided in the solid state. For this purpose solid sodium hyposulphite, preferably the desiccated sodium hyposulphite, is mixed with a suitable ammonium salt, such as, for instance, ammonium chloride or ammonium sulphate; in order to obtain the new fixing bath it is then only necessary to dissolve this mixture in a suitable proportion of water.

The new fixing agent has the advantage that when it is used the fixing operation occupies only one-half the time consumed when sodium hyposulphite is used; moreover when several plates are fixed in succession in the same bath the duration of the fixing remains unaltered, whereas in a sodium hyposulphite bath the

duration of the operation becomes much longer after a few plates have been fixed. Again, when the ammonium hyposulphite has been used several times it remains clear and colourless and does not discolour the negatives or cause spots in them.

The following examples illustrate the invention, the parts being by weight:—

1. In order to prepare a fixing bath according to the present invention, 24.8 parts of crystallised sodium hyposulphite are dissolved in 50 parts of water, and, on the other hand, 10.6 parts of ammonium chloride are dissolved in 50 parts of water. These two solutions are mixed together to produce the fixing bath, which is used in the usual manner.

2. A fixing bath showing substantially the same properties as those of 1 is obtained by dissolving together in 100 parts of water, 24.8 parts of crystallised sodium hyposulphite, 5.3 parts of ammonium chloride, and 6.6 parts of ammonium sulphate. This bath affords all the advantages above mentioned.

3. When the improved fixing agent is to be provided in the solid state it may be made as follows, it being of great technical importance that it is not necessary to prepare the pure ammonium hyposulphite, which salt is rather expensive and in the solid state is hygroscopic:—3 parts of desiccated sodium hyposulphite are thoroughly mixed with 2 parts of ammonium chloride; this mixture is preferably incorporated with a small proportion of sodium bisulphite, for instance with 0.3 parts of it, to give the mixture an acid reaction.

When preparing from this rapid fixing salt a fixing bath ready for use, it is only necessary to dissolve the salt in water, for instance 20 parts of the fixing salt may be dissolved in 100 parts of water.

4. As already stated, it is not necessary that the fixing bath should contain substantially ammonium hyposulphite, the technical effect of the present invention being also attained if the fixing bath contains ammonium hyposulphite in addition to sodium hyposulphite. In this case sodium hyposulphite is in excess in comparison with the ammonium salt used as the other ingredient.

For instance, in preparing a fixing-bath or the improved fixing agent in the solid state according to the invention one may proceed as follows:—30 parts of desiccated sodium hyposulphite are thoroughly mixed with 10 parts of ammonium chloride; in order to give this mixture an acid reaction, which is preferable for use, the mixture is incorporated with a small proportion of sodium bisulphite, for instance with two parts of it.

In order to prepare a fixing bath ready for use from the rapid fixing salt thus obtained it is only necessary to dissolve 10 parts of it in 50 parts of water. A. G. Bloxam, for the Actien-Gesellschaft für Anilin-Fabrikation, Berlin.

**MULTIPLE FILMS.**—No. 7,132, 1907. The claim is for roll or flat film, consisting of two parts; one of a colloid mixture and non-actinic in colour and serving as the support of the other, which is transparent and sensitised in the ordinary manner, the two being united by an intermediate soluble layer.

The non-actinic colloid layer consists of gelatine, collodion, cellulose, etc., to which colouring matter of any non-actinic colour, generally black (carbon, India ink, etc., or red aniline dyes, etc.) has been added. It is, moreover, rendered permeable to water by the addition of glycerine, gum, etc. This first layer or film forming the support is prepared by spreading and evaporating the fluid mass on a rigid and smooth surface, for instance, a glass or marble table.

To this first layer is applied in any desired manner some soluble agglutinant such as gum arabic, tragacanth gum, sugar, glucose, etc.; and on the surface thus formed and dried is spread the material constituting the usual photographic film.

This second layer is coated or provided with a positive or negative emulsion, and then, when the whole is perfectly dry, the compound film is stripped from the rigid surface which has been used when preparing the same.

The operations could also be reversed, that is to say, first the sensitive film may be prepared and the opaque film applied to the back of it, either by coating or by causing a sheet of opaque colloid material to adhere to it by means of a soluble agglutinant. The result is the same as before.

The backed film thus obtained can be made in rolls or in film

plates separately, or arranged in packs without it being necessary to use intermediate black paper, either in the one or in the other case.

This double film is sensitive on one face, and non-actinic on the other, so that if several film plates are superposed in a magazine or plate holder, the film plates can be exposed without fear that the light which strikes the first one could reach those which are placed behind it.

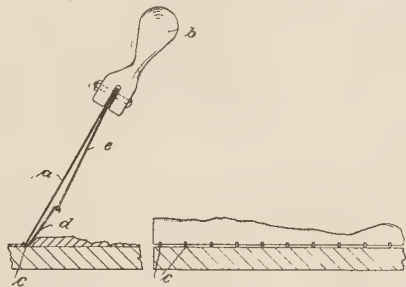
The film has also the advantage of completely doing away with halation, and another advantage consists in the possibility of numbering directly the film plates by printing the numbers on the non-actinic colloid layer, instead of on paper bands as formerly.

After the exposure of a roll film or plate of the present construction, it is sufficient to immerse it for a few seconds either in ordinary water or in any suitable aqueous bath. The liquid penetrating through the non-actinic colloid layer, which is permeable, softens and dissolves the agglutinant so that the two portions of the film separate with the least effort, and even under the influence of their own weight. There is then left the ordinary transparent film which can be subjected to all the usual developing and printing operations. A. Lumière et Ses Fils, Lyons, France.

**ENGRAVING ON GLASS PLATES BY PHOTO-SANDBLAST.**—No. 2,291, 1907. The invention consists of a photographic process for transferring designs, etc., to glass or stone for subsequent engraving by sandblast. An elastic gelatine sensitive mass is applied to the surface in a viscous state, rendered uniform in thickness by a wiping instrument, and then exposed to light under the design.

At the edges of the plate, strips are provided so that they project above the surface. After the plate has been levelled, gelatine is poured on the plate, and the excess wiped off. The remaining thin film is then of uniform thickness, and remains adherent to the plate without flowing, and quickly sets. Should the surface of the plate be uneven or even be curved a special tool is used.

The tool (Figs. 1 and 2) consists of a very thin flexible steel blade *a*, corresponding in breadth with the breadth of the plate, secured



in a handle *b*, and provided along its lower edge with a number of projecting teeth *c*, arranged at intervals apart. The latter are preferably formed by thin nickel wires *d*, which are bent so as to embrace the lower edge of the blade *a*, and are secured to another plate *e*, or the like.

On wiping the surface of a plate, which has been covered unequally with a thick film of gelatine, with this tool, the steel blade follows with its teeth all the inequalities of the surface of such plate, and leaves a uniformly thick film of gelatine at all parts of the surface, the thickness of the film corresponding to the length of the teeth. The narrow furrows made in the gelatine by the teeth on passage of the tool immediately close behind them. A film formed in this manner will not flow off even greatly curved surfaces, in view of its adhesion, but dries quickly in a uniform depth on the surface of the plate.

A suitable composition of gelatine is as follows:

Best quality white gelatine .....	100 gms.
Boiled and filtered water .....	500 cc.
White sugar .....	30 gms.
Clarified glycerine .....	30 cc.

This solution, after being heated to 120 degrees Fahr., is mixed with 3 to 5 gms. ammonium bichromate, with the addition of 3 to 5 cc. ammonia. If more bichromate be added, the gelatine

would obstruct the penetration of the light to the base of the film, and, if less, on exposure to light the gelatine would not be sufficiently hardened, so that when subsequently heated with hot water it would wash off.

Assuming the picture contained on an ordinary photographic plate is to be transferred to the gelatine, the exposure is effected in the usual manner. Preferably a photographic plate produced by the wet collodion process is employed. This is laid on the gelatine film. The whole is then exposed to an arc lamp or to sunlight, and afterwards developed in hot water, whereupon the portions not acted upon by the light dissolve down to the base and expose the glass plate. The picture appears in intaglio or in relief in accordance with whether a negative or positive photographic plate has been employed.

The gelatine-covered plate so treated cannot be acted upon by the sandblast for effecting the engraving of the picture immediately after drying, as the remaining gelatine, by reason of its hardness and brittleness, would offer sufficient resistance to the sand for a short time only, and consequently the engraving would not be very deep, and could not be actually carried out. In order to effect this properly, it is necessary for the plate to undergo a further treatment, which consists in the immersion of the dried gelatine picture in a solution composed of one part of gum solution of 1:3, two parts of glycerine (or sugar), in three parts of water, in which the plate remains for half an hour. After the plate has been washed under a rose and has been dried, the gelatine film has become tough and elastic like rubber, and withstands the sandblast.

Not only should it be possible to transfer pictures from photographic plates to the plates to be engraved, but also hand-made drawings and letterpress must be capable of being transferred by the present process. It has been found that none of the inks hitherto used for printing or drawing is sufficiently opaque. With all such, produced by known means, when exposed to electric light, the violet and ultra-violet rays penetrate the ink and a sharply defined gelatine relief is not obtainable.

According to the present invention, for the characters or the drawings, inks are used which, when applied in a thick layer, have the property of absorbing all chemically active rays. These inks, which are preferably composed of two parts of glycerine and three parts of gum arabic, completely saturated with an alcoholic solution of a suitable aniline colour, such as aurantia or spirituous orange red, cannot be used with ordinary transparent tracing papers, as these latter will not absorb the ink. This difficulty is overcome by using tissue paper, which will absorb the ink to a great depth without spreading. The tissue paper is best made transparent by grape sugar.

In order to render the process capable of universal application, it is necessary that from positive drawings or impressions, negatives should be capable of being directly produced, and vice versa, so that such prints can be employed instead of the originals. This is effected by the present invention as follows:—

The drawing or impression is traced with a light blue gum printing ink, dusted over with dextrine and dried. After being dried the paper is stretched in a frame. By means of a spraying device, an alcoholic solution of shellac, saturated with an aniline colour, such as aurantia or spirituous red, is then uniformly applied, this taking but little time, about half a minute for 1 sq. cm. After a lapse of a quarter of an hour, the tracing can be developed in ordinary water. As soon as the water has penetrated from the back to the gum and dextrine, these substances swell and burst the shellac layer and float off, together with the superposed layer of colour. At those portions not covered by gum, the shellac adheres well, and even enters into the tracing paper on turpentine being added. All good transparent commercial tracing papers can be used for making these tracings.

For greater security or strength the tissue paper impressions, and likewise the shellac prints, can be treated with bronze whilst still damp.

The further operation by means of the sandblast, on the plates provided with the gelatine relief, is effected in the usual manner, and can be continued so as to effect the engraving to the desired depth. Johann Heinrich Frez and Ernst Frez, Schaffhausen, Switzerland.

**DEVELOPING ROLL-FILM.**—No. 8,174, 1907. The invention relates to



the employment of the daylight spool of roll-film in the daylight development machines. The claim apparently is for the provision of a leading strip attached to the backing paper. Edward Crawford Davidson, 557, North Broad Street, Elizabeth, Union County, New Jersey, U.S.A.

**NON-SCREEN ORTHOCHROMATIC PLATES.**—No. 25,728, 1906. The inventor proposes to apply a thin coating of wax to the gelatine surface of an orthochromatic plate, and to apply afterwards a colour layer composed somewhat as follows:—

Alcohol 95 per cent. ....	1 dram.
Liquid glucose or glycerine. ....	2 oz.
Aniline colours .....	(about) 6 gr.

It is not stated how the wax coating is to be removed before development, or whether such operation is necessary. Louis Husson, 2,005, Sth. Broad Street, and André Frederick Bornot, 17th and Fairmount Avenue, Philadelphia, U.S.A.

**CINEMATOGRAPHS.**—No. 19,892, 1907. The claim is for a guiding device consisting of a jointed parallelogram fixed by means of axis to the frame of the apparatus at the centres of two parallel sides, thus forming an arrangement capable of movement whilst keeping its sides parallel one to the other so as to form a groove by the two other sides of this parallelogram, and the width of which may vary according to the width of the band, this groove having as axis a line definitely fixed with respect to the apparatus. R. W. James for the Compagnie Generale de Phonographs, Cinematographs et Appareils de Precision, 98, Rue Richelieu, Paris.

**SELF-CAPPING FOCAL-PLANE SHUTTERS.**—No. 28,174, 1906. The claim is for a construction in which the complete exposing blind is made up of two separate portions. One portion of the complete blind is caused to automatically return and cover the aperture of the shutter box, either immediately after making an exposure, or at the time of setting the shutter ready to make a new exposure, the operation of setting being limited to the winding up of one portion only of the complete blind. Walter Frederick Giles, 15, Bulmershe Road, Reading, Berks.

## New Trade Names.

**ILFORD.**—No. 294,706. Photographic dry plates and photographic films included in Class 1. Ilford Ltd., Britannia Works, Roden Street, Ilford, London, E., manufacturers of photographic plates, papers and films. July 19, 1907.

**ILFORD.**—No. 294,707. Photographic apparatus included in Class 8. Ilford, Ltd., Britannia Works, Roden Street, Ilford, London, E., manufacturers of photographic plates, papers and films. July 19, 1907.

**ILFORD.**—No. 294,708. Prepared paper for photographic purposes. Ilford, Ltd., Britannia Works, Roden Street, Ilford, London, E., manufacturers of photographic plates, papers and films. July 19, 1907.

**KINEO.**—No. 296,682. Cinematographic apparatus included in Class 8. Charles Urban, 48, Rupert Street, London, manufacturer. October 1, 1907.

## New Books.

"Trees and Their Life Histories." By Percy Groom. Illustrated by Henry Irving. Pp. 406, 10½ by 9. (London: Cassell and Co.) 25s. nett.

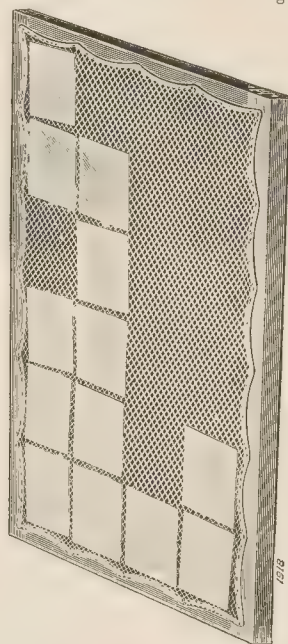
This handsome work of reference is evidently a volume of the greatest value to the forester; it is certainly a convincing demonstration of the utility of the photograph in sharing the task of explanation of a somewhat technical subject. Mr. Irving's illustrations number over 500, and there is scarcely one amongst them that can be called a bad photograph of its subject. Full justice is done to them by the photo-engraver and printer, and the result is a piece of book-making which is very moderately priced by the publishers. As regards its literary contents, the book gives a mass of essential information under the following heads: Behaviour and growth; Germination; Sprouting; Branching; Production and fertilisation of flowers; Protection and dispersal of seeds; The manner in which trees adjust their shapes to various situations;

How they protect vulnerable parts from injury by climate, weather, etc.; How they replace injured parts; How their structure enables them to live in divers situations; Also how to judge the needs of a tree by mere outward inspection. It is written throughout, as far as is consistent with accuracy, in non-technical language, and the introductory portion supplies the information necessary to adapt it for use by readers unacquainted with botany.

## New Apparatus, &c.

The "Ensign" Drying Rack. Made by Houghtons Ltd., 88 and 89, High Holborn, London, W.C.

One dodge of the practical printer and postcard maker which is, perhaps, not very widely known is the use of a thin gauze or net, on which the prints, as they come from the wash-water, are laid face down, and on which they very quickly dry without undergoing the deformation which takes place if they are pinned up or dry face upwards on blotters. Some perhaps will scoff at the idea of employing the method for gelatine prints. We can only say, try it, and take the opportunity of testing for the purpose the special fabric and framework supplied by Messrs. Houghtons. The latter is a more open mesh than can be easily bought, and is, moreover, "gassed" (i.e., singed) to rid it of fluff, and chemically treated to remove grease and any other substances which might mark or injure



the prints. The device is certainly a most convenient aid to the drying of prints, as it saves not time only, but space, a large number of the racks being capable of being stacked (horizontally or vertically) where they will get a current of air. The rack is made in three sizes at the following prices:—

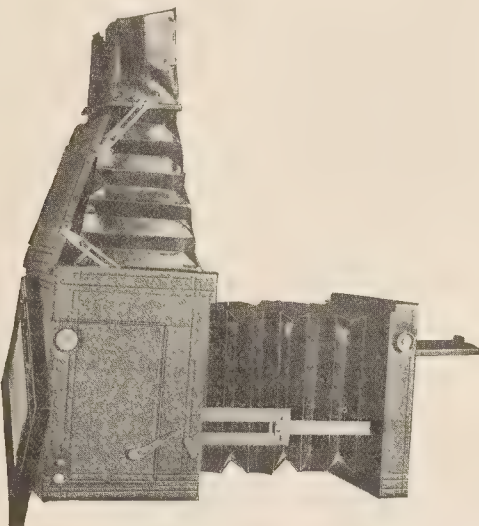
1. 17½ by 10½, for 12 quarter-plates, 2s.
2. 27½ by 15½, for 12 half-plates or 20 quarter-plates, 3s.
3. 35½ by 20½, for 20 half-plates, 4s.

The smallest size, 17½ by 10½, is sent out in a neat cardboard box at the above price; the two larger racks are not boxed.

The "Specto" Reflex Camera. Sold by Spiers and Pond, Ltd., Water Lane, Ludgate Hill, London, E.C.

The camera which we have just received for our comments is one on which the management of Messrs. Spiers and Pond's photographic department have been engaged for some time past. It was intended to have been seen at the exhibition of reflex cameras held at the

house of "The British Journal of Photography" in June last, but matters were not sufficiently advanced, and rather than show an instrument with which they were not perfectly satisfied the sponsors (we disclaim any punning aim) let the opportunity pass. Now the "Specto" has been completed for the market, and though the season for the ordinary cheap hand camera has closed, an instrument of the many merits possessed by a well designed and constructed reflex may be assured of an almost equally interested reception at the commencement of winter, inasmuch as it renders possible throughout the dull days practically every description of hand-camera work. Therefore we are encouraged to give prominence to the new reflex, all the more so since it happens to be an instrument of which we can speak in the sincerest commendation.



In the quarter-plate model which we have had under trial, the outside dimensions of the camera are  $6 \times 7 \times 7\frac{1}{4}$  inches, less than those of other reflector cameras which will not do as much as the "Specto." The hood, as shown in the drawing, is held erect by the struted cover-board of the camera; it is 9 inches in height and gives a clear view of the focussing screen. It is, moreover, quickly collapsible, and, further, is instantly detached at its base from the camera, affording a free access to the mirror for dusting and for wiping the ground glass, both, as reflex users know, operations which are constantly needed in regular work. When using a camera in the rain it is necessary to be able to rid the focussing screen of drops of water, or accurate focussing is impossible. This is most quickly and readily done in the case of the "Specto."

The mirror itself, when viewed from the bared cover of the camera, will be seen to have a zig-zag or shrinking movement when passing from the "down" to the "up" position, and vice-versa—that is to say, on its first release it moves slightly backwards, and so "dodges" the lens mount. This movement, it is scarcely necessary to point out, has the merit of permitting a lens of extra short focus to be used in the case of the "Specto" before us of  $5\frac{1}{4}$  inches in focus, according to our measurement of the clearance of the mirror.

The mirror setting lever serves also for the shutter release, and is so adjusted that, except when specially adjusted, it automatically falls back after exposure, shielding the plate; the mirror thus acts as a self-capping shutter. For time exposure, the mechanism has the very convenient feature, which, so far as we know, is not possessed by any other reflex, of allowing two time exposures to be given in quick succession without re-setting the shutter. The movements are:

1. Pressure on lever opens blind, and release of pressure lets mirror fall.
2. Second light pressure raises mirror, and continued pressure closes blind.

Any necessary operations of changing the plate and of focussing can be done between 1 and 2, this feature of the camera recommending

it for portraiture. The shutter, we would add, is the well-known Ernemann, and we need add no higher praise of its excellent workmanship.

In the matter of extension the camera is well provided; it racks out on its two struts to  $9\frac{1}{2}$  inches, and then pulls out (from plate to camera front) to a total extension of  $13\frac{1}{4}$  inches. As the lens is recessed about  $1\frac{1}{2}$  inches, a reduction of this latter length must be made, but even then the extension is more than enough for a  $5\frac{1}{4}$ -inch lens, and there are also means for affixing an auxiliary lens panel an inch forward.

At both short and long extension the rise of front (nearly one inch and by rack and pinion) is available. The extension at both full and half-way is one of the most rigid we have handled. There are certain other features we may refer to, such as the reversing back, lens shade, and side swing front (useful at times), but we have said enough to show that in the "Specto" the prospective purchaser of a reflex has almost as compact, as efficient, and, so far as we can judge, as strongly made an instrument as he can desire, for the comparatively small sum of £9 9s., with three double slides, but without lens. With the Staley Planastigmat,  $f/6$ , the price is £13 15s.

**Monochromatic Light-filters.** Made by Wratten and Wainwright, Croydon.

For the special work of the photomicroscopist, spectrophotographer, and others who require at their command a complete range of filters, Messrs. Wratten have prepared this set of filters passing very narrow bands of the spectrum. The filters are issued by Messrs. Wratten as of approximately equal luminosity and of (photographic) absorption such that they transmit about 1-30th of the incident light in the region of maximum absorption. The makers give the following specification of the filters:—

- a from 65 onwards towards the red.
- B from 66 to 61, and also a faint band in the red above 69, which it is not possible to eliminate.
- γ from 62 to 59.
- δ from 55.5 to 59.5, with a very faint red band at 70.
- ε from 55.5 to 52.
- η from 52 to 46.5.
- θ from 47 to 40.

The price of the set of seven filters, 2in. square, composed of film bound, not cemented, between glass, is 35s., including a case. The single screens are obtainable at 6s. each.

**"Ensign" Chemical Outfit for Autochrome Plates.** Sold by Houghtons Ltd., 88-89, High Holborn, London, W.C.

The solutions for the treatment of the Autochrome plates are very conveniently prepared in this set of Messrs. Houghtons Ltd., in which is included every reagent for the successive stages of that process. The solutions A and B for the first development—Messrs.



Houghtons retain the Lumière lettering of the baths—are supplied in concentrated form, one part of each having to be added to ten parts of water. The remaining preparations—with the exception, of



course, of the varnish—require to be dissolved only in the prescribed quantity of water, and are immediately ready for use. It may be noted, to Messrs. Houghtons' credit and discretion, that by an expedient which will be obvious to students of chemistry, they dispense with the sulphuric acid in solution C, obtaining the same result in the solution without compelling the user to handle the strongly corrosive oil of vitriol. The re-developer, as is proper—in the case of a preparation which requires to be used when freshly dissolved—is put up in small cartons. The whole set, we have found, answers excellently for the development of the Lumière plates, and costs, complete in its case, 5s. 6d. With the chemicals are included a set of gummed labels (for the solutions to be made up), and a card of abridged instructions, which can be kept before the worker. This latter, with the booklet, "Colour Photography with the Lumière Autochrome Plates," issued by Messrs. Houghtons Ltd. at the small sum of 2d., should prevent the Autochrome worker from making mistakes.

An Apparatus for Making Composite Negatives Direct in the Camera. Sold by Halford and Thomson, 4, Broadway, Hammersmith, London, W.

The reproductions on this page well illustrate two of the uses of a piece of apparatus which is now offered for sale after having been semi-privately used by a number of photographers in different parts of the country. Fig. 2 shows a specimen book of mounts, each of which, as can be seen from the photograph, is not more than



Fig. 1.

Fig. 2.

6 inches or 9 inches in height. The portrait shown in Fig. 1 is printed in one operation, from a negative obtained direct in the camera, and developed, also in one operation, in the usual way. It will be seen that the mount thus incorporated with the sitter on the negative is that seen in Fig. 1.

Again, the small model of a room seen in the hands of the boy in Fig. 3 has been utilised as the background in Fig. 4, the combining of sitter and background having been done entirely in the camera and without retouching and ordinary "faking" methods. The apparatus by which these effects were easily produced should certainly be of the greatest interest to photographers, and we will therefore give a short description of the appliance, as now placed upon the market, and of a demonstration of its action which was given us a few days ago in the studio of the inventor, Mr. W. Boyd Henderson, a photographer in Westbourne Grove.

The apparatus consists of a framework very similar to the skeleton of an Eastman roll-holder, which is mounted on a square open frame by struts which allow its distance from the supporting frame to be adjusted. The frame fits into the back of the camera, and the roller mechanism is thus supported inside the camera at a distance of, say, 3 inches to 4 inches from the focussing screen. It is, however, but the means of bringing into action the essential part of the apparatus—viz., a flexible band wholly of black paper with certain apertures in it, or partly of the paper and partly of celluloid, for the distinct purposes which will be seen in a

moment. In either case the band is wound across the space between the two rollers, and is caused to halt at any desired point by register marks on its edges and one centre mark on the framework which supports it.

Thus, if the apparatus is to be used for obtaining the photograph of a sitter three times on one plate, the black band with three apertures in it is moved successively into register with the centre, and three successive exposures made on the plate. The three portraits thus obtained on the one plate do not divide up the latter into separate sections, but merge into each other without



Fig. 3.

Fig. 5.

the sign of a join, so that all three may be printed as a complete photograph, or each one completed separately.

The procedure is slightly different but no less simple when producing an effect such as that in Fig. 1. The sitter is first photographed through an aperture in the blind of suitable oval shape. This is then wound on and replaced by a portion of the blind consisting of clear celluloid, with an opaque oval area corresponding with the aperture in the opaque part of the blind. The mount is photographed on the plate in any desired scale; the result is one negative, which affords Cosway and other effects at



Fig. 4.

one printing. The vignetting action of the blind allows of these operations being done with ease, and so long as the two exposures are properly timed there is no sign of the compound nature of the negative.

It is, however, in the use of the apparatus for employing miniature accessories as full sized backgrounds that the most ingenious application of the apparatus is found. Figs. 3 and 4 are examples. The manipulation is precisely the same as just outlined, that is to say, the sitter is photographed through a mask, any size and shape thought desirable, the complementary disc wound into place,

and a second exposure made on the miniature model of a room, a doorway, a wall, or any other object thought suitable as a background or accessory. The blinds, both "all-black" and "black and transparent," are obtainable in considerable variety, devised to serve the photographer in the production of commercial styles of portrait. Fig. 5 is an example of a Corot landscape used in this way.

We have not spoken of the amateur model of the apparatus devised to fit on the lens hood, but it has certain valuable properties for landscape photography in the way of equalising exposures and even of producing combination photographs in the field. The purely business and professional claims of the apparatus should be sufficient to engage our readers, for whose information we would say, in conclusion, that the apparatus is known as the "Thaumatoscope," and is sold at 30s., complete with six interchangeable blinds.

**PAGE-CROFT BROMIDE PAPERS.**—Bromide paper, in several varieties of tint—green-blue, grey salmon, buff, blue, and cream crayon—reach us from the Page-Croft Paper Company, Cooksey Road, Birmingham. The papers have the good qualities which we have discovered in other products coming from Mr. Page-Croft's, whilst the tints permit a wide range of effects, and are particularly amenable to schemes of contrast or harmony, by using the sulphide or other processes of toning the paper. The tinted bromides are put up in 6d. and 1s. packets.

**GLOSSY VELOX.**—Messrs. Griffin send us a sample of their Glossy Velox, representing an improvement in manufacture in respect of the surface markings to which glossy papers of this class are liable. The new grade of velox certainly enjoys a high degree of luminosity from them, and in both the "soft" (for strong negatives), and the "vigorous" (for thin negatives) yield results which call for little of the treatment with spirit-moistened cotton-wool by which such abrasion marks can usually be removed.

**CHRISTMAS MOUNTS.**—Under the title of "Unique," Mr. W. Tylar, of 4, High Street, Aston, Birmingham, has issued a set of folding mounts, suitable for use as Christmas cards, each set consisting of twelve mounts of assorted sizes and shapes, and twelve envelopes. The cards are white, with embossed borders, the "greeting" being printed in pale-coloured ink. The openings intended for the insertion of photographs vary in size and shape, and include both the paste-down and slip-in varieties. The price is 1s. 8d. per set, post free.

#### CATALOGUES AND TRADE NOTICES.

**HOBBIES FOR THE BOYS.**—Under this title Messrs. Butcher and Sons, Limited, have issued a list of specialties suitable for Christmas gifts for boys of all ages. They include magic lanterns, together with slides and outfits, cinematographs, working models of various kinds of engines, clockwork railway trains, trams, motors, model railway accessories, etc., at prices calculated to meet the requirements of all intending purchasers. A copy of the list will be sent on application, or the goods themselves may be viewed at Messrs. Butcher's, Camera House, Farringdon Avenue, E.C.

**VEROTYPE GASLIGHT PAPER.**—Those who would read the opinion of a connoisseur like Mr. H. Walter Barnett, and at the same time see for themselves the appearance of a print on this excellent gaslight paper, should apply for a new leaflet and specimen print to Mr. C. A. Rudowsky, 89, Chiswell Street, London, E.C.

WE REGRET to have to announce the death, on the 2nd inst., of Mr. Martin Jacolette, late President of the Professional Photographers' Association.

**THE UNITED STEREOSCOPIC SOCIETY.**—The result of the Flower and Fruit Competition of this society proved as follows:—First award: S. W. Shore, Barnsbury; second: W. Isherwood, Burnley; third: A. J. Snow, Walthamstow. The following received hon. mention:—Messrs. F. W. Pearson, P. Snow, and W. Isherwood. In judging the slides, Mr. E. Seymour said: "Flower and fruit studies, as a rule, are not a very strong class, but in this instance I think they are very good, both in number and quality. Nearly every slide shows excellent technique and very careful work. Many of them are so even that if technique alone was the standard it would be very difficult to judge them."

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK

FRIDAY, DECEMBER 6.

Aberdeen Photo Art Club. Federation Portfolio.  
Aberdeen Photographic Association. Lantern Slide Competition and Selection of Set for Scottish Federation Competition.  
West London Photographic Association. "Old London." A. H. Blake, M.A.

MONDAY, DECEMBER 9.

Scarborough and District Photographic Society. "Architectural Photography." A. S. Tetley, M.A.  
Rotherham Photographic Society. "Flower Photography." E. Seymour.  
Bradford Photographic Society. "Mounts and Mounting." Percy Lund.  
Graysend and District Photographic Society. "Print Criticism." J. T. Dalladay.  
Cleveland Camera Club. "Architecture" by E. W. Jackson, per E. A. Wright.  
Derby Photographic Society. The Royal Photographic Society Affiliation Competition Slides for 1907.  
Manchester Photographic Society. "Photographic Chemicals."  
Aldershot Camera Club. "Rotary Carbograph Paper."

TUESDAY, DECEMBER 10.

Royal Photographic Society. "Agar-Agar in Emulsion Making and a Sepia Paper." W. F. Cooper, B.A., F.G.S., and W. H. Nuttall, F.I.C., F.C.S.  
Epsom and District Literary and Scientific Society. "Carbon Printing." Illingworth & Co.  
Leeds Photographic Society. "Still Life Photography." E. Seymour.  
Forest Gate M.M. Camera Club. "Photographic Chemicals."  
Chichester Camera Club. "Rotary Carbograph Paper."

WEDNESDAY, DECEMBER 11.

Borough Polytechnic Photographic Society. "Walks with a Camera in London." A. H. Blake M.A.  
Cowes Camera Club. "Iford Gaslight Papers." Algernon Brooker.  
Southsea Camera Club. "Rotary Carbograph Paper."  
Leeds Camera Club. "Pin-Hole Photography." J. E. Coulson.  
North Middlesex Photographic Society. Technical Meeting. Nomination of Officers and Council for 1908.  
Everton Camera Club. Members' Lantern Slides.  
Bristol Photographic Club. "Carbon and Gaslight Papers." F. J. Steadman.  
Coventry Photographic Club. "Bromide Enlarging." W. Riley.  
South Suburban Photographic Society. "Telephotography." Ernest Marriage, F.R.P.S.

THURSDAY, DECEMBER 12.

Bath Photographic Society. "Carbon Printing." F. Steadman.  
Blenheim Club. "Early Man in Britain." A. E. Relp.  
Liverpool Amateur Photographic Association. "Austrian Lakeland." George E. Thompson.  
L.C.C. School of Photo-Engraving and Lithography. "Some Observations on the Photographing of Pictures and Drawings." D. Cameron Swan.  
Handsworth Photographic Society. "One-Minute Development." Demonstrated.  
Hull Photographic Society. "Flower Photography." E. Seymour.  
Longton and District Photographic Society. "Flowers and Still Life." J. H. Jones.  
Richmond Camera Club. "Mountaineering in Switzerland." Julian Grande.  
North London Photographic Society. Lantern Slide Evening. Competition.  
Chelsea and District Photographic Society. "Control in Printing." F. Humpherson.  
Rugby Photographic Society. Exhibition of Novelties in Photographic Apparatus and Materials.  
Queen's Park Amateur Photographic Association. "Bromide Toning." John Baird.  
Wiglit Photographic Society. "Rotary Carbograph Paper."

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held December 3, the president (Mr. J. C. S. Mummery) in the chair. An audience as numerous as that which a month ago assembled to witness Mr. Grant's demonstration of the Autochrome process crowded the lecture-room of the Royal Photographic Society on Tuesday last, when Mr. John H. Powrie lectured on the Warner-Powrie process of colour photography. The lecturer commenced by briefly referring to the previous attempts which had been made to employ a linear filter screen as the basis of a one-plate process of colour photography. His own connection and that of Miss Warner with the process which bore their two names had arisen from the fact that shortly after taking up his residence in Chicago he had been called upon to give some advice to the International Colour Photo Company, which at that time was endeavouring to place the Joly-McDonough process upon a commercial basis. The method adopted in that company's laboratories was to rule the three lines of the filter by means of bevelled wheels which applied the ink, but the process was so expensive that the total output of a machine was only three screens, measuring 30in. by 24in. each, per day. He was thus led to devise a photographic method of preparing the screens, which consisted in printing from an opaque black and white linear grating, in which the opaque lines were double the width of the clear interspaces. By printing on this plate by bichromated gelatine in three successive operations,



and with each staining-up the impression in a red, green, or blue dye, it was found practicable to manufacture the screens at a cost and with a regularity which were sufficient for commercial purposes. With a small machine which he had in use in his laboratory a single workman could make per day thirty dozen 10in. by 8in. plates of 600 lines per inch—that is to say, of twice the fineness of ruling attempted in the McDonough-Joly process. Mr. Powrie proceeded to explain and illustrate on the screen the method adopted in printing the colour positive from the colour negative, and also of preparing the three continuous-tone positives from the single linear screen-plate negative. He exhibited a considerable number of lantern transparencies, which met with frequent applause from those present. He also dealt briefly with the possibilities of obtaining colour records on paper at a single printing, and explained the application of the triplicating method, details of which have already been published in our columns, to the production of prints on "Uto" bleach-out paper. In the course of a short discussion, Mr. Oliver Dawson asked why it should not be possible to employ the principle of the process, but with paper as a support for the screen ruling instead of glass. Mr. Powrie, in reply, pointed out that the screen-plate was necessarily obstructive of light to a considerable extent, and therefore was only applicable, so far as he could see, to the making of transparencies, the brilliancy of which could be enhanced by increasing the light behind them. In the case of paper one was limited by the powers of the paper to reflect light, and he could not see that there was any likelihood of success attending the efforts of experimenters in that direction. The Chicago firm which attempted to develop the McDonough-Joly process along these lines spent very considerable sums of money without success. On the proposition of the president, a very hearty vote of thanks was recorded to Mr. Powrie for his lecture.

**HULL PHOTOGRAPHIC SOCIETY.**—On November 28, Mr. Henry J. Comley lectured before the above society on "Three-colour Photography," dealing chiefly with the three-colour carbon process, but also drawing attention to the chief characteristics of one-exposure screen plates as illustrated by the Autochrome and Warner-Powrie processes.

## Commercial & Legal Intelligence.

**C. CORN, LTD.** (Photographers, Cardiff).—A 5 per cent. first mortgage debenture, dated November 8, 1907, to secure £1,600, charged on the company's property, including uncalled capital, has been registered. Holders: F. Greenslade, Cardiff; and F. J. Hughes, Woodhouse Road, Edgbaston.

**BRITISH PHOTO PAPER COMPANY, LTD.** (Lambeth).—Issue of £1,275 6 per cent. debentures, part of series created November 6, 1907, to secure £5,000, charged on the company's undertaking and property, present and future, including uncalled capital. No trustees. No previous issue of same series.

**EVIDENCE BY PHOTOGRAPH.**—In the Clerkenwell Police Court last week a plaintiff, asking for the committal of a debtor, said the man was well able to pay.

The Judge: But you must give me evidence of his means.

Plaintiff: I have a photograph here of his family. You can see by that that they are pretty well to do.

The Judge: It is rather unusual evidence, but I will look at it.

Plaintiff: This debt was for taking the photograph.

The Judge: To judge from appearances in this photograph he can pay.

An order was made, defendant not answering the summons. The committal was seven days in default.

**THE CARRIAGE OF PARCELS.**—In the Westminster County Court last week Mr. Dudley sought to recover damages from the London Parcels Delivery Company for non-delivery of goods within a stated time.

The solicitor for the plaintiff said he undertook to provide a company of actors for a cinematograph company, to play in dumb show a piece called "Mazeppa," with a view to it being reproduced as a cinematograph show. He ordered a number of properties and costumes from a firm in Middlesex Street, which were delivered to one of defendant's carmen on a Saturday afternoon. The carman promised to deliver them on Monday morning at Wembley, and the company travelled down there. The costumes did not arrive, and the actors had to return to town. Next day they went down again, but the costumes did not arrive until late in the afternoon, when the light was too bad for the photographs to be taken. Plaintiff claimed damages for the loss he had thereby been put to.

Mr. Frank Dudley confirmed his solicitor's opening. The part of "Mazeppa" was taken by a man who is paid £1 a day. The people who took the parts were stray actors out of employment, who were paid so much a day. Some were paid £3 or £4 a day when good acting was required. There was also a trained horse at £1 10s. per day.

Mr. Harrison, assistant at Messrs. Benjamin, theatrical costumiers, said that he told the carman the costumes were required for Monday morning, at 9.30, at Wembley, and the carman replied, "That will be all right." The carman did not know for what purpose they were required.

Defendants pleaded that it was unreasonable to expect them to deliver the goods at Wembley on Monday morning, when they were only handed in on Saturday afternoon. In any case plaintiff was only entitled to recover damages directly following for the breach of contract, which they could have contemplated.

His Honour allowed plaintiffs £15 for the wages paid on the first day, and £1 in respect of telegrams, etc. Judgment for £16, with costs.

**A BRISTOL BANKRUPT.**—The case of George Gibson, 23, Clarence Road, trading as "Late A. and G. Taylor," photographer, was heard in the Bristol Bankruptcy Court last week. The unsecured liabilities were returned at £268 12s. 6d., and no assets were shown. From the Official Receiver's observations it appeared that the debtor, who is forty-eight years of age, entered into partnership with a firm of photographers in Bristol in 1903, the debtor providing £100 capital, lent him by his brother. The partnership was dissolved in August, 1906, the debtor paying £50 for his half-share of the partnership assets and £50 towards the firm's liabilities of £178, for which the retiring partner held himself responsible. The debtor effected a private arrangement in November, 1906, paying a composition of 1s. 9d. in the pound upon liabilities amounting to about £300. The present liabilities include 238 claims, mostly by poor people, who have paid the debtor for photographs to be taken sums amounting in all to £110 3s. 8d. The debtor, about a year ago, executed two bills of sale covering his trade effects and household furniture, the whole of which, however, had been realised under a distress for rent, but did not produce sufficient to meet the landlord's claim.

**GAZETTE NOTICES.**—The following notices appear in the issues of the "London Gazette" for the past week:—Dividend: Arthur Holdsworth Leach, photographer, Haigh Street, formerly Brooklyn Terrace, and Commercial Street, all in Brighouse, Yorkshire, 9s. 6d. in the £1 (supplemental), payable on and after December 7 at Official Receiver's chambers, 29, Manor Road, Bradford. Intended dividends: John Edward Reeves (described in the Receiving Order as J. E. Reeves), photographer, 48 and 50, Hermit Road, Canning Town, E.; last day for receiving proofs December 18; trustee, Egerton S. Grey; Official Receiver, Bankruptcy Buildings, Carey Street, W.C.

**"HALF-TICK" PHOTOGRAPHY.**—During a case in the Clerkenwell County Court last week, which involved a question of account, his Honour (examining a ledger) asked: "What does the Half-Tick Photo Company mean?"

It was stated that a business was carried on under that name.

The Judge: I believe that in some business circles there is a term popularly known as "tick."

Counsel: This has a different meaning, your Honour.

The Judge: This is only half-tick.

Counsel: It means that you can have your photograph taken in half-a-tick, really less than a second.

The Judge: I see. This means no waiting—different from "tick."

## News and Notes.

**ERRATUM.**—A slip of the pen occurred in our brief notice given last week to the carbograph booklet of the Rotary Photographic Company. The word "ozobrome" should, of course, read "carbograph." We would not wish to raise confusion between the two processes, which are perfectly distinct.

**CRITERION.**—The many users of the products of the Birmingham Photographic Company, Ltd., which of late have come to the front, will be interested in an article published in the "Birmingham Daily Gazette" for November 27, which contains a biographical sketch of Mr. J. B. Brooks, J.P., the controlling interest in the Criterion firm. The article is one of a series on "Midland Captains of Industry," and relates the story of Mr. Brooks's successful business undertakings. Probably few users of Criterion gaslight papers or P.O.P. are aware that the destiny of their manufacture is in the hands of the successful commercial leader who has made the name "Brooks" synonymous in all parts of the world with comfort in cycle saddles. Mr. Brooks's firm is also a large maker of motor tyres. Some twenty years ago Mr. Brooks founded another distinct business for the manufacture of photographic printing-off papers and other accessories to the use of the camera. This trade steadily grew, as the increasing cult of the camera led to widening demands for all kinds of photographic materials, and Mr. Brooks ultimately converted this business into a private company, under the style of The Birmingham Photographic Company, Ltd. Land was acquired at Stechford, and there new premises were opened ten years since. These are also named The Criterion Works, where, in addition to special makes of printing papers, including the popular "Celario" gaslight paper, millions of postcards and useful incidentals, covered by patents, are turned out in the course of the year. The Stechford works are electrically lighted and equipped with an up-to-date plant. Active and capable as he has been in his long business life, Mr. J. Brooks has never digressed from his own immediate commercial interests. He has devoted himself absolutely to the building up of the prosperous undertaking of which he is the head, and has never therefore spared time for those extraneous duties which bring a man prominently into public notice.

**ANTI-HALATION.**—A French patent, No. 379,187, has been granted to the Société Lumière for the use of colloidal brown manganese oxide as the colouring matter for the film which is interposed between the sensitive emulsion and the glass as a means of preventing halation. It may be prepared either by warming together solutions of gelatine and potassium permanganate and mixing the brown liquid thus obtained with gelatine, or by adding ammonia to a solution of gelatine, a manganous salt and an oxidising agent, e.g., hydrogen peroxide.

**"VELOX" COMPETITIONS.**—The awards in the October competition are:—First prize, £2 2s.: A. E. Marley, Cricklewood, N.W.; second prize, £1 1s.: T. Griffin, Holborn, E.C.; consolation prizes of 5s. each: E. A. Mills, Rochdale; G. F. Manders, Limerick; F. N. Tipton, Bristol; B. C. Joy, Hampstead; H. W. Fortune, Harrogate; W. C. Collinson, Ipswich; Miss B. Cumming, Elgin Avenue, W.; T. Lord, Castleton, Lancs.; Rev. E. S. Edwards, Finsbury Park, N.; J. Worswick, Nelson; C. H. Krauss, Shepherd's Bush; R. T. Caudwell, Salisbury. The competition is limited to those who have never won a prize before.

**ARTIFICIAL LIGHTING.**—In reference to an article on artificial lighting, which appeared on page 907 of our issue for November 30, a correspondent writes asking us to give him the address of the London agents of the Litz gas-lighting apparatus referred to in the article. We should be glad if any of our readers could supply us with the desired information.

**COLOUR-PHOTOGRAPHY AT NEWCASTLE-ON-TYNE.**—Professor Mark R. Wright, M.A., will give a lecture on "Colour-Photography," with lantern illustrations, in the great hall of Armstrong College, Newcastle-on-Tyne, on December 14, at 7.30 p.m. Examples of colour-photography by prominent workers will be on view on December 14 from 2 to 5 p.m., and on December 16 from 11 a.m. to 4 p.m. Admission to the lecture will be free, though tickets

(6d.) for a limited number of reserved seats may be had on application at the College up to 5 p.m. on December 13.

**"THE PHOTOGRAPHER."**—It is announced that the New York professional photographic paper founded by Mr. J. C. Abel as the "Photographer" has been purchased by Mr. Frank V. Chambers, and has been discontinued with the issue bearing the date of October 15, 1907, and numbered 181. Mr. Chambers is proprietor of the "Camera," and three months ago established the professional "Bulletin of Photography," which journal will be sent to subscribers of the "Photographer."

**"THE PRACTICAL PHOTOGRAPHER"** announces that with the December number just issued it will cease publication. The "Practical" has undergone several changes of late, but its "studio" edition has, under the editorship of the Rev. F. C. Lambert, been, perhaps, of too high a standard to reach a wide circle.

**CARL HENTSCHEL (1906), LTD.**—On and after December 1, the two branches of Carl Hentschel, Ltd., at West Norwood, viz., the Colourtype Works at Knight's Hill and the Meisenbach Works at Wolfington Road, will be amalgamated and worked in common from one office at Wolfington Road, to which all communications should be sent. Mr. Fogwell surrenders his old duties in order that he may from the Fleet Street office personally assist Mr. Hentschel and the board in the general control of the business. Any friends who have been accustomed to seeing Mr. Fogwell personally will now kindly note that he will be pleased to see them in Fleet Street instead of at West Norwood.

**A NEW "LORNA DOONE."**—The new edition of "Lorna Doone," which is to be published in a very few weeks by Sampson Low, Marston, and Co., Ltd., who were R. D. Blackmore's own publishers, will throw new light on the real people and the real places of the West Country classic. It is to have fifty pages of illustrations, including all the places prominently mentioned in the novel, and while these will dispel the cherished idea of the inaccessible Doone Glen, guarded by the great Doone Gate and the fearsome water-slide, they will give a good idea of the glorious land of moors and rills that inspired Blackmore's book.

The editors and illustrators of the book (Mr. H. Snowden Ward and Mrs. Catherine Weed Ward) have confirmed and corrected many old identifications, and added a number of new ones. The church at Oare, and the scenes chiefly visited by tourists are all represented, but there are also such subjects as the real "Plovers Barrows," the "long gun at Yenworthy," with which a Doone was shot, Weir Water, and the Robbers' Bridge, said to be where the real Doone settled before going to Badgery, Glenhorne Landing, where Jeremy Stickles' men waited until the time to attack the Doones, the district of the Wizard's Slough, connected with the terrible death of Carver Doone, Lanacre Bridge, where Stickles narrowly escaped, and even the hostelry at South Bolton where he filled the flask that saved his life.

The Spit and Gridiron at Porlock, where Jan Ridd bought his powder and lead from Mr. Pook; the Gartered Kitten, at Dulverton, where Uncle Huckaback threw; the church at Watchet where Lorna's mother was buried, and the Warren Farm, where Simon Carfax and his miners slew several of the Doones, are all illustrated.

**RAJAR (1907), LTD.**—Messrs. Rajar, Ltd., write:—We beg to inform you that a new company under the name of Rajar (1907), Ltd., will be incorporated in a few days with the object of taking over Rajar, Ltd., as a going concern. The new company are taking over the assets and undertaking to discharge in full all the liabilities of the old company. The management remains the same.

**A RECORD IN ENLARGEMENTS.**—Mr. S. H. Fry, the well-known enlarger of Frisian House, Highbury Grove, London, N.W., has shown us within the past few days an enlargement which, it would seem, he is just in assuming to be a record in size and degree of enlargement—among orders executed in the ordinary way of business. Larger prints have been made for show or advertisement purpose, but the making for a customer of some half-dozen enlargements measuring no less than 50 x 112 inches, and this from a negative, only 2½ x 1½ inches, would seem to be a record in the enlarging trade. These dimensions, it will be seen, represent a degree of enlargement of fifty times, and it says a good deal for



the skill of Mr. Fry's staff and their ability to deal with any work, great and small, that the technique and quality of the large prints are excellent, and the definition, when viewed at a normal distance, equal to what one gets in a 20 x 16 enlargement. It may be of interest if we add to this notice of our Frisian friends' achievement that the tiny negative was on a Lumière square plate, and was exposed in a "Blocknote" camera. The result is a tribute to the chemical and mechanical properties respectively of these articles.

THE "RAJAR" CAMERA offered monthly by Messrs. Rajar, Ltd., of Moberley, Cheshire, for the best print on "Rajar" P.O.P. has been awarded to Mr. H. Bunce, Caterham, his print having been judged the best received during November. The paper on which the print was made was purchased from Messrs. Kodak, Ltd., 17-61, Clerkenwell Road, London, E.C.

SIR W. ABNEY ON COLOUR PROCESS.—On Wednesday, November 7, a general meeting of the Central Technical College Photographic Society was held, with the president (Professor H. E. Armstrong) in the chair. Sir W. de W. Abney gave a most interesting demonstration of colour photography.

## Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* We do not undertake responsibility for the opinions expressed by our correspondents.

THE ULTRA-VIOLET RADIATION OF ELECTRIC LAMPS.

To the Editors.

Gentlemen,—The passage from von Hübl's paper, referred to by Carnegie, not only refers to the absorption of the ultra-violet rays by the glass of the tube, but also to the fact that von Hübl's "practical work" includes the use of the lamps for the illumination of subjects to be copied and for printing, both on to silver paper and bichromated collodis. This naturally assumes a negative, which would be on greenish glass, the latter being a very strong absorbent of ultra-violet rays.

With regard to the absorption of the ultra-violet by the glass of the mercury-vapour lamp, I have had an opportunity of photographing the spectrum of two lamps, one with ordinary glass and the other constructed of the Jena Uvial glass. No variation could be detected in the two spectra as regards the ultra-violet, in both cases  $\lambda$  3390 being the last line recorded. This abrupt absorption is due to the loss of the lenses used in the spectrograph, which were single landscape lenses of a total thickness of about half an inch. A metal diffraction grating being used, and not a replica, there was no absorption caused here.

With regard to your correspondent's assumption that there would be a richer emergent ultra-violet radiation from the mercury-vapour lamp than from the enclosed arc, this would depend entirely upon whether the mercury-vapour was richer in ultra-violet than the enclosed arc. It is, I think, an open question, and I do not believe it is to be the case.

The mercury lamp is practically an arc in a vacuum, and this does not give a rich ultra-violet spectrum between  $\lambda$  4000 and 3390, which may take as the limit set by the absorption of glass. The lines in this region are 3984 (4), 3663 (5), 3654 (5), 3650 (10), 3390 (3). The figures in brackets represent the relative intensities of the lines. One or two iron lines are also generally to be photographed.

In the enclosed arc one has to deal with not only the carbon and hydrogen spectra, but also the inevitable impurities, such as calcium, which in the said region is extremely rich in intense lines and bands, not also aluminium and iron. Although I have not made direct comparison of this region from the two sources an examination of numerous negatives, all taken on the same make of plate at different times, conclusively proves that the enclosed arc gives, photographically, a much greater effect than the mercury vapour tube.

With regard to the non-appearance of the quinine fluorescence in the mercury light, might I suggest that a possible explanation lies in the fact that this fluorescence is excited by a particular ultra-violet region, which may be missing in the mercury tube. My idea is that in the enclosed arc one has broad bands, whilst in the mercury tube one gets isolated lines; therefore the latter may just miss that particular region which excites the fluorescence of quinine. This is but a suggestion, and not stated as a fact.—Yours faithfully,

Ealing.

E. J. WALL.

To the Editors.

Gentlemen,—Referring to Mr. Douglas Carnegie's letter in your last issue, and his experiments in connection with Baron von Hübl's statement that the glass cylinder surrounding the lamp absorbs the greater part of the ultra-violet rays, we think that Baron von Hübl's experiments were made with old patterns of enclosed arc lamps. In the "Jandus" photo-arc lamp the enclosure consists of a cylinder of special glass which is extremely transparent to violet and ultra-violet rays.

Mr. Carnegie's interesting experiments with quinine citrate can be supplemented by the following experiments:—

If a sheet of ordinary glass is held near the light from the Jandus photo lamp, the glass will become to a certain extent fluorescent. Uranium tinted yellow glass shows this fluorescence to a very marked degree. The only satisfactory way to examine the composition of light is with a spectroscope. Even a visual spectroscopic examination gives a very good idea of the composition of the light. Lights apparently the same in colour often contain widely varying amounts of actinic or non-actinic rays. Even daylight from a good north aspect will show marked differences in the brightness in the actinic (violet) end of the spectrum.—Yours faithfully,

THE JANDUS ARC LAMP AND ELECTRIC CO., LTD.

A. DENMAN JONES, Works Manager.

Hartham Works, Hartham Road, Holloway, London, N.

December 3, 1907.

## PORTRAITURE BY ARTIFICIAL LIGHT.

To the Editors.

Gentlemen,—In the article in your issue of November 22, entitled "Portraiture with the Mercury-Vapour Lamp," by Mr. Geo. R. Henderson, I think it is a pity that he is not satisfied with extolling the merits of his own, but must begin by trying to depreciate other systems. Nearly every statement in the second paragraph can be flatly contradicted, and, indeed, shows very little knowledge of the subject. A reference to your issue of November 8, I think, is the best answer that can be given to this paragraph, especially referring to the article entitled "The Enclosed Arc for Studio Portraiture."

It can hardly be claimed as an advantage that, "although for ordinary purposes the plates have been of the same speed, when used with the mercury-vapour lamp, each plate has required a different exposure." Further than this, as you have to "expose for six seconds," and "in no case exceeding nine or ten seconds," I should think that Mr. Henderson had himself quite disposed of any claims the mercury-vapour lamp may have for portraiture work. The exposure with enclosed type lamps, as your Mr. Hewitt's article referred to above, page 841, last paragraph, is a quarter of a second.

—I am, yours faithfully,

J. O. GIRDLESTONE.

Westminster Engineering Company, Ltd., Willesden, N.W.

November 27, 1907.

## THE LATE MR. A. L. HENDERSON'S PHOTOGRAPHIC LIBRARY.

To the Editors.

Gentlemen,—It may interest the readers of your paper to know that I have presented to the Guildhall Library, of the Corporation of the City of London, the photographic library of the late Mr. A. L. Henderson, thus placing within reach of all interested in photography the vast amount of information contained therein. Amongst the collection are bound volumes of your journal, from 1859 to 1906, 58 volumes "British Journal Almanac," and the "Photographic News Year Book, 1862-67, 1869-71, 1873-94, 1902 and 1904, 35 volumes; also the "Photographic News," Vol. 1 to 40, 1859 to 1896, 40 volumes.

W. LEWIS GRAY, son-in-law of late A. L. Henderson.

Westmoor Hall, Brimsdown, Middlesex.

November 26, 1907.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- T. Bell & Co., 35, High Street, Chatham. Two Photographs of the Bend of the Argyll and Sutherland Highlanders.
- J. Totty, 1, Chapel Street, Southport. Photograph of the Southport and Birkdale Postal Military Band.
- W. C. Harrison, 69, Southtown Road, Great Yarmouth. Photograph from Print of N. E. View of Burgh Castle, near Great Yarmouth.
- E. Roberts, Cartref, Toller Road, Leicester. Photograph of Evan Roberts.
- Capt. H. Owen, J.P., The Quarry, Stourbridge, Worcestershire. Photograph of the China Clipper ship "Sir Lancelot" Under all Sail. From a Black and White Drawing. Photograph of Ship "Red Jacket" amongst the Ice off Cape Horn in August 1854. From a Black and White Drawing.
- R. Thirlwell, 21, Bridge Road, Stockton-on-Tees. Photograph of Stern View of Model of Steam Ship "Mauritania."
- A. A. Bess, Amesley House, Westwell Road, Stratham Common, London, S.W. Photograph, Seashore with Donkeys, Goats, and Boys, Greece at Littlehampton, July 6, 1907.
- S. H. C.—1. Plane parallel glass optically worked so as not to impair the definition of the lens in any way. 2. Any series of filters can be obtained in this form, but the fact is certain to be stated in any list or catalogue. 3. Certainly. 4. For outdoor work the X2 times will be sufficient, but for stained glass we should advise you to use the X7 times. You appear to have the corrective action of the two screens interchanged in your mind. 5. The other (X2) screen will be sufficient. 6. Certainly, wherever there is a wide range of luminosities in the scene, and where portions admit of shading. 7. Only in event of using lenses of very large aperture— $f/3.5$  or  $f/4.5$ .

VARIOUS.—1. If a whole-plate lens is used in a half-plate camera, is every  $f$  value doubled? 2. A writes a book, which he illustrates with photographs, and makes an arrangement with B, a photographer, to supply him with them from his stock of negatives. Among them are several portraits which were taken privately and paid for by the sitters, CCC, persons since dead, but whose relatives, DDD, are still living. Has B any right to use the portraits CCC without the consent of DDD?—X. Y. Z.

1. No, it remains the same. 2. There is no restriction to B's use of the portraits unless the copyrights in the photographs have been registered, and also transferred to survivors of CCC.

BRITISH JOURNAL (Cape Town).—Either a folding camera, such as (2) or one of the reflex type. The latter are largely in the majority among process photographers working under conditions which do not compel them to carry the camera long distances. No. 3 is a first-rate instrument, but there are altogether thirty makes of reflex cameras. See the "Almanac" just published. We should advise you to select one of this type which possesses ample rise of front, double extension, and ready alteration of shutter-speed. The higher-priced cameras are worth what they cost.

C. W. THOMPSON (Colombo, Ceylon).—We presume you refer to the Lumière, Warner-Powrie, and other processes. We can best refer you to the article on them in the "Almanac" just issued.

COPYRIGHT.—I am an author, and occasionally give sittings to professional photographers, at their request. I pay them nothing, and they give me a few copies. It is understood that they may sell as many as they please. I think of prefixing a copy of one of these to a forthcoming work. Am I at liberty to do so?—F. S.

The copyright is the photographer's, and legally must not be used without his sanction. Most usually a photographer will

allow a sitter such as yourself to use the photograph for his personal purposes.

REDUCER FOR BROMIDES.—Can you give me any advice as to what generally used by artists and others for dissolving away reducing a part of the image on a bromide enlargement without leaving any stain? A one-solution reducer preferred.—ARTIST.

Ten per cent. solution of iodine in potass. iodide solution, 30 minims; 10 per cent. potass. cyanide solution, 10 minims; water, 2 oz.

PHOTOGRAPHS ON IVORY.—I should be glad to know if I can obtain any information in back numbers of "B.J." describing process of painting images on ivory for miniature painting. Also please state name of firms who do this work. Are there any books on the subject?—H. C. JOHNSTONE.

Photographs on ivory, for miniature painting, are made by the carbon process. The pictures are first developed on temporary supports, and then transferred to the ivory. The method of doing that was described in an answer to a correspondent in the issue for November 22, page 895. Working details of the carbon process are given in the "Autotype Manual" and Illingworth's book on the carbon process. Both the Autotype Company and Messrs. Illingworth and Co. will make prints on ivory for you.

EMBOSSING PRINTS.—I have been requested by a customer to copy the enclosed photograph and mount them in the same way.

I do not know how it is done, I would be glad if you would be so good as to let me know in the next issue of the "Journal." I would like to know if it needs any special appliances. If possible please state where to be obtained. It is only the raised mounting I wish to know how to do. I am fully acquainted with the glazing.—A. BERRY.

To produce the relief an embossing press is required. Presses for the purpose are sold by such houses as Fallowfield, Houghtons, and the like. These are screw presses furnished with metal discs with openings of the size and shape of the raised portion desired. The enamelled print, after being trimmed, is put into the press and pressed up. It is then fastened on to a mount with thin glue, or starch applied round the edges. The print has been returned to you as requested.

BLEACH-OUT PAPERS.—Can you tell me where I can obtain a bleach-out colour printing paper called, I believe, the "Uto"?—STEVENS.

Oliver Dawson, 254A, High Holborn, W.C.

A. W. H. P.—You are mistaken. The British patents for the Krayn process are dated September 22, 1905, and January 1, 1906. The German patent is dated September 24, 1904. You shall be most interested in seeing the specimen plates.

J. S—AND SONS.—We are much obliged to you for the T. query circular, but it appears to contain no new developments in the free-portrait fraud.

R. N. HARMER.—We do not understand your query. A white effect is usually obtained by blocking out on the negative. Why not send us a specimen postcard?

"UNOFOCAL."—There is not a great difference between the lens. We should select the "A" or the "B 1."

MOTOR.—They are not entitled to represent themselves as holders of a Royal appointment.

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## The British Journal of Photography

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## SUMMARY.

At the R.P.S. on Tuesday a paper on the use of agar-agar in emulsions, particularly for direct sepia bromide paper, was read by Messrs. W. F. Cooper and W. H. Nuttall, by whom a most comprehensive series of experiments have been made. (P. 946.)

Portraiture by artificial light and stand development occupy our correspondence this week. (Pp. 949-50.)

Professor Namias and a colleague have failed to find any advantage in a recent modification of the persulphate reducer in comparison with the usual formula. (P. 940.)

A writer in the "Amateur Photographer" has devised a novel use of the bromoil process, namely, for automatically brightening the shadows of bromide prints. (P. 943.)

A brief biography and an appreciation of the late Martin Jacolette appear on p. 941.

Dr. Sheppard reports progress in the Krayn screen-plate process. (P. 944.)

Mr. W. J. Casey, of Raines and Co., mentions a precaution in making negatives for the post. (P. 943.)

In "Wayside Notes" the "Man on the Road" comments on some matters of advertising for photographers and on a point of importance in Christmas business. (P. 935.)

Mr. Rawlins last week at the Blenheim Club demonstrated his method of working the oil process. (P. 941.)

Multiple portraits, a stereoscopic tripod head, and a daylight development apparatus are among the patents of the week. (P. 943.)

The alteration in rapidity consequent upon using a long-focus lens in a small camera may sometimes have a practical effect. A note on this point appears on p. 934.

## EX CATHEDRA.

### The Art of being Inaccurate.

The present boom in colour photography has compelled those who devote their time to the instruction of people less wise than themselves to attempt the explanation of the principles of three-colour photography. This is, perhaps, not a particularly easy matter, and it involves one very troublesome point, that is, the explanation of why we print in blue, red, and yellow when the primary colours are blue, red, and green. In the beginning, this is not an easy thing to understand, and when one does understand it fully it is not simple to explain. But it can be explained by those who take the trouble to express themselves clearly, and there is no excuse for deliberately adopting a wrong explanation just because it is easier to convey. There have been many instances of would-be authorities attempting to explain the whole thing on the basis of red, blue, and yellow primaries, but perhaps the worst instances are those in which it is suggested that after all it is little more than a matter of terms, and that we may just as well speak of red, blue, and yellow as of red, blue, and green, the inference being that there is only some slight difference of opinion as to the third primary. Such an explanation will never help any one to understand that the pigmentary primaries are really the complementaries of the true primary colours, and if this essential point is shirked it is quite impossible to explain three-colour photography.

\* \* \*

### A New Spectrograph.

Dr. R. H. Blochmann describes in the "Zeitschrift für Reproduktionstechnik" a new and simple form of spectrograph, which he specially commends for testing two plates at once. The apparatus consists of a brass tube, at one end of which is a sheet of ground glass, which practically becomes the source of light; behind this is the usual slit, collimator lens, and a Fresnel prism, so that the rays of light are split up into two equal beams, which, falling on a grating replica, give two spectra, one above the other, on strips of the two plates to be compared. The camera is designed for strips 2½cm. by 9cm. The apparatus is made by Schmidt and Haensch, of Berlin.

\* \* \*

### Film Thickness And Colour Sensitiveness.

Dr. E. Stenger, of Berlin, has been investigating the influence of the thickness of the sensitive film on colour-sensitiveness, and comes to the conclusion that with increasing thickness of sensitive film there is increasing colour-sensitiveness. There is a limit to the permissible thickness, not only on account of slow fixing and washing, etc., but also on account of the slow drying of the plates—that is, as they come from the coating machine. Plates which are very slowly dried lose in sensitiveness, and any inherent fog increases. The author

also incidentally remarks that the generally accepted opinion that thickly-coated plates enable under-exposure to be better compensated for than do thinly-coated plates is erroneous.

\* \* \*

#### Long-Focus Lenses in Small Cameras.

Our "Answers to Correspondents" columns last week contained a curious question, to the effect whether the use of a whole-plate lens in a half-plate camera doubled the  $f$  values. We may have been wrong in our interpretation of the question, but, as we read it, it appeared to suggest that the querist was doubtful whether the whole-plate lens would not be slower in the half-plate camera than in one of whole-plate size. This, of course, could not be the case, but probably many photographers have failed to notice that the contrary is sometimes true. That is to say, that a long-focus lens may require somewhat less exposure when used in a small camera, even though the  $f$  values of the stops remain the same. This is due to a circumstance that we mentioned in a recent note on even illumination in printing. If using a large-aperture lens of, say,  $f/5.6$ , there is considerably less illumination near the margins of the field than in the centre of the plate. The falling-off may be 50 per cent. or more, in which case an exposure just sufficient in the centre of the plate is far too little at the margins, and the general effect is one of under-exposure. This is one of the numerous cases in photography in which we have to make a compromise. We must increase the exposure in the centre to avoid under-exposure at the margins, but the necessity for this increase becomes less and less as we diminish the size of the plate. It may, therefore, happen that a small plate only occupying the centre of the field may require very much less exposure than a large plate that fills a big view angle. Of course, a great deal depends on the character and type of the lens. With some large-aperture lenses oblique pencils are not materially cut down until the view fills a fairly wide angle, but with others the full aperture is only effective over a very small patch in the centre of the plate. The matter is, however, worth remembering, as it is sometimes desirable to take it into account.

\* \* \*

#### Defective Apparatus.

In an article that recently appeared on scamped work in the manufacture of photographic apparatus we see that one of the complaints made concerns the use of thin porous wood in the shutters of the dark slides. An instance is given of every shutter in a set of three slides containing one patch of porous wood that let the light through sufficiently to fog the plate. Blame is, of course, laid on the maker for the use of too much machine-made work and for the omission to test the apparatus properly, while some is also awarded to the customers who demand cheap work. There is, however, a great difference between cheap work and bad work. If the customers only demanded cheap apparatus, it could be supplied to them in a perfectly efficient condition. The trouble is that they want the real price to be very low and the apparent price very high. That is, they want apparatus that looks expensive and is really very cheap, which means that a good part of the cost has to be expended in meretricious finish and in poor qualities of expensive material. They also demand elaborate movements and lightness, which means the skimping of material where solidity is desirable. A mahogany dark slide of double book form is not a thing that can be made well and be at the same time very thin and cheap. If thin the shutters must be made of wood of the very best quality, and the price will not admit of this. Cheap mahogany is a very treacherous material, and if used trouble of one

sort or another is sure to be met with. Then, again, triple-extension baseboard to be steady and reliable requires good workmanship, fitting, and material, and should be more or less weighty. In such a piece of mechanism rigidity cannot be expected under any other conditions, but the people who demand such baseboard are not prepared to pay the necessary price. The kind of apparatus that they want, if properly and scientifically constructed, would cost double what they are willing to pay, hence the grumbles of the ill-treated economical amateurs. They could have all they really need at a low price if they would only be content with simpler and heavier construction and less show. At the same time, we must admit there is a good deal of truth in the grumbles concerning inefficient testing. Judging by the apparatus of good quality that has passed through our hands, it is evident that a certain proportion of manufacturers have no carefully elaborated testing system, such as is essential to prevent the issue of defective articles.

\* \* \*

#### Lady Novelist's Photography.

Morals and all the proprieties we expect and obtain in the publications of the "Religious Tract Society," so, perhaps we must grant the writers, whose work it issues to the world of the circumspect and straight-laced, some little license in some respect. Surely even the young person for whom a recent volume by Mrs. Vaizey is intended will find it difficult to repress a smile when they read how the mystery of the story is cleared up—namely, the registration upon the photographic plate of the features of a thief. Not everyone who photographs by permission in a man's house and is afterwards open to suspicion in connection with the simultaneous disappearance of valuables from a desk is so fortunate as to find a portrait of the thief a work on developing his plate.

#### DEPTH WITH DIFFERENT LENSES.

A RECENT query in our "Answers to Correspondents" column raised once more the everlasting subject of the variation in depth that exists with lenses of different types. On this matter much misconception seems to exist. On the one side we have people declaring that depth depends solely on aperture and focal length, and is independent of all constructional features—which statement is scientifically quite wrong—and on the other side we find persons who seem to expect that every lens made gives a measurably different degree of depth.

It should be understood that constructional peculiarities of the lens only affect depth when the object in sharp focus is near, and that the only constructional peculiarity of importance is the position of the stop, the effect of which is very small. In the case of distant objects it is correct to say that depth varies solely with focal length and aperture, provided we consider the angular and not the effective aperture, and provided the lens is quite free from spherical aberration. In these circumstances the lens should give results as regards depth in exact agreement with the calculated results given in the tables, though the presence of even a small amount of aberration will upset this agreement. In point of fact the calculated results can only apply with exactitude to an ideally perfect lens, that is, to one that converges all the light received from a distant point to a perfect point focus, or produces a perfect cone of light bounded by straight lines. Such a lens does not exist. The image of a point is always a disc, and, however small the disc may be, a close analysis of the structure of the light pencil will reveal the fact that caustics exist in it, and that it is therefore not a perfect cone. A simple test is to throw the image of the point a little



of focus and examine the small disc of light then apparent. On one side or the other of the true focus the disc will generally show a dark centre bounded by a ring of light, which appearance indicates unmistakably the existence of caustics and of slight spherical aberration. In these circumstances depth must be affected, even if only to a very small degree.

The manner in which depth is affected by aberration can be easily proved by any one possessing a camera and lens of indifferent quality, say, a cheap "single landscape" lens. Prepare a small source of light by placing a pinhole made in a thin sheet of metal in front of an incandescent gas burner. As the experiment is only for illustration purposes, the light may be near the camera. Focus sharply on the pinhole, and then rack the camera until the image is an appreciable disc. This disc must not be too large or the test will break down, therefore keep the disc as small as is convenient for after measurement. Next, keeping all the adjustments of camera and light exactly the same, make a series of exposures recording the exact size of the disc with every stop of the lens, from the largest aperture possible down to the smallest. Then measure the diameters of the discs obtained.

This series of disc images now represents the disc of confusion produced by each stop, and, according to theoretical laws governing depth in ideal conditions, the size of confusion should vary in diameter in exact proportion to the size of the stop. Check the measurements against each other, and it will almost certainly be found that the discs do not by any means vary in the same ratio as the stops. In one lens with which we tried this ex-

periment, we found not only that the ratios were all wrong, but that the two largest stops, and also the "naked" lens without any stop, gave discs of exactly the same diameter. All these stops were bigger than the one the lens was intended to be used with, but even with the stops that did not exceed the maker's maximum the ratios were completely wrong. As a matter of fact, the whole of the discs were much too small, and as a result the depth given by the lens was always considerably greater than the calculated amount. This was not a good lens at any aperture, but the conditions that prevailed as regards the disc of confusion were only exaggerated examples of what occurs to a certain extent with every lens. With a very finely corrected lens the variations may be unmeasurable, and such a lens will probably work almost exactly in accord with theory. A poor lens will depart from the theory, and will give greater depth with much inferior definition.

When depth varies on account of aberration, it sometimes varies differently on opposite sides of the point in sharp focus. The near depth may be increased, and the far depth diminished, or vice versa. Possible misconceptions may arise from two lenses of different character being compared, for as a rule it is near depth that is most usually considered. The difference between well and poorly corrected lenses is also often exaggerated, owing to the fine definition attainable with the former type. This sets such a high standard that an amount of confusion quite tolerable with the poor lens is intolerable with the other. Therefore, as regards depth the fine anastigmat is likely to be unfairly judged if visual tests alone are relied on.

## WAYSIDE NOTES ON CURRENT TOPICS.

grand rebuked. In my last instalment of wayside experiences I used the expression "butcher, baker, candlestick-maker" in rather a pharisaical spirit, and lo! I am brought to book. By candlestick-maker. He is a real craftsman, and his candlesticks are things of beauty. If you know that delightful monthly "Studio," you will occasionally have seen reproductions of the kind of work my friend produces—and of which he is, not unreasonably, proud. I tried to conciliate him by saying that his candlesticks were not the ordinary candlestick of commerce, but would not be silenced. He asked me whether I had ever seen a candlestick in china or tin that pretended to be other than what really was. Had I ever seen one that was not strong—had I ever seen one that showed that the man who made it could have done his work more faithfully had he not been cut down in price by his neighbour? Of course, I had never examined the candlesticks I have had given to me at the country hotels very closely, and so, for lack of any effective reply, I had to agree with him. And then he asked me whether I could apply the same argument to photographs!

A few days later we were at the "Royal" together. He addressed the William Crooke wall, but asked where were the other professionals in the section seemingly devoted to their work. I assembled by saying they preferred to take the risk of acceptance by competing in the Pictorial Section. And then he followed the matter up. "Yes," he said, "Furley Lewis, Oscar Hardee, E. Symes, Whitehead, Treble; that's five." I pleaded that though I know the profession well, I could not be expected to know every man whose work was in the room. "Of course not. I give you the benefit of the doubt and say there are twenty. Now can you tell me any other branch of the arts in which at any exhibition the amateur element should be so overwhelm-

ingly more in evidence than that of the men who made their living by it?"

In vain I argued that it was the fault of the great British public and that the professional has to bring up his family. He pointed to the Oscar Hardee "Bruges" and said, "Why don't they take a camera on their holidays?" "Well, with a good many of them it doesn't run to any holiday at all—let alone one on the Continent." Instantly he turned to the same man's "A London Portal." "Do you know where that is? That's the Tower Bridge—and the chances are that it was taken on a Sunday, because the bridge is never so free from traffic as that when I see it on week-days." I did begin to regret my unlucky reference to his occupation.

"It's like this. Five out of six of your friends call themselves photographic artists, and they know about as much of art as they do of the differential calculus. And they think they can fool the public by sticking up the signs, Gainsborough Studio, Romney Studio, Vandyke Studio, Rembrandt Studio, while all the time the public that they pretend cannot appreciate good work is buying little handbooks and portfolios of reproductions of the work of these old masters, literally by hundreds of thousands. You must remember that the British public of to-day is not the same as that of fifty years ago, or even twenty years for that matter. We candlestick-makers you despise so much have learned that lesson; we know that the ability to hammer metal is not more valuable than having had an art training that has taught us the principles of designing. Can you say as much for your friends the photographers?" I am wondering now whether the makers of the weird shapes in rolls that I sometimes get handed to me have had Polytechnic courses in designing. And

at Christmas time the butchers display beribboned and rosetted carcasses of prize beasts.

I do not want another ragging, so I think I had better withdraw my reference to "the butcher, the baker" as well as to "the candlestick-maker."

\* \* \* \*

A photographer in one of London's western suburbs has hit upon an idea for turning the prevailing Limerick craze to his own advantage. Inserting the first four lines of the Limerick in a local paper, he stipulated that the fifth line should be filled in upon postcards that he would supply gratis. He offered three cash prizes amounting in all to two guineas, and twenty-five prizes in the form of a cabinet photograph. Over two thousand replies were sent in, and as his is a studio in which work at "popular prices" is done, the scheme no doubt repaid him well. For those who wish to imitate him it may be said that the first four lines ran as follows:—

There's a place in ——— High Street  
Where they take your photo a treat  
———— the name

For they're good at the game,  
And the first three prize-winners' lines to complete were:—  
And they give satisfaction complete.  
And their rivals all take a back seat.  
And ——— a firm you won't beat.

\* \* \* \*

In case my friend the candlestick-maker should read the foregoing, I would explain that the photographer responsible for the competition displays on his signboard the terms "Photographic Contractor."

\* \* \* \*

How many of my readers, I wonder, find any amusement in rummaging through secondhand booksellers' shops? From his occasional references to the subject, one may easily gather that the Editor of the "B.J." yields to the temptation at times. Yes, temptation is the right word; I know that now that the old Wych Street has been pulled down in the Strand widening scheme, I can get from the Law Courts to Wellington Street much more quickly than I could when Wych Street was a "short cut" that always involved at least twenty minutes going through the "twopenny" boxes of the secondhand booksellers most of whom have now migrated to the street, well known by name at least to most photographers, called Charing Cross Road.

My last purchase was made just after the report of the P.P.A. meeting devoted to "Advertising" appeared in the "B.J." I confess that I was under the impression that advertising was comparatively modern, yet in my "twopenny" book I was taught differently. "Saunterings In and About London" was published in 1853, and describes the wanderings of an Austrian exile in London. One of his first impressions of London is that of various advertising methods. "There is no other town in the world," he writes, "where people advertise with so much persevering energy—on so grand a scale—at such enormous expense—with such impertinent puffery—and with such distinguished success." And again, "It is either advertising or being ruined. We have said it before. Many of our readers will think this bold and unwarranted assertion. It is neither the one nor the other." And then he goes on to describe the business of "Mr. Bennett, who keeps a large shop of clocks and watches in Cheap side." This generation knows the shop as that of Sir John Bennett; and probably very few know that he spent £900 on the insertion of his advertisement on the back cover of the Great Exhibition catalogue. Presumably the exhibition referred to is that of 1851 in Hyde Park. I should have liked to have been present at that P.P.A. meeting, and to have had my "twopenny" find wherefrom to have read extracts.

\* \* \* \*

In the advertising pages of a recent issue of the "B.J." there was a list of the latest dates upon which to post photographs in order to reach their destinations by Christmas. It seems to me that an important addition would have been a reminder of the fact that in the week or so immediately preceding the holidays there have been for some years now bad delays in the Postal Service. Towns in the provinces that are supposed to be within four or five hours' postal transit of London were kept waiting nearly as many days last Christmas. I know for a fact that in Manchester and Liverpool parcels arriving by passenger train service came through much more quickly than by parcels post. This should be remembered when ordering material; platform stocks are not likely to run out unexpectedly, but gaslight and bromide papers are, and therefore it is as well to be on the safe side by ordering a sufficient quantity to cover a big rush of orders. A similar warning applies to trade enlarging and printing orders—most of the leading houses in which business are situated on the outskirts of London, and which are therefore likely to be affected by the Christmas pressure on the postal service.

THE MAN ON THE ROAD.

## EXPERIMENTS ON THE GRAIN OF SILVER IMAGES OBTAINED IN THE WET COLLODION PROCESS.

(A paper read before the French Photographic Society.)

THE examination under the microscope of the silver grain in a wet collodion negative alongside that of a film of gelatinobromide of silver shows that the size of the particles is approximately the same in the case of gelatine emulsion, e.g., as the Lumière blue-label. The silver grain reduced from wet collodion may be considerably larger than that of certain medium rapidity gelatine emulsions of commerce, that is to say it is larger than the Lumière yellow-label plate. Nevertheless, the definition of fine lines in a wet collodion is invariably better than that obtained on a gelatine plate of medium speed.

On the other hand, it is well known that, working with this type of emulsion, it is possible to obtain images of the same subject, the fineness of detail of which varies considerably according to the developer which is used; and, further, that the same developer with the same emulsion will give images of different degrees of fineness, according to the manner in which

it is employed. Further, it would appear that the size of the reduced grain of silver cannot vary sufficiently in order to explain the differences which are observed in the final result.

These facts would seem to point to the conclusion that the sharpness of detail does not depend only on the greater or lesser fineness of the grain of the plate, but arises from other causes which it seems interesting to investigate. Before embarking upon the study of the way in which the grain is formed in the films of gelatinobromide plates treated with a developer, we commenced by examining its formation in the wet collodion process. These experiments have a particular interest inasmuch as the films of collodion being extremely thin we eliminate the influence of the thickness of the film which plays a distinct part in the gelatine process. On the other hand, having ascertained that, according to the composition of the sensitizing salts added to the collodion, the size of the grain varies to a notable extent,



we were prepared to examine the influence which the size of the grain can have upon the final result. In making these experiments we reproduced the same size with a highly corrected lens and a line screen, such as that used by photo-engravers. Focussing was done on a transparent screen, and the image was examined with a microscope giving thirty diameters magnification. These experiments were made on five kinds of collodion:

1. With ammonium iodide.
2. With cadmium iodide and bromide.
3. With zinc iodide and bromide.
4. With a compound collodion.
5. With a sensitive commercial collodion.

Using these collodions, two negatives were made. The first was developed with iron and the second with pyro. A portion of each image was covered with a microscope covering glass fixed with Canada balsam and then photographed under the microscope at two enlargements—the first at 220 diameters in order to see the differences in the size of the silvered grain, and the second of thirty diameters in order to judge of the relative fineness of detail; lastly, on some of the negatives obtained at the enlargement of 220 diameters micrometric measurements were made in order to determine accurately the size of the reduced grain. The numbers which are given below represent in each case the mean of measurements, and they may be considered as of considerable accuracy. Proceeding in this way we obtained images in which the size of the silver grain varied in the proportion of 1 to 3.8.

Collodion.	Developer.	
	Iron.	Pyro.
	mm.	mm.
Ammonium iodide .....	.00166	.00140
Cadmium .....	.00205	.00106
Zinc .....	.00231	.00164
Daranne .....	.00154	.00154
Commercial, $\alpha$ .....	.00254	.00098
Gelatino-bromide of silver .....		.00304

There is nothing in these figures to lead us to think that owing to the extreme fineness of the particles their size could affect only in a small degree the sharpness of the images, especially when the latter are examined only by the naked eye or under a slight magnification.

The following observations are of interest from the practical point of view to wet collodion workers:—Salts of cadmium and zinc tend to increase the size of the image when a mixture of

acetic acid and iron is used in developing, but with the pyro-developer the silver deposit becomes finer. In the case of certain collodions the differences were very considerable, namely, .00231 to .00164 mm. for a collodion containing zinc, and .00254 to .000398 for the  $\alpha$ -collodion. The use of the pyro developer causes, for a given collodion, a considerable prolongation of the time of exposure necessary to obtain an image equal in intensity to that given by the iron developer. If these images be examined at an enlargement of thirty diameters it will be found that the sharpness of the lines is far from being in correspondence with the relative size of the silver grain. Thus the zinc collodion developed by iron gives a grain of the average size of .00231 mm., and an image which is comparable as regards sharpness with that given by a collodion containing iodide of ammonium likewise developed by iron, in which the size of the grain is only .00166 mm.

On the other hand, the image given by a collodion containing cadmium and developed by iron, the mean size of the grain of which is .00205, shows the fine lines less sharp than those given by the image with a collodion containing zinc. The defect of definition appears to result from a kind of growth, and the deposit of reduced silver takes place from the optical image, causing a want of homogeneity in the deposit. In the case of a cadmium collodion, if the use of pyro as a developer allows us to obtain a more homogeneous and much finer deposit, it is possible to prevent this spreading, which is the principal cause of the production of an unsharp image.

From the foregoing it seems that the principal cause of the good definition of a developed image does not lie necessarily in the greater or smaller size of the grain, but depends chiefly on how this latter is formed under the action of the developer. In collodion images we found that this alteration in the sharpness of the lines is caused by a growth which can only be lateral, the film being very thin and the deposit being entirely superficial. In the case of gelatine images the same phenomenon has necessarily much greater importance in consequence of the greater thickness of the sensitive film in comparison with that of a collodion plate, but the importance of the spreading action may vary with many circumstances, such as the thickness of the film, the greater or less rapidity with which the developers act, the presence of carbonate and caustic alkalies in the developer, etc. It is hoped to examine these various factors with the aid of microscopic sections photographed under the microscope.

M. MONPILLARD.

## THE ABERRATIONS OF PHOTOGRAPHIC LENSES.

The Tenth Traill-Taylor Memorial Lecture.

### II.

#### Astigmatism and Curvature of Field.

The effects of these two aberrations are proportional to the aperture and to the square of the angular field. It is usual to express the effects in terms of the positions of the 2 line foci corresponding to a point not on the axis.

In Fig. 6 the focus for the rays which remain entirely in one plane is at  $C_1$ , the other line focus at  $C_2$ . The beam of light will meet the focal plane, in the ellipse shown in section in the same figure. Curves may be drawn through all the points similar to  $C_1$  and  $C_2$ , and in the case we are considering will be very nearly circles. If  $C_1$  coincide with  $C_2$  there will be no astigmatism, and if  $C_1$  and  $C_2$  are at equal distances on either side of the focal plane, there will be no curvature of field, since the best average definition lies on the focal plane.

It can be proved that the curvature given by Petzval's expression

is that of the curvature which passes through points on the opposite side of  $C_2$  from  $C_1$ , and at a distance  $= \frac{1}{2} C_1 C_2$ . Thus the expression  $\Sigma \frac{F_1}{n_0 n_2}$  gives the curvature for points where the section of the beam has diameters in the ratio of 3:1.

Considering these aberrations as producing errors on the focal plane, the image due to a zone of aperture ratio  $A$  at an angular field of  $\delta$  will be an ellipse, whose axes are

$$(3k + p) A \tan \delta f,$$

and

$$(k + p) A \tan \delta f$$

where  $k$  can be calculated for any system, and  $p$  is the Petzval expression multiplied by the focal length.

When there is no astigmatism  $R = 0$ , and when there is no curva-

ture of field  $2k + p = 0$ . In the latter case the axes of the ellipse on the focal plane are

$$\frac{1}{2} p A \tan^2 \theta f,$$

and

$$-\frac{1}{2} p A \tan^2 \theta f.$$

These diameters can be made sufficiently small, even though  $p$  is

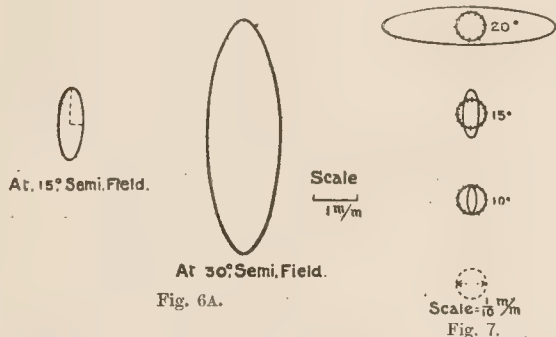


Fig. 6A.

Scale =  $\frac{1}{10}$  mm  
Fig. 7.

not very small. Taking  $f = 8''$  with an aperture of F 5 and a semi-angular field of 30 deg., the diameter

$$= 8 \times \frac{1}{10 \times 4} \times \frac{1}{2p} = \frac{p}{10}.$$

If the standard of definition be 1.250 inch, the greatest value of  $p$  is 1.25 (or 1.15).\*

It will, however, be shown later that, provided the other aberrations are of suitable amounts, this value of  $p$  may be increased four times.

When smaller apertures and fields are considered, this value of  $p$  may be much increased. The normal value of  $p$  is about two-thirds when the power does not arise from separation, and this is, approximately, the limiting value for a lens to give our standard of definition with an aperture of F 6, a semi-angular field of 20 deg. and a focal length of 4 inches.

Thus we arrive at the conclusion that Petzval's condition need only be satisfied very approximately in systems of reasonable aperture and field, and we shall see that when there are aberrations of higher

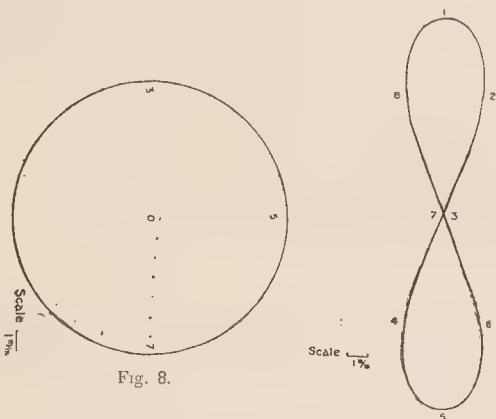


Fig. 8.

Fig. 9.

order in astigmatism and curvature of field that a departure from Petzval's condition is necessary to secure the best possible results. Still, the Petzval expression has its uses, and, from the value of this function, we can predict the field that we may expect to cover, provided the other aberrations are suitable.

\* These expressions should be multiplied by  $\cos^2 \theta$  and  $\cos^2 \theta$  respectively, i.e., for 30 deg. factors of .65 and .75 respectively.

### Astigmatism and Curvature of Field of Higher Order.

These defects depend on the aperture and the fourth power of the angular field, and are present to a certain extent in all lenses. The focal plane effects are similar to those of ordinary curvature and astigmatism, but may be of the same or opposite sign. Where practi-

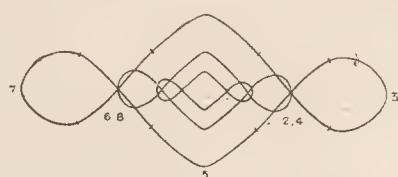


Fig. 10.

ticable, values of first order aberrations must be chosen to balance out these defects as far as possible.

In Fig. 7 the effects of the aberrations of the experimental lens system are shown.

The distances in Fig. 6 represent diameters of discs on the scale of 1.11 to that of the diagram. It will be noticed that Petzval's

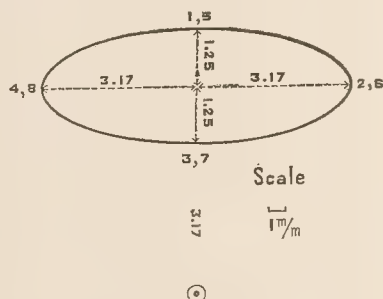


Fig. 11.

condition is strictly fulfilled, since  $C_1 = 3C_2$ , but that there is no correction of astigmatism or curvature of field.

The curve  $C_1$  has been so chosen that it comes back to the focal plane at 21 deg., i.e., that one diameter of the spot vanishes for this angular field. In order that the curve  $C_2$  should come back to the plane at this same place, it would be necessary (supposing the other aberrations unaltered) to make Petzval's expression = power of lens.

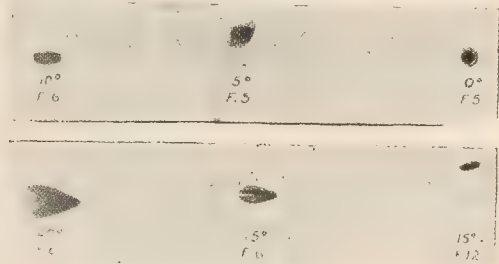


Fig. 14  $\times 10$  times.

The very considerable change of form that this would require would very considerably modify the other aberrations, but it is evident that a modification of this system in the direction of departing from Petzval's condition would be very desirable. It will be noticed in the case of the curve  $C_1$  that the effect of the second order aberration is to reduce the maximum value of the ordinate of this curve to one-quarter of the value of the first order aberration at the extreme edge



of the field, or to one-quarter of the corresponding value of the second order aberration.

*Spherical aberration for oblique field.*—In addition to the modification of the spherical aberration for the oblique field that is indicated above, there are defects which arise from an aberration of higher order. It is found that even when the spherical aberration is well corrected for the centre of the field, and there is no astigmatism or curvature of field for small apertures, an effect of bad definition may arise from a cause analogous to spherical aberration. This effect varies as the cube of the aperture and the square of the angular field.



Fig. 12.

There are two separate constants which give rise to the aberrations shown separately in Figs. 8 and 9, and in combination in Fig. 10.\*

These aberrations have a very important bearing on the performance of objectives, and are one of the chief causes of discrepancy between calculated and measured values of the astigmatism and curvature of field in photographic lenses. The effect of these aberrations may be to improve the definition on the focal plane by compensating the effects of other aberrations. In particular, the first of these two aberrations tends to mask curvature of field.

In some anastigmats two positions of good focus for horizontal and vertical lenses are sometimes found; this effect is also due to oblique spherical aberration. Again, we frequently find this aberration in

Fig. 11 represents the double ellipse, which corresponds to these aberrations alone for the same aperture ratio and field as above. And just as the oblique spherical aberration depends on two constants, so this coma will depend also on two independent constants. The effects of these comatic aberrations will be to produce a considerable modification of the coma figures for oblique fields.

In order to obtain the combined effect of all these aberrations, we must obtain their effects for the desired aperture and angular field, and add together all the displacements corresponding to each point on the aperture, taking separately the displacements radially out-

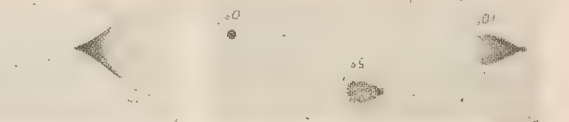


Fig. 13.

wards and those at right angles (In the figures the vertical and horizontal displacements.)

It is at once evident that the numerous aberrations may lead to very curious figures; some actual images formed by a similar lens are shown in Fig. 12. The images were photographed with white light on the actual focal plane of the lens, the objects being small circular apertures.

Fig. 13 shows images of small apertures obtained by using a similar lens for a distant object; these images are magnified four times in the original photograph.

Fig. 14 shows images of a small aperture by the system formed by using two such lenses symmetrically placed; the greater part of



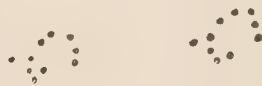
Fig. 15.



Fig. 16.



Fig. 17.

Fig. 18  $\times 5/3$ .

lenses which have been calculated by the aid of formulae, which give the positions of the two focal lines formed by narrow oblique pencils; the curves for these focal lines will frequently fail to give a correct idea of the performance of such lens systems. The curves given in Dr. von Rohr's classical work on photographic lenses were obtained in this way, and in some cases give rather an unfavourable impression of those lenses which have been obtained empirically.

Just as these two aberrations arise from oblique spherical aberration we find two aberrations which arise from oblique coma.

the coma effects are eliminated. The various images were magnified ten times in obtaining the original photographs.

In Fig. 15 the images formed by the single member above are shown; the stop is a small patch stop, a zone of 3 mm. width at F. 12.\* The figures indicate that in this particular case the astigmatism is not quite corrected.

In the next photographs (Figs. 16 and 17), similar results are given for a different position of the stop. The combined effects of astigmatism are apparent in the figures. The lens whose aberrations have

\* The scale of Fig. 10 is larger than that of Figs. 8 and 9.

\* The white parts of the image are due to the cross-pieces of the patch stop.

been calculated above is used for Fig. 18, which shows the image of a small object when a half zone of 20 mm. diameter on the stop is used, but to isolate the points separated small apertures are used instead of the whole zone (these apertures are 1 mm. in diameter). Two such photographs are shown, differing only in a slight adjustment of the plate. They agree, within the limits of reproduction, with the results of the calculated aberrations. The centre of the stop corresponds to the spot outside the ring. In this case the image was not magnified, but taken on the original focal plane; for clearness it has been slightly magnified.

In addition to the aberrations mentioned above, the lens may give distorted images due to two aberrations, depending on the third and fifth powers of the angular field. When these are in opposite directions they tend to balance as regards the more oblique field, and in some cases straight lines appear curved, but become straight towards the edge of the field, and even curved in the opposite direction.

I trust that this account of the various aberrations of photographic lenses may enable workers to express in numerical form the results of measurements of photographic lenses or the results of trigonometrical calculations. It will, I hope, lead to some generally accepted system of stating the performance of photographic lenses in terms of the size of the image on the focal plane, perhaps in the form of a photograph like those which appear in Messrs. Beck's paper read to your society.\* In any case it will remove some of the difficulties of reconciling theory with practice, and thus tend to further the scientific study of photographic lenses from both points of view.

S. D. CHALMERS.

#### THE KEEPING QUALITIES OF PERSULPHATE REDUCERS.†

FROM experiments made some years ago on the persulphates it was shown that simple solutions of these important salts of the photographer possess very considerable stability, a fact which was further confirmed by fresh analytical determinations. Since then Mr. H. W. Bennett has recommended a new reducing bath in which persulphate figures in conjunction with sodium sulphite and sulphuric acid. According to the claims of the author a bath prepared in this way acts better and keeps in good condition for a much longer time. As it is difficult to understand why a reducing substance such as sodium sulphite should figure in this solution, we have undertaken observations with a view of finding whether the bath recommended by Mr. Bennett possesses any advantages over the simple persulphate solution, and we have further made comparisons on the keeping qualities of plain persulphate solutions, and of those prepared in accordance with Bennett's formula. We used three different brands of ammonium persulphate, namely, No. 1, of German origin, containing 53.2 per cent. persulphate, another of Lumière which we had in stock for five years, and which contained 47.6 per cent. persulphate, and a third made by Kahlbaum containing 96.8 per cent. persulphate. The solutions were made in cold distilled water and stored away from light. The analyses were made by titration with iodine, that is to say, by estimation of the iodine liberated on mixing the persulphate solution with potassium iodine solution at a temperature of 60 degrees C. In preparing the solutions according to Bennett's formula, it is noticed that sulphurous acid is liberated by the acid in the persulphate, and remains for some time in the solution. But after three or four days no further odour of sulphur dioxide can be detected, the substance having been oxidised by the persulphate, as can be proved by the partial destruction of this latter body. It was found by calculation that the quantity of persulphate destroyed corresponded exactly with that required for the oxidation of the sulphite in the solution. In these analyses regard was paid to the quantity of sulphurous acid which serves for the exact calculation of the persulphate. The action of all these solutions on the negative is almost exactly the same, and we found no difference between the simple persulphate solution and that of Bennett in the course of tests of which two halves of one and the same negative were submitted to these distinct reagents. We thus came to the conclusion

that while this solution has no advantages in point of action on the negative it is distinctly less permanent than the simple solution.

Persulphate No. 1 solution, plain (5 per cent.). The solution was strongly acid with ammonium bisulphite ...	March 2	March 4	March 20	April 3	April 2
...	2'66	2'66	2'62	2'62	2'59
Persulphate No. 2 solution, plain (24 per cent.). The solution was strongly acid with ammonium bisulphite ...	March 2	March 5	March 20	April 3	April 2
...	1'19	1'19	1'19	1'19	1'16
Persulphate No. 3 solution, plain (5 per cent.). Solution was slightly acid and contained very small quantities of sulphates ...	March 14	March 20	April 3	April 21	
...	4'82	4'78	4'74	4'75	—
Persulphate No. 3 solution (5 per cent.). Acidified with sulphuric acid, 25 gm. ...	April 4	April 22			
...	4'84	4'67	—	—	—
Alkaline persulphate No. 3 solution (5 per cent.). With 2 gm. of caustic soda ...	April 4	April 22			
...	4'21	4'17	—	—	—
Persulphate solution made from No. 3 of 5 per cent. strength and with 5 per cent. ammonium sulphocyanide ...	April 4	April 22			
...	2'87	0'80	—	—	—
Persulphate solution (Bennett formula)— Persulphate No. 2, 47, 6 per cent.—10 c.c.s. Sodium sulphite cryst. 40 per cent. solution—1 c.c. Sulphuric Acid—1 gm. Distilled water—100 c.c.s. ...	March 7	March 14	March 20	April 4	April 21
...	4'67	4'19	4'17	4'17	4'11
Persulphate solution (Bennett formula)— Persulphate No. 3, 96, 8 per cent.—10 c.c.s. Sodium sulphite cryst. 40 per cent. solution—1 c.c. Sulphuric acid 1 gm. Distilled water, 100 c.c.s. ...	April 5	April 22			
...	8'56	8'43	—	—	—

The added sulphite reduces only a portion of the persulphate, being converted into sulphate, and thereby augmenting the proportion of this latter substance which already exists in the commercial persulphate. In the case of the latter solutions, therefore, the final result was a simple persulphate solution containing slightly less persulphate and a slightly greater proportion of acid. The addition of acid or alkali exercises a slight influence on both the permanency of the solution and on its action on the negative. Alkali to some slight extent affects the results of the analysis since it absorbs a small proportion of iodine, and the solution therefore appears to be slightly weaker in iodine than is actually the case.

Ammonium sulphocyanide, which, as it seems to us, exerts a favourable action on the solution of the silver salts, is, however, injurious in a persulphate solution, since it immediately exerts a distinct reducing action which proceeds until the persulphate is completely destroyed. From these facts it is plain that on one hand the simple aqueous neutral or acid solution of ammonium persulphate keeps in good condition for at least a couple of months if prepared with distilled water and protected from light, and, on the other hand, that the Bennett formula is open to objection as regards permanency and has no other advantage. Further, that an addition of a solvent of the silver salts, such as ammonium sulphocyanide, though theoretically advisable, acts in too high a degree as a chemical reducer of the persulphate to be of any practical service.

R. NAMIAS.  
ADOLPH BASCHIERI.

**CINEMATOGRAPH FIRE.**—A cinematograph fire occurred last week at an entertainment which was being given to 800 children at Skewen, near Neath. The flames shot up sixteen feet, and damage was done to the amount of £200. The timely action of a police-sergeant prevented a panic, and the children were marched safely out of the building.

\* H. C. and C. Beck, "Phot. Journ.," April, 1907.

† From "Das Atelier."



## THE OIL PROCESS.

At the Blenheim Club, on the 5th inst., Mr. G. E. H. Rawlins gave a practical demonstration of the oil-printing process, which was followed with the keenest interest. Mr. Rawlins recalled a similar demonstration which he gave at the old Camera Club in 1904, and said since then a great many had taken up the process and worked it. Various improvements had been proposed, but he chose his own personal methods of working. The beauty of the process was that it was capable of great diversity of treatment. He did not claim to be the parent of the process, which had its birth in the fifties, but he worked it out himself before coming across Poitevin's patent of 1855. Since his (Mr. Rawlins') last demonstration arrangements had been made for suitable materials to be placed on the market. He personally worked out a paper which he considered most suitable. It was quite possible to prepare paper and pigments at home, but they required messy and laborious operations. A coating given to the paper, provided it be fairly thick, of Nelson gelatine might be used for a basis in the process, but that was not so satisfactory as paper cut by machinery. Materials, however, were a minor matter. Almost anybody could produce a literal straight print, which rendered accurately the gradations of the negative. It was when they came to controlling, amplifying, and improving that the oil process particularly appealed. Like the gum process, it was capable of very considerable alteration in tones and values. In the gum process, however, all that it was possible to do was to wash away portions of the image, and once those portions were washed away they were gone for ever. The only way was to re-coat, re-develop, and reprint with all the attendant risks. Mr. Rawlins then proceeded to demonstrate the oil process on a piece of gelatinised paper, which had been immersed in a bath of bichromate of potash. The paper was not sensitive until it was dry. When dry, it was printed under a negative in the usual way, when an easily visible image was obtained. The basis was then immersed in water, and when the bichromate was all removed the relief of the high-lights which stood above the levels of the shadows was, to a greater or less extent, a measure of the water which the high-lights had absorbed. Mr. Rawlins placed the wet print on a sheet of plate glass and gently rubbed off the surface water with a soft rag. He then explained how the pigment was applied, using an ordinary painter's palette, and lightly applying microscopic quantities on a brush to the print, which almost directly showed a picture of a country cottage. Having shown how easily a perfectly straight print might be obtained, he showed how the values might be altered in various parts, the latent image being unaltered throughout. The pigment might be removed from the various patches and the patch brought back again wholly or partially by the "hopping" action with a brush of the finest hog bristles. To wholly obliterate the image the brush must be more firmly applied with a "dabbing" action. It was necessary the whole time to have the gelatine quite moist with water, but no water should get on the surface of the print. Mr. Rawlins said he attached a good deal of importance to the retention of the photographic drawing. It had been said that oil printing was monochrome painting on somebody else's drawing, and to a certain extent that was incontrovertible, but the so-called painting was, after all, only a very direct and facile method of controlling the relative values of portions of the picture. It was very much the same as working with pencil or chalk on the back of a negative, only that much less safe and easy, and in working on the positive the artist could see exactly what he was doing. Mr. Rawlins considerably changed the appearance of the cottage on which he was working from time to time with his brushes, showing that the process afforded control to an almost unlimited extent.

## THE LATE MARTIN JACOLETTE.

We announced last week the death of Mr. Martin Jacolette, which occurred on the 2nd inst. in his fifty-eighth year. The deceased gentleman was the son of a well-known miniature painter and daguerreotypist in Dublin, and was himself practically acquainted with the working of the daguerreotype process. In business as a photographer at Dover for many years, in 1890 he opened a business at South Kensington, and the two businesses have been carried on simultaneously until the present. From the institution of the Professional Photographers' Association in 1901 Mr. Jacolette took a leading part in its management, and occupied the presidential chair

last year. He was a member of the Royal Photographic Society, and had on more than one occasion served on the Selection Committee of the exhibition. He was a quartermaster-sergeant in the Middlesex Yeomanry, and was also connected with several masonic and other organisations. Of a most genial nature, he made a large circle of friends, by whom his loss will be most sincerely mourned. The funeral took place on Thursday last at the Kensington Cemetery, Hanwell.

Following these words of lament for our departed friend, we may quote a letter sent from Mr. Lang Sims, who, as treasurer of the Professional Photographers' Association, was continuously working in collaboration with the late Mr. Jacolette. Mr. Sims writes:—"Although it would take a better hand than mine to do full justice to his memory, I feel I can say a word or two regarding him which will be acceptable to his many friends. His loss will be greatly felt by his colleagues upon the committee of the Professional Photo-



The late Martin Jacolette, ex-President of the Professional Photographers' Association.

graphers' Association. His breezy style, earnest and energetic manner endeared him to us, and so far gained our respect, that when the presidency was offered him we felt that he would worthily follow in the footsteps of his predecessors. It is well known in the profession our choice was fully justified, for he entered heart and soul into the work, never sparing himself when the interests of the Association demanded his attention. He was, in temperament, quite the opposite to the late William Grove, who had a gentle and retiring disposition; yet both will be equally missed and mourned for their loyalty and comradeship. The loss of these two men in so short a time is indeed a sad blow, but they have left behind them the record of work well and unselfishly done, and an example that others equally high in the profession might, and should, follow. The fight to rouse the rank and file from deadly apathy into brisk life and union was, at the outset, no easy matter; but Martin Jacolette was never disheartened, and always advocated 'fight on,' and the present sound position of the P.P.A. is practically due to that policy. He is gone, but left behind is an affectionate remembrance exhilarating and comforting."

**AUTOCHROME VARNISH.**—A dammar varnish, made with carbon tetrachloride, is being sold by a German house to Autochrome users.

### A PROFESSORIAL CHAIR OF PHOTOGRAPHY IN GERMANY.

THE Technical High School of Dresden has decided to found a Chair for photography, and its occupant is to be distinguished with the title of professor. Photography has always been more or less recognised in the various scientific departments of German universities, and much care and attention has been given to the perfecting of instruments for astronomical, medical, and physical research, but this is the first occasion on which it has been raised to the dignity of a professorship, and there is every reason to believe that the example will be followed in other centres of learning. The object of this professorship is not only to encourage and promote the development of scientific photographic instruments, but also to train and equip men for the various industrial branches of the profession. Dresden has long been recognised as the centre of photographic activity in Germany. Besides a considerable army of enthusiastic professional and amateur photographers, it possesses one of the largest photographic manufactories in the country. A considerable number of workers are employed in the manufacture of all kinds of cameras, plates, films, and papers. This factory includes an egg-conserving department for the supply of albumen, cabinet-makers' workshops, a fittings factory, and a repairing department. Of equal importance is the number of industrial institutes for the production of photographic pictures and the various art productions produced by means of photography, which branches have always been especially fostered in Dresden. These have not been without their influence on the scientific and the artistic world, and the introduction of the picture postcard, of which very large numbers are manufactured in Dresden, has added to the importance of this branch of the industry. In all these departments and in special studios fitted out for the purpose a large number of men are kept constantly employed working out improvements for cameras and in chemical research and experiments for perfecting those materials directly used in the taking of photographs. For a long time the growing necessity has been felt for a suitable centre under the direction of a man or staff who is a specialist in chemistry, physics, machine and fittings technique, and thoroughly understands these in their connection to applied photography. His duties will be to direct these experiments and researches along lines likely to lead to the best results. It is in response to this demand that the Technical High School of Dresden has broken with tradition and established the chair for photography.

One of the leading spirits in this movement is Prof. Kröne, whose valuable work for photography has been so widely recognised that he is now looked upon as the greatest authority on photographic matters in Germany. He is now about to retire from his official position, and the introduction of this department for practical photography under a scientific leader is looked upon as a fitting climax to his long and distinguished career. We are promised further particulars concerning this interesting departure about the time of the opening of the forthcoming Dresden International Exhibition of Photography.

THE "Prism" for November contains, among other interesting features, a short article dealing with the use of the telescope in certain classes of survey work. The booklet may be obtained by sending a penny stamp for postage to Messrs. A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, London, E.C.

MESSRS. J. H. DALLMEYER, LTD., inform us that they have recently appointed several new wholesale agents for their lenses and apparatus abroad. In the United States, Taylor, Taylor, and Hobson, Ltd., of New York, are sole agents for the world-famous Dallmeyer patent portrait lenses; whilst Burke and James, of Chicago, hold the selling rights for the Stigmatic, Adon, telephoto, cinematograph, and other lenses. A new company, J. H. Dallmeyer A.G., with its headquarters in Berlin, has been formed further to develop the trade in Germany, Holland, Switzerland, Denmark, Norway and Sweden. Mr. Leopold Loebenstein, of Vienna, is wholesale agent for Austria-Hungary, the Balkan States, and Egypt. It may be worthy of note that British lens manufacturers, like British dry-plate manufacturers, are able to hold their own in foreign markets in face of high tariff walls and fierce competition. In the United States the duty alone amounts to 45 per cent. of the value of the goods, whilst Germany is the home of the firm's keenest competitors.

## Exhibitions.

### NORTH LONDON PHOTOGRAPHIC SOCIETY.

THE following is the list of awards made by Mr. Furley Lewis:—Class B—63, "Early Morn," W. A. I. Hensler; 79, "Sunlight, Haarlem Cathedral," H. P. C. Harpur; 52, "Moses Melchoir," Oscar Hardee. Class C—103, "Fruit and Wine," H. J. Comley. Class D—127, "Arthur J. Gear, Esq.," C. Wille. Class E—171, "Strength and Weakness," C. H. Roberts. Extra Plaque—180, "Denham," C. H. Madden. Class F. No plaque awarded. Class G—223, "The Village Church," C. H. Connolly; Class H—260, "A Brown Study," W. F. Rippin. Hon. Mention—268, "The Depth of the Wood," A. W. Green. Hon. Mention Class L—"Hampton Court," E. H. Ingleton. No plaque awarded. The President's silver award is given to—223, "The Village Church," C. H. Connolly.

### NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

FOR nearly twenty years has the North Middlesex pursued a course inconspicuous and almost uneventful prosperity. Keeping itself to itself, and seeking the photographic welfare of its members, it has not been heard of one-half as much as many another less solidly established body. Its aim has evidently been to develop its own resources, and to this tradition it has been true in the management of its annual exhibition, to which it admits no one outside its membership. It must be acknowledged that in this policy it has shown itself wiser in its generation than other bodies of like responsibilities, for its members have distinguished themselves at exhibitions, and the society has attained a local habitation and a name upon the heights which border London on the north which bids fair to survive the rise and fall of other organisations. Our report, therefore, of the annual exhibition of the society, held for three days last week, must necessarily be of limited interest, except in its indication of policy, which has proved notably successful, and has led to the creation of a collection of pictorial photographs which in its entirety is of considerable merit, and includes not a few really excellent achievements. Among those members specially deserving of mention for the artistic or technical merit of their work are Messrs. Chas. Beadle, M. F. Black, Louis Dick, H. W. Fincham, Douglas P. Fox, A. H. Lisett, J. C. S. Mummery, J. F. Nisbett, W. Pringle, E. C. Ridge, H. Stuart, and A. J. Woolway. The exhibition included a very good showing of Autochrome transparencies, in which the work of Mr. Woolway and Mr. Nisbett calls for special mention. The award goes to a single transparency by Mr. Nesbit, but Mr. Woolway undoubtedly shows the better collection. The awards, made by the judges, Mr. E. T. Holding and Mr. J. C. S. Mummery, were as follows:—

No. 1, "The Hospital," W. Pringle; 22, "A Corner of the Cloister," H. W. Fincham; 30, "A Bend in the Road," H. Stuart; 41, "The Antiquary," C. A. Morgan; 57, "A Lone Land," Louis Dick; 97, "Portrait," M. F. Black; 132, "Autumn," E. C. Ridge; 157, "A November Day—St. Paul's," D. P. Fox.

Lantern Slides—218, "Ely, from the North-west," H. W. Fincham; 263, "Dolly," M. F. Black.

Autochrome—323, "Near Hollington," J. F. Nisbett.

Hon. Mention—2, "A Farm Road," Louis Dick; 27, "A. H. L.," M. F. Black; 34, "Miss E.," M. F. Black; 37, "Granada Cathedral," W. Pringle; 48, "In the Lea Valley," H. T. Nobbs; 63, "New Fairy Tales," C. A. Morgan; 96, "Evening on Loch Linnhe," C. Beadle; 135, "An Old Gateway," M. F. Black; 154, "The Calm of Evening," A. G. Lawson.

Lantern Slides—221, "A Corner of the Cloister," H. W. Fincham; 250, "A Lone Land," Louis Dick; 253, "Glacier Depths," R. H. Maxton; 257, "Nest of Moorhen," W. Jackson; 264, "The Pond," H. C. Turner.

Autochromes—318, "Dresden Ware," A. J. Woolway; 326, "Chrysanthemums," J. F. Nisbett.

GERMAN PHOTOGRAPHS IN PHILADELPHIA.—"The Bulletin of Photography" has recently held a special exhibition of German photographs, arranged by R. Dührkoop, of Hamburg. The collection consisted of about two hundred pictures by the leading photographers of Germany, Austria, and Switzerland. They will be exhibited in the galleries of the Drexel Institute, Philadelphia, from November 27 to December 7.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received between November 25 and November 30:—

**CINEMATOGRAPHS.**—No. 26,107. Improvements in cinematographs. Charles Dupuis, 52, Chancery Lane, London.

**CINEMATOGRAPHS.**—No. 26,122. Improvements in or relating to cinematographs and like apparatus. Benjamin Jumeaux, 111, Hatton Garden, London.

**CAMERA CASES.**—No. 26,206. Improvements in carriers or knapsacks for cameras, parcels, and the like. Charles Lavender, Imperial Chambers B., Colmore Row, Birmingham.

**TIMING DEVELOPMENT.**—No. 26,279. Watch for recording the correct periods required in the development of photographic pictures with various chemicals. Robert Charles Pickering Richards, "Rondebosch," Sandown, Isle of Wight.

**PRINTING PAPER.**—No. 26,445. Method of producing paper to be used as photographic or blue print paper and the like. Max Roth, 40, Chancery Lane, London.

**CINEMATOGRAPHS.**—No. 26,487. Apparatus for taking and reproducing cinematographical or moving pictures. Otto Gergacsevic and Ernest Franzos, 5, Corporation Street, Birmingham.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**MULTIPLE PORTRAITS BY MIRROR.**—No. 8,957. 1907. The invention consists of two flat mirrors, which are placed vertically and at an angle to each other. The abutting edges of the mirrors are carefully bevelled so as to bring the reflecting surfaces accurately together at the origin of their enclosed angle and so produce a continuous reflecting surface. The mirrors are preferably high enough to reflect a full length figure, and are supported and held by angle pieces upon a platform mounted upon castors. The mirrors are relatively inclined at an angle of 72 degrees or thereabouts, and in operation the person or object to be photographed stands upon the platform, within the angle made by the mirrors. Drapery or other screens may be used, so as to jut out from the outer edges of the mirrors, thus providing a plain, even-tinted background, extending across the picture when photographed. If a photograph be taken looking into the angle, five images of the object are obtained, which, in the case of a person posing side face to the camera, would consist of the non-reflected side view, and reflected front view, back view, three-quarter back view, and three-quarter front view. James Beckett Shaw, 91, Blantyre Road, Liverpool.

**STEREOSCOPIC TRIPOD HEAD.**—No. 10,695. 1907. The invention consists of a sliding block, having side plates turned in at bottom and fitting in grooves in the base plate, which latter is attachable

to a tripod. The slide is fitted the clamping screw B, to secure it to the tripod, the hole C is made right through the base plate to affix the camera to the sliding plate. One end of the sliding plate D carries the pivoted locking lever E or other arrangement, and its enlarged end, head, or lug e, when in the locking position drops in the longitudinal groove e', in the base plate A, which runs from the left hand to the hand hole e<sup>2</sup>. This latter serves a double purpose primarily for clearance for head of thumbscrew d, and reaching to the end to provide for fall of the locking lever E. When in each desired position the lever also rests in one of the right angle grooves or slots F, F<sup>1</sup>, or F<sup>2</sup>, which denotes the inter-ocular distance of the stereoscopic pictures. In the upper face of the sliding plate D are indiarubber studs G, projecting slightly above the surface to prevent any lateral movement of the camera, H. The movement of the sliding plate D supporting the camera from the first to the second position from right to left is denoted by the arrow.

When an intermediate position is desired the sliding plate is moved to the slot F<sup>1</sup>, shown in dotted line. The instrument having the combination of an upper plate always in direct and constant contact with the lower plate is well adapted to take or obtain two views (right and left) one after the other at the proper distance apart (it may be the regulation distance of three inches) or otherwise. Ernest George Brown, Brighton Villa, Stoneycgate Road, Leicester.

**DAYLIGHT DEVELOPMENT.**—No. 12,249. 1907. The apparatus consists of a closed chamber, in which is a developing tank and a fixing tank, the latter provided with shelves and pockets for the reception of the plates, one by one, from the development tank. Arthur Clarence Hayden, 204, Howard Street, Brockton, Massachusetts, U.S.A.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

**PROJECTION BANDS.**—No. 25,165. Metallised photographic bands for projection by reflection. Dupuis.

## Analecta.

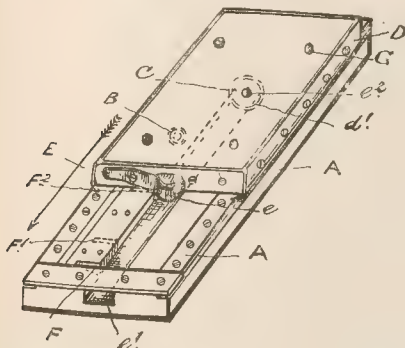
*Extracts from our English weekly and monthly contemporaries.*

### The Right Way to Pack a Negative.

Safe packing (writes Mr. W. J. Casey, of Raines and Co., in "The Photographic News") is only a question of "knowing how." To carry a  $\frac{1}{2}$ -plate negative, a box with its sides  $\frac{3}{16}$  in. thick, and top and bottom  $\frac{1}{4}$  in. in thickness is necessary. Around the negative must be placed something that will serve to prevent damage by vibration. My own firm uses "wood-wool" packing—and our regular customers save that in which we return their negatives for their next order. A word of caution is necessary as to the special need for care when packing different-sized negatives in one box. They must be so placed that the smaller negatives do not exert any uneven pressure on the larger ones. If, for example, a  $\frac{1}{4}$ -plate has to be packed with two  $\frac{1}{2}$ -plates, it is obvious that if packed in between them it will at once act as a fulcrum on which the negative above can see-saw. And see-sawing is most decidedly not advisable where glass is concerned. The best plan is, under such circumstances, to place the two half-plates film to film, and then, on top of them, a piece of card of the same size. The weight of the  $\frac{1}{4}$ -plate negative resting on the card is then distributed evenly over the  $\frac{1}{2}$ -plates.

### Local Glazing of Bromide by the Bromoil Process.

By adapting Mr. Welborne Piper's latest Bromoil process (writes Mr. T. H. Greenall in "The Amateur Photographer") I have been able to obtain bromide prints to which can be applied a varnish in the same way as the pigments are applied in oil printing, and which will take the varnish on the image only, and not at all on the highest lights, thus marking a distinct advance in bromide work. The fixed and washed bromide should be allowed to dry, otherwise blisters may appear in subsequent operations. It should not, however, be alumed or treated in a fixing bath containing alum. It is then



to a tripod. When the slide is moved to either position it is locked for taking the first or second pictures or views. Two plates of wood or metal are made of the desired width, length, and breadth to suit an ordinary or monocular camera. In the under side of the base

bleached in Mr. Piper's bromoil bleaching solution, of which the following is the formula:—

Concentrated ozobrome solution .....	4 parts.
10 per cent. potash alum solution .....	4 parts.
10 per cent. citric acid solution .....	1 part.
Water, to make .....	20 parts.

I have used two-thirds this quantity of alum with advantage. In about two minutes the black image should be completely changed to a faint brown one. The print is then washed, and either treated with sulphide solution, as in ordinary sulphide toning, or re-developed, in which case the final image will be black. The sulphiding solution consists of:—

10 per cent. solution of sodium sulphide .....	25 minims.
Hydrochloric acid (one in five solution) .....	5 minims.
Water .....	2 ozs.

NOTE.—The hydrochloric acid must be added at the last moment before using, and fresh solution mixed each time.

The alternative re-developing solution must be fresh, and consist of:—

Amidol .....	2 grs.
Sodium sulphite .....	20 grs.
Water .....	1 oz.

After either sulphiding or re-developing, the print is just rinsed and then placed in sulphuric acid, diluted, 1 oz. in 20 ozs. of water, as in the bromoil process. (N.B.—Add the acid to the water and allow to cool before using.) In this bath the print is allowed to soak for twenty minutes or longer, and is then washed for ten to twenty minutes and dried; or it may be taken at once for varnishing. The varnish consists of a few drops of Japan gold size and a touch (about one-fifth the quantity) of raw linseed oil, and should be mixed with an old table knife on a piece of glass.

#### The Krayn Screen-plate.

Experiments, which Krayn himself is directing (writes Dr. S. E. Sheppard in "Focus"), are in progress with a view to increasing the fineness. Filters of the Lumière type can already be reached by cementing the original line screens so that the lines cross, and cutting the composite block perpendicularly, but line filters offer the advantage that copies can be readily produced. It is hoped to prepare a material which shall supply not only a positive transparency by reversal after development, as in the Autochrome process, but a positive image by reflected light, as in paper images, the substratum being, however, a celluloid film, matt and opaque white. It is stated that the blue dye is so darkened that no compensating yellow filter is required in exposure, and that an emulsion capable of being worked in a deep red light will be used, of sufficient rapidity for use in the cinematograph. The most imposing feature of the process is the certainty with which large quantities of the material can be prepared. When 1,000 kg. of celluloid of each colour has been prepared and spectroscopically tested, there is nothing to prevent the rapid production of some 3,000 kilos of ready filters, a rate of production unequalled by any of the other processes, and permitting far greater sizes to be reached. It is expected that the plant will be ready to deliver commercially in February next; the films will be supplied direct to plate-makers, to coat with their own emulsion, by the "Deutsche Raster-gesellschaft."

## New Books.

"Wellcome's Exposure Record and Diary, 1908." London: Burroughs, Wellcome, and Co. 1s.

Several new features appear in the 1908 edition of this well-known pocket volume. A wall table for warm tones on lantern slides by development with the "tabloid" Rytol and other preparations is presented as a loose inset. The text of the "Diary" is on the lines of the nine previous issues, but contains one new table of exposures in outdoor night photography, another of plate speeds, and a third of exposures in interiors. The popular exposure calculator has undergone no further modification, and may certainly be regarded as the acme of convenience and comprehensiveness among such aids to the correct exposure of plates.

"Home Life of Marsh Birds." Photographed and described by Emma L. Turner and P. H. Bahr. London: Witherby and Co. The above is issued as a special "photographic" issue of "British

Birds," a monthly magazine devoted to the study of the birds of Great Britain. It is a volume of sixty pages, containing thirty plates from photographs by the authors. Each bird is the subject of a few notes on its habits and haunts, and the authors relate their heroic experiences in photographing their timid subjects with a good deal of gusto. Incidentally, they show a nice sense of the humour of bird life, which, on its domestic side, is not always above reproach.

"Deutscher Camera-Almanach, 1908." Edited by Fritz Loescher. Berlin: Gustav Schmidt. Mk. 4.

We will not deny that the mixture which Herr Loescher offers is quite to our liking. He reproduces some 150 examples of the modern pictorial photography, but he confines what he has to say about them to an article (of a few pages) entitled "What the Pictures Have to Say for Themselves." Wise man, he lets us take a good look at his pictorial wares before we come to where he discourses in praise and otherwise. For text therewith to help out the pictorial contents, we find twenty odd articles on enlarging, moonlight photography, picture postcards—and even of anastigmats. Well printed on good art paper in a black ink throughout, the photographs get as good a showing as can be done in half-tone printing. The book is as good as any we can name of German origin.

"Penrose's Pictorial Annual, 1907-8." Edited by William Gamble. (Vol. XIII.) London: A. W. Penrose and Co. 7s. 6d.

The reproductive crafts once more have a very full representation of their various branches in the current issue of the "Process Year Book," or, to give it the name which the publishers now adopt, "Penrose's Pictorial Annual." The thirteenth volume, published within the past few days, is distinctly bulkier than its recent predecessors, due apparently to a greater number of plates and supplemental illustrations rather than to an increase in the text pages. The cover, to which Mr. Gamble has in the past devoted a good deal of care, is this year designed by Mr. Charles E. Dawson, and though excellent as a piece of design, is far less effective than the covers of some recent issues, notably one of a few years ago by Mr. Littlejohn. The title page, printed by the Aerograph Co. by their spray printing machine, is an excellent technical example of this ingenious method, due to the inventive genius of Mr. A. L. Burdick, though no one will be convinced, we expect, of its particular suitability for the purpose for which we find it used. For all kinds of decoration in light washes of colour the aerograph is without a rival, but as a substitute for typographic display it does not show to good advantage, and it certainly forms a jarring contrast with the strong and dignified frontispiece to the Year Book which faces it in the shape of a heliotype reproduction from an old copper engraving. When we come to the text pages we find a collection of articles containing a number of items of considerable photographic interest, such as that by Mr. E. T. Butler on "A Single Exposure Three-Colour Camera," on "A Preservative Case for Platinum Paper," by S. K. Lawton, and on "Photographing Lace," by Ernest Marriage. Colour-photography figures among the contributions from various writers, Mr. E. J. Wall discourses on "Coloured Light for Colour Work," Dr. R. S. Clay on "Chromatic Aberrations of the Eye in Relation to Three-Colour Photography," M. Gravier writes also on "Theories of Vision in Reference to Colour Work." The screen-plate processes are dealt with by two of the inventors now before the public, namely, Mr. J. H. Powrie, who writes of the Warner-Powrie process, and M. Alcide Ducos du Hauron, whose characteristic contribution relates to the long-promised "Omnicolore" plate. Dr. J. H. Smith has a note on the making of paper prints on bleach-out paper from Autochrome plates, and an equally characteristic paragraph by Mr. F. M. Sutcliffe deals with the fading of colour prints. These items are selected only from those of direct photographic interest. The major portion of the text relates to the technical and business sides of the process trade, and includes among its contributors such well-known writers on these topics as Messrs. A. J. Newton and A. J. Bull, Arthur Payne, N. S. Amstutz, J. S. Sunderland, Harold Hood, Howard Farmer, H. Hands, F. T. Corkett, and C. G. Zander. The contributions of these and other authors occupy nearly 200 pages of text, but are responsible only for something like a quarter of the total volume. The remainder is made up of plates and supplement illustrations, which represent practically every branch of modern process work, particularly in three-colour and two-colour



half-tone, and represent all classes of work from the avowedly commercial catalogue illustration to the facsimile reproduction of paintings and drawings. Not only these, but the special needs of the newspaper and magazine printer in the way of illustrations are considered, and we have examples of the results obtainable by the use of the coarse half-tone, which is printable on a rotary machine, as also of the half-tone illustration telegraphed by the Korn method. It is not too much to say that no such vivid conception of the facilities of modern illustration methods can be obtained in any other way, and there can be no doubt that the art editor and publisher of books or magazines find just as much interest in the "Process Year Book" as do the members of the trades which are here represented. Mr. Gamble, with true catholicity, draws his examples from all parts of the globe, and it is interesting to compare the work in three-colour by process houses in this country with that by those in America, Sweden, Spain, Portugal, Holland, New Zealand, Belgium, Italy, and Switzerland. In fact, the only productive country, curiously enough, which appears to lack representation is Germany, whilst Austria is represented only by Messrs. Angerer and Göschl, of Vienna.

**PHOTOGRAPHIC RECIPES AND FORMULÆ.**—A useful compendium of formulæ has been issued from the office of "Focus," price 6d. The work of compilation has been done by "Richard Penlake," by whom a good deal of frequently needed information has been brought into a small space. The sections into which the book is divided are: Developers for plate and films; clearing, fixing, and hardening baths; intensifiers and reducers; printing-out paper (P.O.P.); bromide and gaslight papers; lantern slides; platinotype process; carbon process; varnishes, mountants, mediums, and backings; miscellaneous.

#### FORTHCOMING EXHIBITIONS.

December 11 to 14.—Hove Camera Club. Sec., Stanley Read, 12, Old Steine, Brighton.

December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Entries close December 18. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1908.

January 14 to 28.—Glasgow Southern Photographic Association. Entries close January 4. Sec., W. Bryce, 29, Somerville Drive, Mount Florida, Glasgow.

January 30 to February 1.—Nelson Photographic Society. Entries close January 20. Sec., Henry H. Beetham, 98, Brunswick Street, Nelson, Lancs.

February 15 to March 7.—Scottish National Salon. Entries close January 20. Sec., Frederick W. Kay, 183, Union Street, Aberdeen.

February 20 to 22.—South Manchester Photographic Society. Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.

February 23 to March 2.—Birmingham Photographic Society. Entries close March 2. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.

March 7 to 14.—Leicester and Leicestershire Photographic Society. Sec., Lewis Ough, F.C.S., Fernleigh, St. James's Road, Leicester.

March 7 to 21.—South London Photographic Society. Sec., E. Pady, 260, Southampton Street, Camberwell, S.E.

March 9 to 12.—Worthing Camera Club. Entries close February 29. Sec., Edmund F. H. Crouch, 11, South Street, Worthing.

March 12 to 14.—Shropshire Camera Club. Entries close March 2. Sec., W. D. Haydon, The Schools, Shrewsbury.

March 16 to 19.—Cripplegate Photographic Society. Sec., J. G. Denyer, 15, Ostade Road, Brixton Hill, S.W.

The "Camera House Journal" for the current month contains reasonable information regarding lantern outfits, slides, cinematographs, Christmas cards and mounts, etc., together with a description of an accessory specially adapted for photographing flowers. Particulars of Messrs. Butcher's stock-taking clearance sale are also given, some of the items in which appear to be very good value for money.

## New Apparatus, &c.

The "Dega" Electro-flash. Sold by Chas. Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C.

This portable apparatus supplies a convenient means of employing the "Agfa" flash-powder, a composition which, as our readers must know, is very rapid in combustion and remarkably free from smoke or other after-products of the flash. There is a sharp distinction between the light grey mist which floats in the air or is rapidly swept away in a draught after the combustion of the Agfa powder and the dense body of smoke which is the after-product of less perfectly compounded mixtures. Moreover, the colour is agreeable, almost that of gaslight, and does not on this account startle the sitter, as



would a bluish light of similar great brilliancy. It is true that exposure is over before a nervous sitter could shrink from the light, but as two or three successive exposures may be made the agreeable colour of the light is a legitimate matter for consideration in the choice of a flash.

The apparatus in which the flash-powder is to be used consists of a tray measuring about 8 x 3 in., supported on an oak case, which stands about 9 inches in height. The case contains a dry battery sufficient to supply ignitions for an estimated season's work with the apparatus. The ignition is done with a fuse-wire, about 2 inches in length, which is zigzagged across a pair of brass catch plates. On the circuit being completed by pressure on a button, like that of an electric bell, flash powder spread over these terminals is fired, practically instantaneously.

The convenience of such a device is apparent. The apparatus can be placed in the best position—it is usually well to elevate it considerably—and the flash made at the most propitious moment without rendering the sitters uneasy by adjustments of the apparatus. The charges of powder necessary for different classes of work are given as follows:—

For portraits (1 or 2 persons) .....	4 grains.
„ small groups (6 or 8 persons) .....	15 grains.
„ medium groups (say 20 persons) .....	30 to 45 grains.
„ large groups .....	60 to 90 grains

Some use of the lamp has shown us its reliable character and the certainty of its action. It should certainly be of value to the photographer of "at home" portraits, to whom its convenient size and shape will commend it. Equally the serious architectural photographer will find in it a means of calling flashlight to his aid and of doing so without arousing fears in the minds of vergers and other custodians that his presence is a menace to the building. The price of the "Electro-flash," complete with 100 pieces of fuse wire, batteries, and soft flexible wire, is £1 ls.

"Hyvo," the journal of the Wimbledon Camera Club, reaches us from the secretary of this enterprising society, and is found to include several features of interest, not omitting advertisements. The issue is marked "Xmas Number," the excuse perhaps for its largely frivolous contents; or is this the habit of the gay dogs of Wimbledon, Surrey?

## New Materials.

"OKRO" TONING SOLUTION.—Messrs. Rae Bros., 134, St. Vincent Street, Glasgow, send us a sample of a concentrated toning bath which is deserving of mention, if only for its lack of reducing action on the prints. Using it to tone some score of P.O.P. prints, we could see not the slightest loss in intensity: a print may be made of precisely the depth required, and will not lose anything in the toning process. In other respects the "Okro" solution appears to be a preparation which can be advised. It is diluted with 50 times its own volume of water to form the toning bath, which latter is ready as soon as mixed. The tone given is a blue-black when toning is pushed to the extreme, but the bath gives some very pleasing and warmer intermediate tones. The toning bath has no evident softening action on the gelatine, another good point in its favour.

### CATALOGUES AND TRADE NOTICES.

ZEISS LENSES, ETC.—A new English list of the photographic lenses made at the Zeiss Works, Jena, has been issued by the London house of the Carl Zeiss Endowment, 29, Margaret Street, London, W. It is a handsome volume of over 100 pages, 11 x 7 inches, containing a frontispiece in three-colour half-tone of a studio portrait. The latter serves as a double example of the Zeiss lenses, the original negatives of these and those for the half-tone blocks having been made with Zeiss objectives. The list clearly and fully details the mounting of single and casket lenses adopted by the Zeiss works, the system of marking the working apertures, and particulars of shutters approved by the Zeiss scientific staff. In addition, the list gives prices and drawings of mirrors and prisms, light-filter glass cells and other apparatus issued with the Zeiss hall-mark of workmanship. The list will be sent on application to 29, Margaret Street.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

#### FRIDAY, DECEMBER 13.

Salisbury Camera Club. "Rotary Carbohydrate Paper."  
Sutton Photographic Club. "Touraine and its Chateaux." J. W. Burmester.  
Aberdeen Photographic Association. Scottish Federation Portfolio.

#### MONDAY, DECEMBER 16.

Stafford Photographic Society. Photography 1907 Prize Slides.  
Cattford and Forest Hill Photographic Society. Lantern Slide Competition.  
Criticism. E. R. Bull.  
Scarborough and District Photographic Society. Members' Night. Lantern Slides, Prints, &c.  
Bradford Photographic Society. "An Evening with Pictures." W. Bagshaw.  
Cleveland Camera Club. "Tabloids and their Use." Burroughs, Wellcome, & Co.  
South London Photographic Society. "Excursion Slides and Print Competitions."  
Bowes Park and District Photographic Society. "Rotary Carbohydrate Paper."

#### TUESDAY, DECEMBER 17.

Royal Photographic Society. "Plates Sensitized with Dicyanin, and the Photography of the Infra-Red." C. E. Kenneth Mees and S. H. Wratten.  
Wimbledon and District Camera Club. Members' Evening.  
Birmingham Photographic Society. "Some Hints on the Preparation of Lantern Slides and Diagrams for Lecture Purposes." Dancer Whitlites.  
Sheffield Photographic Society. "My Room to Rome." Rev. J. A. Alderson.  
Keighley and District Photographic Association. "Ozobrome: What Can be Done with it?" W. H. Womersley.  
Blairgowrie and District Photographic Association. "Manuscript Magazine." L. Falconer, jun.  
Worthing Camera Club. "Dive into Belgium." R.P.S. Affiliation Lecture.  
Epsom and District Literary and Scientific Society. "Autochrome Colour Plate." T. Bucknill.  
Leeds Photographic Society. "Theory and Practice of Time Development." W. F. Slater.  
Padiham Photographic Society. "Photographic Chemicals." Burroughs, Wellcome, & Co.  
Heaton and District Camera Club. "Photographic Chemicals." Burroughs, Wellcome, & Co.  
Hackney Photographic Society. "Rotary Carbohydrate Paper."

#### WEDNESDAY, DECEMBER 18.

Mill Camera Club. "Lantern Slide Making." W. Mansfield and W. Swindon.  
Tunbridge Wells Amateur Photographic Association. "Some Illuminated Manuscript Books." George Reid.  
Leeds Camera Club. "In the Haunts of Sea Birds with a Camera." Riley Fortune, F.Z.S.  
Everton Camera Club. Annual Meeting.  
South Suburban Photographic Society. "Palestine as I Saw It." P. R. Salmon, F.R.P.S.

North Middlesex Photographic Society. "Flower Photography." E. Seymour.  
Borough Polytechnic Photographic Society. Lantern Slide Competition.  
Coventry Photographic Club. Judging No. 3 Summer Competition.  
Bristol Photographic Club. "The Port of Old Bristol." J. C. Pearce.  
West Surrey Photographic Society. "Rotary Carbohydrate Paper."  
Birmingham Photographic Society. "Bromide Enlargements." E. D. Taylor.

#### THURSDAY, DECEMBER 19.

Handsworth Photographic Society. Photography 1907 Prize Slides.  
Rodley, Farsley and Calverley District Photographic Society. "Enlarging." John Wood.  
Hull Photographic Society. "Scenes and Incidents on the Yorkshire Coast." Wm. Holmes.  
Richmond Camera Club. "My Fall from Grace." C. H. Davis.  
North London Photographic Society. "Exhibition Afterthoughts."  
Midlothian Photographic Association. "The Chemistry of Developers." Dr. Drinkwater.  
"One Man Show." Jas. Patrick.  
Thornton Heath Photographic Society. "Photographic Chemicals." Burroughs, Wellcome, & Co.  
London and Provincial Photographic Association. "Rotary Carbohydrate Paper."

### ROYAL PHOTOGRAPHIC SOCIETY.

MILKING held Tuesday, December 10, Mr. T. Freshwater in the chair. A paper on "Agar-Agar in Emulsion Making, and a Sepia Paper," by W. F. Cooper, B.A. and W. H. Nuttall, F.I.C., was read by Mr. Cooper.

The authors first reviewed the literature of agar, the first references to which occurred about 1856. In 1880 Morin described the chief properties of agar, and gave its setting-point at about 90 deg. C., as compared with gelatine 60 deg. C. Later researches about 1903 had dealt with the retardation of the setting of agar by certain salts; the rate of setting of agar solutions was affected by chemicals, although no permanent change in the agar itself could be detected.

As a vehicle for the sensitive silver salts in emulsions, agar presented several difficulties: first, the opalescence of its solution, the alterations in the viscosity of the solution, the difficulty of dissolving the agar, and its reducing action on gold chloride. In dissolving agar it was necessary to heat the water to 100 deg. C., and if the solution was cooled suddenly the substance would precipitate and the solution would have to be reheated to 100 deg. C. These disabilities of agar had come before the authors in working out a photographic paper employing agar in conjunction with Mr. Gillard, and therefore they had examined as fully as they were able the properties and reactions of agar.

Agar, unlike gelatine, contained no nitrogen, and therefore belonged to one of the more complex carbohydrate groups, either to the celluloses, starches, or gums. As nitric acid converted it into mucic acid, it probably was a gum, and was classed as such by some chemists. Agar swelled in hot water, and could be washed with cold water, but the operation had to be done quickly, or the agar was liable to discolour.

As purchased, agar contained specks, apparently of cellulose, which had to be removed by filtration. This operation being attended with a good deal of difficulty, it had been found best to make a 1 per cent. solution of the agar and filter it hot through two filter papers on a disc funnel the papers on which could be quickly changed as soon as the solution commenced to run slowly. The filtrate was opalescent, but free from granules. It set at a temperature of 35 C. A lower setting temperature of 32 had been obtained by the use of hydrogen peroxide, but the agar was spoiled in the process. A 1-500 solution of agar set to a jelly. Unlike gelatine, agar on splitting up when the solution was boiled did not form ammonia products, such as glyccoll, and therefore as a vehicle for sensitive salts was probably more satisfactory on account of its greater immunity from fogging action. If heated with water under pressure agar decomposed, and this process, which it was thought might be a convenient means of making solutions, was found useless. Three per cent. solutions of agar were found to be very thick, too viscous for practical work. A solution of agar of the same viscosity as gelatine contained one-eighth the weight of the gelatine.

One advantage of agar as a silver vehicle was the thinness of the film which could be coated. The authors instanced a case in which a plate had been intensified three times and dried in five minutes, washing quickly between each operation. The thinness of the film employed enabled hypo and other salts to be washed out very quickly. Picric acid gave a precipitate with gelatine, but not with agar, and was one of the best tests for distinguishing



between the two. Mercuric chloride behaved similarly. Alcohol precipitated agar as it did gelatine, but it was found a stronger solution takes more alcohol without precipitation than does a weaker one; the ash in the agar was increased by precipitation. The setting powers of agar were destroyed by acids and alkalies, although the solid substance might be soaked in acid without harm. Alkalies made agar more sticky and gummy, particularly if borax was present.

The authors had found that, compared with gelatine, agar absorbed one-thirtieth the quantity of iodine for equal degree of viscosity. Silver nitrate gave no precipitate or discoloration with agar unless the substance was of considerable impurity; in this case citric acid and hydrogen peroxide prevented the discoloration. Agar was unaffected by alum or formalin.

The authors gave particulars of measurements of the viscosity of agar when treated with various substances. It was found that acetic and tartaric acids quickly reduced viscosity almost to that of water, citric acid acted slowly and did not reduce viscosity to lower than 80 per cent. Silver nitrate reduced it to about 70 per cent. In the emulsion suggested by Mr. Gillard, Rochelle salt and tartaric acid were used, and were the cause of the reduction in viscosity which led to granulation of the prints. Citric acid would obviate this defect, and gold chloride and citric acid might be used together with agar for self-toning emulsion.

Passing to the use of agar for a direct sepia bromide paper, the authors said that sodium phosphate was used by Mr. Gillard in conjunction with a developer consisting of hydroquinone, sodium sulphite and water only. The drawback to the use of ordinary phosphate was that, in conjunction with nitric acid, silver nitrate was liberated, causing great reduction in the viscosity of the agar, and hence granulation of the prints. Tribasic phosphate gave a better emulsion, but the authors finally adopted the use of the ordinary sodium hydrogen phosphate, and added soda at a later stage of the process. By adjusting proportions of potassium bromide and phosphate in the emulsion the colour of the sepia print could be modified to a given colour. The authors described and showed photographs of the experimental drying apparatus which they used for agar paper, and which allowed of the coated roll being rapidly dried at a temperature of about 85 deg. C. (186 deg. F.).

In the subsequent discussion Dr. Mees referred to Schroeder's results in examining alterations in the viscosity of gelatine which were obtained with comparatively weak solutions. He thought if Mr. Cooper measured viscosities of agar in one-tenth or one-fifth per cent. solution he might obtain more concordant results. On the proposition of the Chairman, seconded by Mr. E. C. Morgan, the thanks of the meeting were accorded to Messrs. Cooper and Nuttall. Mr. Morgan, as a manufacturer of agar paper, said that the researches of the authors would be of the greatest possible value, and he could speak for himself when he said that he would have been very glad of such information at the time he commenced to employ agar on a manufacturing scale.

**EDINBURGH PHOTOGRAPHIC SOCIETY.**—At the usual monthly meeting of this society, held in the rooms, 38, Castle Street, Mr. A. H. Baird, F.R.P.S., who presided, referred sympathetically to the death of the hon. treasurer, Mr. John Stewart, who had given faithful and efficient service to the society. It was intimated that Mr. J. B. Peden had been appointed interim hon. treasurer. Mr. John Banks, a well-known Edinburgh professional photographer, read a paper on "Photographing Children." He dealt in a humorous and interesting way with the incidents associated with child photography, and said he considered it one of the most important and difficult parts of the work of a professional photographer. His bright paper was greatly enjoyed, as were also the fine lantern views of children which illustrated it. Several of the amateur members gave an account of their experiences in child photography, which seemed generally to have been of an unhappy kind. Mr. James M. Kerr followed with a paper on "A Method of Testing the Speed of Shutters" by photographing a falling ball. The plan seemed to commend itself to some of the members who afterwards spoke, though others seemed doubtful of its accuracy. Both gentlemen were cordially thanked for their papers. The presentation print for the session (which is given to every member) was distributed at this meeting. The print for this year is a specially fine one, and is entitled "A Bit of Old Edin-

burgh, 1847." It is from a negative in the possession of the society by the late Mr. D. O. Hill, R.S.A., who was a pioneer of artistic photography, and whose work is greatly prized by collectors. This characteristic example shows in the background the famous Calton Hill, and in the foreground an historic old church, which has since been cleared away. The print is rich and soft, a suitable sky has been introduced, and the mounting is in excellent taste.

**SHANGHAI PHOTOGRAPHIC SOCIETY.**—The principal business at the annual meeting of the Shanghai Photographic Society, which was held in the Union Church rooms on October 24, was a lecture and demonstration by one of Messrs. Pathé's representatives upon the taking and preparing of cinematograph pictures. After describing the process fully, the lecturer was called upon to answer questions upon the making of the more wonderful of the pictures, and at the conclusion he was cordially thanked, on the motion of Mr. Mencarini.

**ROTHERHAM PHOTOGRAPHIC SOCIETY.**—An audience of over 300 gathered in the Rotherham Town Hall Assembly Room last week, on the occasion of a lecture by Rev. Bernard Butler, on the subject "Birds in the Garden: A Study of Their Habits Made with a Camera." Mr. C. H. Moss, J.P., the new president of the society, occupied the chair. Not the least interesting part of the proceedings was the delightful way in which the lecturer told his story, presenting many new facts of special import to the naturalist and the photographer. He had first been an observer, and, finding that certain classes of birds were of a friendly disposition when a little extra attention was bestowed, he brought his camera to bear on their movements. He was able to impart much useful information on (1) nesting habits and care of the young; (2) individuality of character; (3) mishaps to garden birds; (4) the initial flight of small birds; and (5) birds in combat. The lecture was illustrated by eighty photographic lantern slides of robins, chaffinches, hedge sparrows, song thrushes, missel thrushes, starlings, blue tits, and ox-eye tits. Cordial thanks were accorded at the close.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—Meeting held December 4, Prof. Armstrong in the chair. Mr. G. Roche Lynch gave a most interesting lecture on "Photo-micrography."

## Commercial & Legal Intelligence.

**IMPUDENT THEFT FROM WELLINGTON STREET.**—At Swansed, last week, James Bannerman, photographer's agent, was charged with obtaining 3s. by means of false pretences from Elizabeth Connor, Wellington Street, Swansea—not Strand, W.C. Complainant said she paid defendant 1s. due to Messrs. Taylor, whom he said he represented. She left defendant alone for a few moments, and afterwards missed 2s. from the mantelpiece. Detective Lewis arrested defendant on Monday in Orange Street. "I don't know anything about it; it must be a mistake," he replied. "On the way to the station defendant said he had been at the house and asked was Mrs. Connor drunk? On getting a reply in the negative, he said, 'I suppose, then, it must be revenge.' When charged, he replied, 'Is that it? I never did it.' Defendant said he sold complainant a portrait on condition that half was paid before she received it. That had not been done. He denied having taken the money. He was sentenced to fourteen days' hard labour.

### NEW COMPANY.

**DIRECT PHOTO-ENGRAVING COMPANY, LIMITED.**—Registered November 23. Capital £5,000, in £1 shares. Objects: To carry on the business of photo-engravers, etchers, lithographers, printers, designers, draughtsmen, etc. No initial public issue.

**"PUSHANE" £150 PRIZE COMPETITION.**—Messrs. Fuerst Bros. notify us that they have extended the period of the above until further notice till the end of June, 1908.

**CHRISTMAS HOLIDAYS.**—Messrs. Raines and Co., of Ealing, advise us that their works will be closed from the evening of Tuesday, December 24, reopening on Monday, December 30.

## News and Notes.

**PERCENTAGE SOLUTIONS.**—A sidelight on the awful muddle of our British weights and measures is shown by a letter to the "Pharmaceutical Journal" of last Friday. The writer (Mr. Chas. Flint) states:—In actual practice the percentage formula in our excellent "Codex" may, unless a little thought is used, be productive of small but not unimportant errors; the fault lying not in the formulae as given, but in the non-interchangeability of our English weights and measures. If one were always working in ounces the liability to mistake would not occur, because the avoirdupois ounce of 437.5 grains stands in direct relation to the fluid ounce of 437.5 grain-measures (or 480 minims). But if working, say, in grains or drachms, more care is needed in the final adjustment of volume. Two examples will make this clear:—(1) In making liq. atropinae sulph., and starting with one grain of the salt, the finished product should be 100 grain-measures or 110 minims (not 100 minims). (2) In preparing liq. ferri iodid. fort., if one works in drachms, making the final product 100 drachms, the quantities of iron and iodine will be 20 x 55 grains and 66.5 x 55 grains respectively (not 20 drachms and 66.5 drachms). Of course, to always work in ounces and decimal parts of ounces would obviate all difficulty and chance of error, and for this purpose the per cent. table at end of book is extremely useful, even if only to check one's figures.

**"PHOTOGRAMS"**—Messrs. Dawbarn and Ward, who, under the title of "Photograms of the Year," bring the year's crop of pictorial photography to our firesides, have to pay sometimes for their persistent advocacy of "photogram" as a substitute for the universal "photograph." In the "Westminster Gazette" a few evenings ago, the headline, "Photogravures of the Year," startled us into the supposition that another annual was to gather the pictorial fruits of the camera. But there is no cause for alarm; it was our old friend "Photograms," reviewed, no doubt, by some scribe more gifted in the mind than with the pen. And the compositor—well, we can imagine him making the best of "photograms."

**COLOUR PHOTOGRAPHY AT THE POLYTECHNIC.**—An exhibition of examples of colour photography will be held at the Polytechnic, Regent Street, during the Christmas holidays, commencing December 26, 1907. Silver and bronze medals will be awarded as follows:—A.—Portraiture by the Autochrome process (silver and bronze medals). B.—Other subjects by Autochrome process (silver and bronze medals). C.—Colour prints by any purely photographic process (silver and bronze medals). No entry fees, and the exhibition will be open free to the public. The exhibits will be judged by Mr. George E. Brown, F.I.C., Editor of THE BRITISH JOURNAL OF PHOTOGRAPHY. The following conditions must be complied with:—

Entry forms properly filled up and signed must be posted to reach Mr. C. H. Hewitt, 309, Regent Street, London, W., not later than Friday, December 20, 1907.

Exhibits, which must be individually labelled with the exhibitor's name and address, should reach the Polytechnic, if possible, not later than Monday, December 23, 1907, the latest date for receiving same being December 28. They should be addressed as above and sent carriage paid.

Autochromes should be varnished and protected by cover glasses, and paper prints must be mounted and framed.

Every care will be taken of exhibits, and they will be carefully packed for return at the close of the exhibition, but no liability for accidental damage can be accepted. Exhibits will be insured against fire at value appraised by the Polytechnic.

Owing to the limited space available for the display of the exhibits, acceptance of all pictures sent cannot be guaranteed, but all pictures will pass before the judge.

**AN AUTOCHROME NATURE LECTURE.**—Mr. F. Martin Duncan, whose recent lecture on "The Romance of Insect Life" we referred to on its delivery at the Blenheim Club, has now made arrangements to demonstrate his pioneer work in the application of colour-photography to the record of animal mimicry before London and provincial audiences. Mr. Duncan's monochrome photographs have in the past provided a feast of entertaining information; in colour, however, the

nature subjects which Mr. Duncan has made his own gain enormously in interest. The new lecture, "The Romance of Insect Life," should be a very popular fixture, and we can give no better counsel to secretaries and amateur entrepreneurs generally than to address Mr. Duncan at 39, Bradley Gardens, Ealing, W., for vacant dates.

**A SHOW OF ARTIFICIAL LIGHTS.**—Interest having been taken late in the use of artificial lighting for the photographic studio, partly no doubt owing to the recent exhibition at the offices of the "B.J.," Messrs. O. Sichel and Co. have with commendable energy taken a step which should be appreciated by those anxious for the opportunity of comparing the various types of lamp. They have installed studio lamps of the open, enclosed-arc, and mercury-vapour type at 52, Regent Street, next to Piccadilly Circus, W., where under the superintendence of Mr. A. Holmquist, who is a qualified electrician, the respective outfits may be tested by anyone who so desires. Messrs. Sichel have placed one of their cameras, fitted with a portrait lens, at disposal for this purpose, and allow photographers to use their own plates, which should be half or quarter-plate in size, for the tests. It is not to be assumed that such a trial is altogether on all fours with one made in a completely fitted studio, but it is nevertheless one which should be of considerable value to any one desirous of accommodating himself with a particular description of artificial light installation. Moreover, on the same visit they can be afforded the opportunity of seeing the actual working of a printing outfit by artificial light. Enquiries as to special requirements should be addressed to Messrs. Sichel at 52, Bunhill Row, E.C., but callers at 52, Regent Street, need no introduction other than their alleged interest in electric light for studio portraiture.

**WEDDING.**—Miss Midwood, daughter of Mr. H. Midwood, photographer, of Ramsay, Isle of Man, was married to Mr. H. Kermode, of Castletown, on Monday last, at Maughold Church. A reception was afterwards held at Albert House, Bally Mount, and was well attended.

**"GRENNA" ENLARGEMENTS.**—We have received from Mr. H. Holden, of 10, London Street, Paddington, W., a specimen of these enlargements, which has the appearance of being a bromide, toned to a rather pleasing shade of green. The method by which these enlargements are produced is not stated, but the effect is very satisfactory, and closely resembles that of carbon. It is claimed that they require much less "finishing" than carbon prints, and that they remain just as permanent as ordinary black bromides.

**THE "HENDERSON" AWARD.**—This award, given by the late A. L. Henderson (and open to the world) is of the value of £5, and is given for the best paper read or published during the year from July to July upon a subject, preferably, of a photochemical nature. The award is vested in the committee of the London and Provincial Photographic Association (of which Mr. Henderson was the founder). This year the award falls to Dr. C. E. Kenneth Mees for a paper upon "The Rendering of Colour and Colour Contrasts."

**PHOTOGRAPHER FOR L.C.C.**—The London County Council, at its meeting on Tuesday, decided to appoint an expert photographer and lantern-slide maker. The matter arose on a suggestion by the Education Committee that the 450 lanterns in day and evening schools possessed by the Council should be fully utilised, as lantern pictures are a valuable aid to teaching. The Establishment Committee, in a report on the subject, mentioned that at present the general photographic work of the Council is done by Avery and Co. by contract. The accommodation in the L.C.C. chemical department would allow of the work being done there without inconvenience. The Council has at present 27,000 slides, and the work of preparing new ones and supervising the collection, it is thought, will occupy one assistant almost the whole of his time. The Council will determine their contract with Avery and Co. and try the experiment for one year. The salary attached to the post is £200 per annum, and provision is made for the appointment of two assistants at a rate of pay not exceeding £2 a week each. The Finance Committee remark on the possibility of there being a greater demand for photographs under the new system, and ask the Establishment Committee to see that due economy is exercised by other committees in ordering photographic work.



## Correspondence.

\**Correspondents should never write on both sides of the paper.*

*No notice is taken of communications unless the names and addresses of the writers are given.*

\**We do not undertake responsibility for the opinions expressed by our correspondents.*

### PORTRAITURE BY THE MERCURY-VAPOUR LAMP.

To the Editors.

Gentlemen,—In your issue of December 6 a letter appears condemning my article, which appeared in your issue of November 22. Mr. Girdlestone says that I “depreciate other systems.” I do, so far as I can compare them with the mercury-vapour lamp. He then goes on to say that “nearly all my statements in the second paragraph can be flatly contradicted.” We are further on referred to Mr. Hewitt’s article of November 8. I will, first of all, deal with the “statements” which Mr. Girdlestone can “flatly contradict.” Regarding “the uncertainty of the electric arc lamp and the difficulty of starting the lamps” (I quote this from my article), I can give an instance which happened only a fortnight ago. I was paying a visit to a well-known provincial firm of photographers, and their manager was anxious to show to me their new installation of eight up-to-date arc lamps. The lamps could not be started when the manager wished, and, finally, a telephone message had to be sent to a firm of electricians in order to have things put right. I might mention that this firm had used arc lamps for at least seven or eight years. I think this would prove to any beholder that the “uncertainty and difficulty in starting” was present. Then as to the next point—“heat,” I quote from Mr. C. H. Hewitt’s article, in your issue of March 2, 1906. Mr. Hewitt says: “The heat given by these enclosed lamps is considerable, and in carbon printing it is very necessary to keep the frames at a sufficient distance, so as to avoid heating the carbon tissue.” Can Mr. Girdlestone now contradict my “statement” that there is heat connected with the arc lamp? I repeat, that none of these faults appear in using the mercury-vapour lamp. Mr. Girdlestone takes exception to the fact that, “although for ordinary purposes the plates have been of the same speed, when used with the mercury-vapour lamp each plate has required a different exposure.” This fact I adhere to, in spite of Mr. Girdlestone’s sarcastic allusion to it as being an “advantage.” If Mr. Girdlestone will take the trouble to read my article again he will find that I was simply giving the results of certain experiments I had made with different brands of plates, a hint which was well received in various quarters. The last point quoted by Mr. Girdlestone is in connection with exposure—“expose for six seconds,” and “in no case exceeding nine or ten seconds.” Because I have written these words I am supposed to have disposed of any claim the mercury-vapour lamp may have for portraiture work (vide Mr. Girdlestone). Referring to the exposure of nine or ten seconds, this was found to be the longest exposure necessary when using an “ortho.” plate, a stop which I did not recommend. The exposure of six seconds was given with a Royal Standard plate, “under the conditions set forward in my article.” The conditions mentioned are briefly as follows:—The sitter was placed about six feet from the lamps. Lamps were covered with nainsook, a second screen placed nearer to the sitter, and the red blind drawn upwards until the light was concentrated on the face. As I mentioned before, the exposure was six seconds. I now quote from Mr. Hewitt’s article of March 2, 1906. “The portraits of children show what can be done in the way of cutting down exposures, while the half-length portrait, in which the light has been controlled so as to secure some concentration of light and shade, was given an exposure of from two to three seconds under the conditions stated.” The said conditions are pretty much the same as those under which I work with the mercury lamp—viz., eight feet from lamp, stop  $f/6$ , and special rapid plate. Mr. Girdlestone will scarcely relish the fact that, with a No. 114 Westminster lamp, Mr. Hewitt gave three seconds’ exposure, whilst with only two mercury-vapour tubes, an

exposure of six seconds was sufficient. Dealing further with the question of efficiency, Mr. Hewitt is quoted as saying that, with the No. 114 lamp, an exposure of a quarter of a second is sufficient for ordinary work. If Mr. Girdlestone cares to take the journey north I will demonstrate to him that I can get a correctly exposed negative with a second’s exposure, and that with only two tubes. Since Mr. Girdlestone has mentioned exposure he will no doubt be pleased to hear that, whereas a Westminster No. 114 lamp, consuming seven units per hour, gives an exposure of a quarter of a second, six mercury tubes, consuming a little under three units per hour, will allow of an exposure of one-third of a second, or, to take it further, a Westminster lamp, running at a cost of 2s. per hour, is very little better than a Cooper-Hewitt skylight of six tubes, running at a cost of about 10d. per hour. But Mr. Girdlestone must not presume that the efficiency of the vapour lamp ends here. Let him refer to von Hübl’s paper on the arc lamp (“B.J.” Nov. 1, 1907), and he will see that, in printing, the arc lamp is very difficult to adapt to printing large negatives. I quote as follows: “Practically when printing a negative, 20in. x 20in. square, at a distance of 20in. from the light source, the margins receive 75 per cent., and the extreme edges only 55 per cent. of the light that falls upon the middle.” I would like to point out that, with the negative placed at 20 inches from the source of light, a negative at least 40in. x 56in. can be printed from with the five mercury tubes mentioned. Touching again on portraiture, I would like to draw Mr. Girdlestone’s attention to the fact that, even when the mercury tubes are uncovered, the light is perfectly diffused, and is evenly distributed over the whole area of the skylight, a state of things which is non-existent in the case of the arc lamp (see Hübl’s paper, “B.J.” Nov. 1, p. 826, second column). I have endeavoured to justify my “statements,” as made in my article of November 22, and have omitted to deal with the charge of incompetence made in the first paragraph of Mr. Girdlestone’s letter. It may be well to mention that I cannot enter into any further discussion on the matter.—I am, yours faithfully, GEO. R. HENDERSON.

Hebburn-on-Tyne.

P.S.—It may astonish Mr. Girdlestone to read the following, which I quote from a letter received from a photographer at Bexhill-on-Sea: “I have visited the Artificial Light Exhibition \*\*\*\*\* \*\* arc lamps, etc. \*\*\*\*\* Should I decide to adopt artificial lighting I shall use your system, as I consider it is nearer daylight than any other.—Yours sincerely, “M——.”

### STAND DEVELOPMENT.

To the Editors.

Gentlemen,—The article by Mr. Mackie last week dealing with the leaflet recently issued by us, represents our position in issuing that article very fairly, but we may perhaps make a little clearer the reason for the differences on some points between Mr. Mackie and ourselves.

Owing to the rather special nature of the plates, screens, etc., which we manufacture, we receive a very large number of inquiries, frequently of a technical nature. When inquiries reach us which we have not the knowledge to answer, we institute an investigation into the question if the subject appears to be of general interest. We publish the result of those investigations in three different ways: (1) As booklets of a more or less advertising character, which are given away and distributed as such; (2) as leaflets giving our information on the special subject under discussion, and written mainly in order that a printed leaflet may be sent to save the writing of special letters; and (3) if the subject is of purely general interest, the investigation is published, not by ourselves, but as a paper before some society, or in a journal, and under the names of those who did the work.

The leaflet on stand development belongs to the second of these classes; it is practically an answer to the following questions which we have frequently received:—“I am using your colour-sensitive plates, and you give the time of development with your developers. I am used to stand development; can you give me a formula and a time for a diluted developer which shall take from half to one hour for development?”

This question we could not answer until we had made the

measurements described in the leaflet on stand development, and consequently we assumed at the beginning of that leaflet that for a developer to be satisfactory we must be able to tell users of our plates how long to develop with it. The necessity for this arises from the special colour-sensitive nature of some of our plates, which renders time development almost imperative. This, then, is the reason for the point of view to which Mr. Mackie refers.

We may take this opportunity of referring to one or two other points which have arisen since the publication of that leaflet. We stated that we did not recommend rodinol for stand development. We pointed out that the reason for this was simply that it was not easy to give a time of development for diluted rodinol solution. This objection, of course, only applies when using strongly colour-sensitive plates which cannot be inspected, and dilute rodinol is a quite satisfactory developer for stand development when judging density by inspection, just as we have always found a more concentrated solution of rodinol generally satisfactory, and recommend it for time development with our colour-sensitive plates.

Then, with regard to Mr. Mackie's point as to the causes of fog, Mr. Mackie remarks that some of our suggested causes of fog are far-fetched. We did not say that the causes we give would produce fog, we said that they may "unite to attack plates." This has nothing to do with a particular plate. Fumes of burnt gas will tend to attack any plate during development, just as Mr. Mackie's example is true of all plates. Pyro-ammonia will always tend to produce green fog, though with satisfactory plates the green fog will not be noticeable.

If, however, a plate is liable to produce green fog, pyro-ammonia will show it more readily than other developers, and that statement seems to us to be true of plates generally. We do not know of any differences between behaviour of different plates with regard to diluted developers, but if Mr. Mackie can suggest any further experiments which would be of general use, we shall be pleased to take his suggestion and continue measurements upon development with dilute developers.—We remain, Sir, yours faithfully,

Croydon.

WRATTEN AND WAINWRIGHT, LTD.

To the Editors.

Gentlemen,—Messrs. Wratten and Wainwright's leaflet on "Stand Development" was obviously addressed to users of their own plates, and, such being the case, they may legitimately urge that its contents were of a semi-private nature, having no general application. The publication of the leaflet in these pages, however, may cause many to regard it as an "Ex Cathedra" statement applying universally, and in view of such an opinion Mr. Mackie's paper, in your issue of last week, must be sincerely welcomed. It is a matter of common knowledge, referred to not long since by yourselves in these pages, that laboratory experiments do not always chime in with everyday practice, and many of the dogmatic statements emanating from the laboratory regarding development are singularly illustrative of this fact. All crafts at the present day are too much indebted to accurate scientific research to be able to ignore its teachings, and the man who elects to work by empirical methods alone will quickly reach the place reserved for him in the survival of the fittest; but in hard everyday work much laboratory teaching has to be considerably modified in one direction or another. It may be true, from the laboratory point of view, that "stand development" is inadvisable, and the means of introducing errors into one's work, but the fact remains that in everyday practice it is a most convenient method of development, and gives negatives that will stand comparison with any developed by the tray, either "timed" or "rule-of-thumb."

The practical photographer who values the reputation of his work cannot afford to sacrifice technical quality, neither can he afford to ignore any means whereby time and labour may be saved. If the quality of negative by stand development was in any way inferior to tray developed negatives I, for one, would have none of it, and it goes without saying that in the workroom any method that is inconvenient and consumes time and labour must eventually be set aside. On the other hand, it would be absurd to advocate stand development to the exclusion of other methods; to the man with only a few nega-

tives to develop there can be no advantage in making up a bath of thirty or forty ounces just for the sake of using this form of development. But the case is far different with him who is developing most of the day, or who has large batches of plates to develop at a time.

With regard to the evils Messrs. Wratten associate with stand development in their leaflet I am bound to say I have not yet met with any of them. Of course, one must always bear in mind, as Mr. Mackie pointed out in his paper, that Messrs. Wratten are writing with special reference to their own plates, so that when they write of general fog and edge markings occurring with stand-developed plates it must be taken with this reservation. I have developed several brands of commercial plates by "stand" without any trace of fog, marginal or general; but, as Mr. Mackie also points out, there is always the plate, which is the host that has to be reckoned with.

When my paper on "Stand Development" appeared in your pages ("B.J.," July 12, 1903, p. 520), I had letters from several correspondents complaining that their experiences varied considerably from my statements, and mildly suggesting that I was in error. One correspondent complained that with the formula I gave he could not get sufficient density with X's plates, even in half an hour. Curiously enough, a few days after receiving this letter, a user of the same plate complained to me of the length of time it took him to get average density with them, and he used their own developer and tray development.

I believe that at the present time the want of a convenient tank stands very much in the way of the acceptance of stand development. Personally, I want nothing better than the porcelain dipping bath, which is economical of solution, light-tight, and easily kept clean. A tank that requires some thirty ounces of developer to make it available for use is sure to have a deterrent effect, especially when the number of plates to be developed is small, and they are of moderate dimensions. Tank development does not necessarily mean dilute solutions, so that to dilute a standard strength of developer merely to fill a tank too large for the purpose is scarcely a sound proceeding, as extremely dilute solutions, with consequent prolonged development, is not unlikely to cause general fog.

In spite of Mr. Mackie's optimistic views of the future of stand development it is open to question whether photographic workers will make use of it to any great extent, not from any lack of merit in it, but from the fact that the bulk of them can get along very well with the tray. It is the worker who finds himself with continual developing to do who is likely to cast about for some certain and efficient means of saving labour and time. Tank development for negatives at the present time is on all fours with tank development in carbon work. Where a dozen or so only are in consideration the need for a comprehensive method is not particularly felt, but when it is a question of developing some dozens the ease and convenience of the tank method become at once apparent.—I am, Gentlemen, yours faithfully,

G. T. HARRIS.

Sidmouth, Devon.

#### PORTRAITURE BY ARTIFICIAL LIGHT.

To the Editors.

Gentlemen,—At present photographers are greatly interested in artificial lighting. My experience has been simply incandescent gas. The enclosed photograph was taken at night, with five large burners, on special extra-rapid "Royal Standard" plates. The exposure was ten seconds at  $f/6$ . It is one of the best I have done. The retouching on face is slight; the eyes not touched. Please note high-lights. If you, gentlemen, have seen better work with so small amount of light I shall be pleased to hear of such.—Yours faithfully,

92, East Street, Bedford.

A. E. STANLEY.

[The photograph is certainly very well lighted, unmistakably by an artificial source. Our correspondent can scarcely suppose that 10 secs. is a practicable exposure for the average run of sitters. The present example illustrates the way in which the sitter has had to be practically wedged so as not to move, as well as the insufficient diffusion of the illumination.—Eds. "B.J."]



## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 2A, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 2A, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 2A, Wellington Street Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- J. Thomas, 81, Rhondra Street, Swansea. Photograph of *Bethania Calvinists' Methodist Chapel at Glanamman.*
- C. Spence, Jessmont, Dunbar, Scotland. Photograph, *View of Knock-in-Hair, Dunbar.*
- H. J. A. Turner, 69, Mount Zion, Tunbridge Wells. Photograph of *Short-eared Owl.*
- G. Moss, The Priory Studio, Church Street, Christchurch, Hants. Photograph, *Group of H.T.M. the Emperor of Germany and Suite.*
- W. Hollick, 78, Wellington Street, Woolwich, London. Photograph entitled, *"You Smile, Dolly."*

SOLAR.—We should say yes to both inquiries.

ON-COLOURING.—Please can you inform me how to prepare matt-surface photographs for painting in oils?—H. SYMONDS.

To matt the surface, apply fine pumice powder with a tuft of cotton wool, and, if the surface is found to require it, rub over light drying oil and leave for twenty-four hours.

FLUATE OF SODA.—On page 705 of the "Almanac" for 1904 is described the early printing process called "fluortype." In the formula is mentioned "fluat" of soda. I cannot get it at any of the dealers' or chemists' here. They do not know the chemical. Is "fluat" a misprint, or an old name for some other salt of soda? I should like to try the process, as I have an idea it is really useful.—A. J. SHEFFIELD.

Sodium fluoride, obtainable from any large chemist.

LAMP SCREEN.—Could you inform me the composition of the coating on the glass plate sent herewith? It is a portion of a backing plate for a large transparency used in a hall lamp which has been broken, and which I have been asked to reproduce. It appears to me to be some exceedingly fine substance held in suspension in collodion or something similar. It is just sufficiently opaque to obscure the source of illumination. It has evidently been flowed on to the plate. I believe the transparencies are of American origin.—TRANSPARENT.

We are unable to tell you the exact composition of the coating. It is evidently a spirit varnish, similar to ordinary negative varnish, with a white pigment, such as sulphate of baryta, added. A sheet of thin opal glass will answer the purpose equally as well, and will have a similar appearance in the lamp.

R. RUSSELL.—We cannot. We inserted a paragraph last week asking for the information, and will publish it as soon as we hear.

STUDIO AND BLINDS.—Would you be kind enough to advise me as to building a studio. The length is 32ft., width 18ft. I wish to build on a single slant. How much width and length of glass do you advise, and is 45 degrees the right angle? Also what blinds would you advise? Should be very glad of any advice you can give. Also what height from floor should glass commence?—S.

If you refer to the issues of the "Journal" for August 23 and 30, pp. 655 and 659, you will find all the information you seek. It is more fully given there than is possible in this column.

R. H. (Hereford).—We refer you to page 613 of the "Almanac." We agree with you as to the difficulty of reconciling the various statements.

COLOURED ENLARGEMENT ON OPAL SHOWING SPOTS.—A few years ago I had an enlargement made on opal and painted in water-colours. It has never been framed, but simply kept in a box. Recently some irregular spots almost black in colour have made their appearance, and I shall be glad if you can tell me any method of getting rid of them. Presumably the enlargement would be in bromide, and the appearance of the spots suggests that they are caused by damp acting on the bromide. I may add that the room in which the opal enlargement has been kept has for some time past been damp owing to defective pipes against the outer wall. Assuming the cause to be as suggested (1) Can the spots be removed by immersing the opal in some chemical solution? (2) Would there be any risk to the picture in this procedure? (3) Are the spots likely to spread if every care is taken to keep the opal in a dry place? Your advice will be greatly esteemed.—C. M. ROBERTS.

Without seeing the picture we can express no decided opinion. In all probability, however, the spots are due to mildew in the gelatine through the picture being kept for so long a time in a damp place. (1) If the picture is coloured with water-colour, that, of course, would be injured if it were wetted. (2) Yes, certainly. (3) If there is any mould on the surface it may probably be rubbed off with a piece of dry cotton wool. Then, if the picture be kept perfectly dry, it is unlikely that the spots will spread further.

R. WILLIAMS.—The Platinotype Co. sell silk, etc., sensitized with the platinum solutions; the method of use is that of platinum printing. A somewhat similar fabric bearing bromide emulsion is sold by the Rotary Co., 12, New Union Street, E.C.

INTENSIFIER.—I am using the metol-hydroquinone developer, and sometimes find the negatives would be better for a little intensifying. Will you kindly tell me the best formula to use?—S. J. MOORE.

The process most likely to suit you is the single solution mercuric iodide, as supplied by the Lumière Co., Great Russell Street, W.C.

W. A. O.—Try the preparations given in the Almanac for bromide enlargements, p. 836. Write us further if you do not find this all you want.

R. STEWART (Melbourne).—We thank you for yours of November 6. We regard the subject as one which calls for much more investigation than we can give it before we should deal with it in our columns. We must confess to an "a priori" sense of scepticism, but we are always open to propositions of experiments under best conditions which a photographer could apply himself.

A. H. DEANE.—Wratten and Wainwright, who will advise you on your stating your requirements. Some notes on stage photography without flashlight appear in the Almanac, p. 725.

W. C. TIERNEY.—The Todd-Forst lamp, the Schroeder (Fallowfield), or the Electroflash (Chas. Zimmermann and Co.).

TONING BROMIDES.—Kindly give a formula for toning gaslight or bromide postcards to a dark brown colour. Simple method.—ANXIOUS.

We can only suggest sulphide toning according to the usual formulæ, e.g., that in the "Almanac," p. 825.

DR. STEPHEN G. LONGWORTH.—It is not on the market to our knowledge. We can best refer you to Newton and Co., 1, Fleet Street, E.C., who could doubtless make one.

AUTOCHROME.—(1) Reference "B.J." of December 6, page 93, I am not clear what is a 2 per cent. solution of bisulphite lye. Does it mean a 2 per cent. solution of sodium bisulphite, or a 2 per cent. solution of commercial bisulphite lye, which, according to König (see "B.J.A.," 1908, page 626), is 35 parts of sodium bisulphite to 100 of water, or roughly 1 to 3? (2) Similarly reference, page 921 of "B.J." of December 6, paragraph 4, line 5, I presume 1 c.c. of bisulphite solution means 1 c.c. of commercial bisulphite lye, or 17 minims of a solution composed of water 100 parts, bisulphite of sodium 35 parts?—E. Y. E. N.

(1) A 2 per cent. solution of the commercial lye is evidently intended by M. Gravier, but we see in a later article in his own journal, "Le Moniteur," that he prescribes a 5 per cent. solution of the lye, i.e., 5 ccs. per 100 ccs. of water. We think the

exact strength is not very important; in fact, we have used the method without the bisulphite bath, but no doubt a weak reducing bath is advantageous as a destroyer of the last traces of the permanganate. (2) The reference is certainly to the bisulphite solution obtainable in this country from the Lumière Co., Great Russell Street, W.C.

**AUTOCHROMES.**—1. Can these be used as lantern slides, with or without precautions taken to protect from heat? 2. If the latter, what is the best way? 3. Are there any appliances on the market to mark the two and a half minutes by sound, such as sandglass with bell, etc.—WEEDEE.

1. They can, but the film is liable to crack if it becomes hot. 2. The transparencies should be varnished with a celluloid varnish and a water trough placed between them and the light if the latter gives out much heat. 3. The oil-shops sell a sandglass with bell indicator for a range of three to seven minutes, but we do not know how accurate it is. The Welborne-Piper clock (Butcher and Sons) is an accurate instrument for the same purpose.

**THISTLE.**—Exactly. The "dry" is all sulphite; the crystallised contains half its weight of water.

**TROUBLED.**—We should take no notice. In the first place she has to prove that the photographs were unsatisfactory; in the second to explain why she refused a second sitting. You had better retain the money.

**PYRO DEVELOPER.**—In this week's issue of the "B.J." you print an article on "Preservation of Pyro in Solution" (Lumière), recommending commercial soda bisulphite sol. 1. Is this obtainable in England now? If so, price, etc.? 2. Is this method better or as good as the neutral sulphite pyro you advocated? 3. Kindly give formula in English measures to make up, say, 20 oz. or 80 oz.; nothing is said about the accelerator (B. sol.). 4. I have used your neutral pyro ever since articles and formula appeared in "B.J.," and like it much for several things; but after keeping for some time it seems to alter, i.e., I fancy I get denser negatives with a fresh-made pyro. My method is to make a stock sol. with the sulphite and metabisulph., then from that make the pyro, using an ounce bottle at once (calling it 440 gr.) so as to save the time in weighing out 160 gr.; this makes just three bottles of pyro sol., and No. 3 seems to act differently from No. 1. Exposures principally in studio.—WEEDEE.

1. The commercial sodium bisulphite referred to is, no doubt, the "bisulphite lye" obtainable from Messrs. Lumière's London agents in Great Russell Street. 2. We cannot say, not having tested Messrs. Lumière's formula. 3. In English measures, use 10 minims of bisulphite solution to 20 oz. of 3 per cent. pyro, or 20 minims to 20 oz. of 50 per cent. pyro. 4. You do not say how long your No. 3 solution has been kept, and some change is to be expected in the course of time. We should use the crystalline form of pyro that is easily weighed, and make up less at a time. An absolutely fresh solution is probably more powerful than one that has been kept, but a good deal depends on the quality of sulphite used. The special advantage we claimed for the formula was the keeping quality of the neutral sulphite alone. This enables one to make up fresh pyro solution at any time with the minimum of trouble.

**STAINED NEGATIVE.**—I herewith send you a negative, which, as you will see, is covered with small yellow stains. Could you, through your valuable paper, tell me how to prevent them? The developer used is pyro-soda.—B. Vos.

It is difficult to say with any certainty what the stains are due to, but they look very like irregular patches of pyro stain. They might be due either to the use of developer containing floating particles that required filtering out, or to the use of an acid fixing bath that was not sufficiently acid or too much exhausted to work properly. In either case the remedy is obvious. Possibly, however, imperfect fixing is the cause. From the appearance of the stains, they were produced either during fixing or developing. Pyro stain is sometimes irregular in its effect owing to the causes mentioned, but similar effects may also be produced by careless washing between development and

fixation. If washed at all, the plate should be completely immersed in water, but such washing is not really necessary with pyro soda.

**CARBON TROUBLES.**—In my business I have been working the carbon process since almost the beginning of the year, and everything has gone on satisfactorily. But now a difficulty has cropped up which promises to put a stop to my operations. Since the damp weather has set in I cannot get the tissue to dry in less than ten or twelve hours, and when it is dry it turns out to be insoluble, so that the pictures cannot be developed. Furthermore, the exposed tissue will not hold on to flexible support. I have to dry the tissue in the dark-room, as I have no other place. Can you help me in any way? I have gas in the room, but I am afraid if I leave that burning so as to warm the place that the fumes from it would bring about insolubility.—PUZZLEN.

An ordinary darkroom is not a suitable place wherein to dry tissue, as the atmosphere in it is generally very damp from the sinks and solutions. Unless you can arrange a more suitable place, we should advise you to employ a spirit sensitiser, such as that sold by the Autotype Company. Tissue sensitised with this will dry in from a quarter to half an hour, and will get you out of the difficulty.

**W. R.—Watts'** "Introduction to the Spectroscope," 10s. 6d., Longman's.

**WET PLATE AND OTHERS.**—In our next.

**TONING STAINS.**—Will you kindly explain red stains in enclosed print? I have many similar.—MIRANDIDDIE.

Difficult for us to say, as you do not even tell us the baths you are using. Traces of hypo or a dirty dish for the toning-bath will give rise to such stains.

**EXHIBITING PORTRAIT.**—Last summer I commenced business at the above address, and about a month ago I took the portrait of the best-known lady in the place, and it turned out one of the best I have taken, and she was very pleased with it. I had a 24 x 18 enlargement, finished first-class, made as a specimen. It had only been in the window a day when her husband came in a great rage and ordered it to be immediately removed. This I refused to do, explaining to him that the negative was my property, and I could do as I liked with it. He then threatened me with the law. Will you please tell me if he can do anything?—YOUNG PROFESSIONAL.

Decidedly he can, and if he does you will find yourself landed in heavy law costs. Although the negative is the photographer's, as we have said many times before, he has no right to use it except to the order of the sitter. You sign yourself a "Young Professional," but when you have had more experience in the business you will find it to your interest not to go against the wishes of customers, and certainly not to give them offence. To give offence to customers, particularly in a country place, is a great piece of folly. Common sense should teach photographers that it is exceedingly bad policy, from a business point of view, to exhibit portraits against their customers' wishes, quite apart from the fact that it is illegal to do so.

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## The British Journal of Photography.

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## SUMMARY.

The annual index to "The British Journal of Photography" will be published with next week's issue, dated December 27, but to be published on Tuesday next.

Practical directions for the working of the albumen process for lantern slides are given on page 955.

The efficiency of water as a hypo eliminator has been emphasised some recent experiments (P. 954.)

Low temperature as a cause of flat oil prints is the subject of an editorial article. (P. 954.)

Mr. A. Lockett communicates some ingenious geometrical methods making telephoto calculations. (P. 956.)

An American writer describes the tremendous differences between number of professional studios which he visited. (P. 958.)

A fairly correct impression of the demands made on a press photographer is given by a recent writer. (P. 962.)

A cellulose emulsion and a phosphate substratum are among the contents of the week. (P. 964.)

A new and durable incandescent mantle is announced. (P. 953.)

M. Belin demonstrated his method of telegraphic transmission of photographs before the French Photographic Society last week. A Danish inventor is reported to have worked out a wireless method of photo-telegraphy. (P. 953.)

Dr. Herman Weisz records the results of experiments on the latent image on plates free from gelatine or other colloid body. (P. 960.)

## EX CATHEDRA.

### The Annual Index to the "B.J."

With next week's issue, dated December 27, but to be published on the Tuesday before Christmas, we shall present the index to the yearly volume of the "British Journal of Photography." The preparation of the index has gone on week by week throughout the year, a course which is necessary to its appearance with the last issue of 1907. In compiling it, our aim has been not only to indicate the references to a given subject, but to distinguish as minutely as possible between the various items. Although we have improved the index in this respect to a considerable extent, we have done so, we are glad to say, without increasing its length. Last year we recollect a contemporary naively priding itself on issuing the largest index of any photographic periodical. If we were content to dispense with the classification of the hundreds of entries which make up the "B.J." index we should spare ourselves not a few hours of labour, but the reader's labour in consulting the index would be doubled or trebled. As it is, we have aimed at an index of the utmost brevity consistent with the maximum of precision. We shall be interested in hearing the views of any readers who may have opinions on what should and should not be indexed and on the way in which an indexer should set to work.

\* \* \*

### Durable Weisbach Mantles.

It is announced in Paris that a French firm have succeeded in solidifying the rare earths used for the Weisbach mantle, by means of the electric furnace; at the same time the oxides retain their radiating properties. The results have been controlled by a well-known physician, M. Berget, and the Société Hella will shortly put its "buissons ardents" on the market. This slightly irreverent name is due to the form of the ordinary burner, the substitute for the mantle being cast in the form of a thicket or bush of filaments, but any desired shape can be formed, so that the process lends itself to effects. Since the new filaments resist shocks, tremors, or draughts to an enormously increased extent, and can be employed with acetylene Bunsen burners, or for heating in the air by the electric current, as in the Nernst lamp, an advance almost as great as that of the original discovery of von Weisbach is perhaps imminent.

\* \* \*

### Photo-Telegraphy.

On December 9, M. Ed. Belin lectured before the French Photographic Society to a numerous and distinguished gathering on his process of telestereography, recently described in the "British Journal." The previous evening he had sent his first photograph over an actual telephone circuit, a test which was repeated on Monday evening. The circuit was from Paris to Lyons, Lyons to Tours, on to Bordeaux, and back by Angoulême to Paris, a distance of over 17,000 kilometres. The transmission of a landscape image:

13 by 18 cms. was accomplished with perfect success, the time taken being slightly over 22 minutes. M. Belin said there was every reason to hope that this would be greatly curtailed; he expects to reduce it to 15 to 10 minutes very shortly. In the course of his lecture he explained how his apparatus could be used for the transmission of images in half-tone. In this case it is simply a question of the cursive stylus in the transmitting apparatus making and breaking contact, the image being reproduced in dots at the other end.

\* \* \*

#### Wireless Photo-Telegraphy.

Meanwhile, it is interesting to note that a Spanish inventor, Señor J. G. Guillen-Garcia, has presented to the Barcelona Academy of Sciences and Arts a description of an apparatus for the transmission by wireless telegraphy of writing, sketches, or photographs. The principle is essentially the same as that of Caselli in 1857, and so far as the transmitter goes, very similar to that of Belin. This latter consists of a cylinder, rotating at a definite rate and traversed by a stylus, which thus follows the image in heliocoidal lines. If the writing or sketch be in insulating ink, the pen by means of a relay makes or breaks a circuit which includes a transformer and apparatus for the production of Hertzian waves. At the receiving station is a similar synchronised cylinder, and the pen records long or short lines according to the incidence of the Hertzian waves on the detector used. For the transmission of photographs the inventor employs, like Belin, a gelatine relief, and converts the variations of relief into current variations as follows: The end of the traversing pen bears a small roulette or wheel contact; this runs over four metallic contacts, insulated from each other, and bounded by two insulators. Each of these contacts is connected by a wire to a disc of ebonite or other insulating material turning at a uniform rate. One of these has a smooth edge, the others have projections or indentations, the same for each disc, but varying from one to another, and all are in contact with a metal cylinder connected to the Hertzian transmitter. According to the reliefs the stylus traverses, electro-magnetic waves of greater or less intensity are transmitted.

\* \* \*

#### Elimination of Hypo.

Of late we have on several occasions tested the effect of various hypo eliminators, and, while the results have mostly been unsatisfactory as regards the eliminators tried, the tests have afforded some interesting illustrations of the advantages of washing plates by simple soaking in several changes of water. As a rule, the procedure recommended with the eliminators is to rinse the plate under the tap for from one to two minutes, and to follow this with a soaking in the special eliminating solution for from three to five minutes. The final operation is then generally from three to five minutes' washing under the tap. In our tests we worked according to the instructions supplied and for the times stated, treating one plate with the eliminator and putting a second one through precisely the same treatment, with the exception that we soaked it in plain water instead of the special solution. After the final rinsing the plates were each soaked for ten minutes in equal quantities of distilled water, which was afterwards titrated with centinormal iodine to find the quantity of hypo present. Incidentally we may mention that we generally found equal quantities present in each case, which proved that the eliminator was no more effective than plain water. It was, however, interesting to note the very small quantity of hypo that could be detected. This seldom exceeded

three-quarters of a milligram per quarter-plate after about eleven minutes' treatment with soaking and washing, and this affords pretty clear evidence of the efficacy of simple soakings, alternated with rinsings under the tap. Of course, the effect was not perfect, but it was more near so than we expected, and the results suggested that half a dozen soakings should be quite effective in something less than half an hour. This has, of course, been pointed out before, but somehow the majority of photographers still persist in washing in running water for periods of one or two hours, though such proceedings are obviously wasteful and probably not so perfectly effective as the simpler and quicker method. In the case of prints, running water is decidedly ineffective as compared with soaking.

\* \* \*

#### The Use of Rodinal.

Many photographers avoid the use of rodinal on account of its reputation for the slow attainment of density, while others strongly favour its use, and deny that the disadvantage mentioned is at all serious. We must admit that we have more often been on the side of the former class of photographers. We could easily recognise the convenience of this ever-ready developer, but while we very frequently used it, we only did so when other quicker developers were not at hand. The remarks in reference to rodinal in Messrs. Wratten and Wainwright's paper on stand development reprinted in our issue of November 15 suggested, however, that this developer is probably not often used to the best advantage. It will be remembered they pointed out that air in the water slowed its action very considerably, and that dilution prolonged the time to an extent quite disproportionate to the amount of dilution. Having occasion to make some negatives, and very little time being available, we put this information to a practical test, and, using 1 in 16 rodinal made with distilled water at a temperature of 55 deg. F., obtained all the density we wanted in a time of eight minutes. Previously, using tap water, we failed to obtain anything like sufficient density in ten minutes' development, and had to resort to intensification. Evidently the use of distilled water is of material advantage, and possibly the varying results obtained by different workers is due in a great measure to the use of different varieties of water. Our tap water is excessively hard, and this may have some slowing effect in addition to that due to air contained in the water.

#### THE EFFECT OF TEMPERATURE IN PRODUCING FLAT PRINTS BY THE OIL AND "BROMOIL" PROCESSES.

THE photographic press has recently contained many complaints of unduly flat results that have been obtained by the various oil processes. Apparently the trouble has only been felt very seriously since the advent of the cold weather, therefore it is rather curious that there should appear to be a consensus of opinion to the effect that it is due to heat. It is a plausible theory that in winter we heat our rooms artificially to such an extent that the printing and pigmenting pad dry more quickly than they do in summer weather. In some cases, no doubt, the trouble has been due to quick drying, but it must not be forgotten that a low temperature is also conducive to flatness. Though we have not seen any previous mention of this fact, it is undoubtedly one to be remembered, especially in the case of the "bromoil" process. Contrast in an oil print is only secured when the image is so hardened as to be incapable of retaining water, while the non-image—



sion—retains so much water as to effectually repel the oil pigment. If the image is too flat it means either that the non-image has never been sufficiently absorbent, or that it has partially dried and lost its water. In the first case the result will be flat from the moment pigmentation begins; in the second, contrast will be obtained at first but lost later.

The second of these two effects can easily occur in oil printing by the Rawlins process, because the pigmenting operation is rather a slow one in the hands of most workers, but it is not so likely to happen with bromoil, or with a more rapid process. In the pigmenting of a bromoil print density is very quickly attained, hence contrast is easily preserved, but in the other case density has to be attained more cautiously, and contrast may be lost during the process. Nevertheless, want of contrast has been a serious trouble in the case of "bromoil" during the last month or so, perhaps more so than with ordinary oil prints. It has been found to be due entirely to the low temperature. If the solutions used in preparing the print, or the water baths used for soaking the print, are too cold, the gelatine in the non-image does not swell sufficiently, or become absorbent enough, to hold the water required to repel the pigment, therefore contrast cannot be secured even at the beginning of the pigmenting process. We thus get the other kind of flatness due to low temperature, and it is very probable that this has been the cause of the trouble with many of those who have of late had difficulty in securing contrast. In the case of "bromoil" we need only to keep all solutions and all water used at an average temperature of 65 deg. F. to ensure success. Soaking in tap water below 50 deg. F. is quite useless with this process, and we have little doubt that cold water used for soaking is also conducive to failure in the Rawlins process.

There is no trouble involved in the use of water of proper temperature. In the oil process we can wash out the bichromate and soak the print in several changes of water supplied from a jug just as readily as we can in water drawn from the tap. In the "bromoil" process we can mix the bleaching solution with warm water, and make the hypo bath by diluting a strong stock solution with warm water. The hypo can then be removed quite sufficiently by six changes of water at 65 deg. F. if the print is allowed to soak for about three minutes in each change. The acid solution is naturally warm if freshly mixed, and generally has to be cooled down to 65 deg. F. by allowing it to stand in the dish. We also soak the pad in warm water before pigmenting, as there are reasons for suspecting that the non-image in a print in perfect condition for pigmenting loses a little of its power of repelling the pigment if cooled down by immersion in cold water or by contact with a cold pad.

Our own experience has convinced us that low temperature is a far more serious cause of flat results than too rapid drying of the pad, therefore we should like to impress upon our readers the importance of using only solutions and water of a normal temperature. We perhaps had better also caution them that the remedy must not be overdone. Solutions of 70 deg. F. and over are too warm to be used with safety. A temperature of 65 deg. F. is a good average, but when the "bromoil" process is attempted on very rough papers coated with a soft gelatine emulsion, a temperature of about 60 deg. F. is advisable. In fact, some of these papers require an even lower temperature, as the gelatine readily becomes too soft. We have been informed that one brand of paper works well during this weather when treated with quite cold solutions, though in August last it was quite useless, as the gelatine came away under the brush. This is, however, a very exceptional case, and the papers in most general use work

best when the temperature of the water is kept between the limits of 60 deg. and 65 deg. F.

#### A NEGLECTED METHOD OF MAKING LANTERN SLIDES.

WITH the lantern season in full swing, most photographers are anxious to obtain the best slides they can from the negatives at their command, and therefore the question as to which is the best of the various processes is one which naturally arises. The majority of the slides sold in the shops are either by the wet collodion process or Woodburytype. Those by the former are very brilliant, and, therefore, well suited for lantern projection, but as a rule they are somewhat cold and not altogether pleasing in tone. Slides by the Woodbury process show equally as well on the screen, and usually are of a much more pleasing colour. The production of slides by the former of these two processes involves an intimate knowledge of wet collodion photography; for the latter a powerful hydraulic press as well as a knowledge of making the necessary gelatine reliefs are necessary.

Slides made by the collodio-bromide process are by no means inferior to those by the Woodbury method, as they have a similar transparency in the shadows, and the same may be said, though perhaps in a lesser degree, of those by the carbon process. There is, we think, very little question that by far the larger proportion of the slides that are produced by amateurs are made on gelatine dry plates. That is by no means surprising, seeing that the plates are sold ready for immediate use, are easy to manipulate, require no special knowledge, while the results obtainable on them are really excellent.

Having alluded to the methods most generally in vogue, we have reserved what we have to say with reference to albumen. Most of our readers are familiar with the beautiful stereoscopic transparencies for the stereoscope, formerly produced by Ferrier, and also by Soulin, many years ago. These were by the old albumen process, and they have not yet been surpassed, if equalled, by any of the more modern methods. The beauty of albumen slides is their extreme brilliancy, and excellence of tone, when thrown on the screen. The highest lights are represented by absolutely clear glass, while the shadows are of great depth, yet quite transparent, and of a rich brown or a very warm black colour. While the shadows appear so strong, they are really so transparent that printed matter may be read through them, even in the darkest parts. The albumen image seems to be more of a stain than an actual deposit of silver, which, of course, it actually is.

We shall here give full working details of the albumen process for the benefit of those who may desire to make a trial of it for their slides. The details may, at first sight, seem tedious and complicated to some, but they are not really so in practice; and the process does not require so much skill and experience as does wet collodion. In the earlier days of the process it was a ticklish one to deal with, as the plates, after coating with the albumen, had to be dried horizontally, during which time they were very prone to attract dust, which was really one of the greatest difficulties in working the process, since any particle of it would cause a spot or blemish in the finished picture. In the more modern method of working—that is, with a substratum of collodion on the plate—this trouble is obviated. We shall now proceed with the working details of the process.

The collodion best suited for the substratum is that which has been iodised some time—two or three months—and has become quite dark in colour. It should yield a somewhat porous film. In the old method of working the

process the albumen had to be whipped up into a stiff froth; but the following is the modern way of preparing it:

Take white of eggs, from which the germ has been removed, 10 oz.; glacial acetic acid, 30 minims; water, 1 oz. Mix the acid and water together, and then stir gently into the albumen with a glass rod, taking care not to froth it. When intimately mixed, allow to stand for a few hours, when a curdy scum or crust will have formed on the surface, which can be removed in a mass by the fingers. The albumen, which is now very limpid and clear, is filtered through a plug of sponge or cotton wool placed in the neck of a funnel. When filtered, add fifty minims of liquor ammonia .880, which will materially increase its viscosity. It is now iodised with the following:—

Ammonium iodide .....	50 grs.
Ammonium bromide .....	8 grs.

The iodised albumen will keep good for several months if kept in a well-corked bottle.

The glass having been made thoroughly clean and coated with collodion, as described in the articles on the wet collodion process by Mr. E. W. Foxlee (see pages 483 and 558 of the "B.J." this year), are put into a dish of cold water. If a good-sized dish is used several plates can be dealt with at a time. In this they are allowed to remain until they cease to appear greasy. A plate is then taken out and well rinsed under the tap, in case any trace of ether or alcohol still remain in the film; it is then well drained. Some of the albumen is then taken in a measure and poured along one edge of the plate and caused to flow over in an even wave, carrying the water before it into the sink. A second lot is then flowed over in the same way, and then a third. This may be drained off into another measure and used for the first application to the next plate, so as to economise the albumen. The plates as they are coated are placed in a rack to drain. When a number have been coated they are dried, singly, by holding them before a clear fire, but without altering the position in which they drained. In the drying, the plates should be made as hot as the hand can bear. This roasting prevents blistering of the film, which might possibly occur, in the development. All this work can be done in full daylight. The plates will keep good for years if kept dry.

The sensitising bath is as follows:—

Distilled water .....	10 oz.
Silver nitrate .....	1 oz.
Glacial acetic acid .....	1 oz.

After filtration, the bath is ready for use. The plates may be sensitised either in a dipping bath, or in a flat dish, but in either case they should not be allowed to remain in the solution for more than thirty seconds to a minute—the shorter time in summer and the longer in winter. The sensitising, it goes without saying, must be done in the dark-room. As the albumen is a very slow process, this need not be a very dark one: a single sheet of "canary medium" on a good-size window will be quite a safe light, and a very pleasant one to work in.

After the plates are removed from the silver bath they are put to soak, with occasional agitation, in a tray of distilled, or boiled, water, to wash out the free nitrate of silver from the film, and then well rinsed under the tap, to get rid of the last traces of it. They are then placed on a rack to drain and dry. The plates, after sensitising, will keep for many months, so that a good stock may be prepared at a time. If, after the final rinsing, they are flowed over with one grain to the ounce solution of gallic acid they will keep good for two or three years if kept under the same conditions as gelatine plates are. The preparation and sensitising of the plates may appear slow and tedious operations, but by working systematically, with good-size dishes, from a dozen to twenty plates may be prepared in an hour—the sensitising takes up less time than the albumenising. It may be mentioned here, that, although collodion is used, the process is quite different from the collodio-albumen process. In that the collodion is sensitised in a silver bath before the albumen is applied. In this it simply acts as a substratum, and plays no part whatever in the formation of the image. One of the greatest advantages of this substratum is that if any particles of dust settle on the plate the albumen, as it dries, forces them into the collodion film, where they remain inert and do not yield blemishes, as they would do if the albumen were on the bare glass, as in working according to the original method.

The exposure, development, and toning of the albumen transparencies must be deferred until next week's article.

## GRAPHIC TELEPHOTO LENS CALCULATIONS.

In a former article ("B.J.," May 5, 1905) the writer dealt with the subject of graphic lens calculations, showing how the equivalent focal length of any ordinary photographic objective, the greater and lesser conjugate foci for a given size of image, etc., could be ascertained by a simple geometrical method without the aid of arithmetic. It has been suggested that further examples of a similar kind would prove helpful to many. The following problems, which deal with the various factors affecting the use of the telephoto lens, while perhaps of more limited usefulness than the preceding data, are capable of being turned to good account; as, for instance, when the occurrence of several fractions renders the arithmetical method troublesome, or when it is desired to check and verify the latter. They may also be suggestive to those who wish to purchase or adapt a telephoto combination for some special purpose, and are not quite sure what is required. The geometrical construction throughout is based on the well-known rule for finding a fourth proportional by the aid of similar triangles.

### PROBLEM I.

To find the camera extension necessary for any given magnification.

Draw two lines AB and AC (Fig. 1) at any convenient

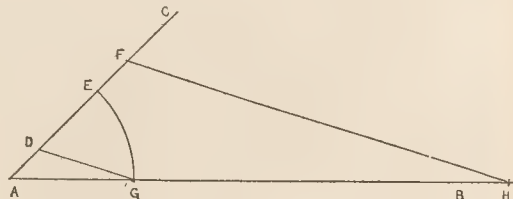


Fig. 1.

angle. Along AB mark off, to any suitable scale, AD, AE, and AF, equal respectively to the unit of the scale employed, the focal length of the negative lens, and the magnification



Draw two lines AB and AC (Fig. 5) at any convenient angle. From A, along AB, mark off AD equal to the focal

length of the positive lens. From A, along AC, mark off AE equal to the unit of the scale employed, AF equal to the magnification, and AG equal to the focal length of the negative lens. Join E and D, and through F draw FH parallel to ED. Through G draw GI parallel to FH. Join E and H, and through I draw IJ parallel to EH. From J mark off JK equal to AD. Then GK is the required separation.

$$s = \frac{f_1 f_2}{F} + (f_1 - f_2).$$

$$F = f_1 M.$$

Proof of geometrical construction:—

$$AD = f_1, AF = M, AG = f_2.$$

$$AH : AD :: AF : AE \therefore AH = AD \times AF = f_1 M = F.$$

$$AI : AD :: AG : AE \therefore AI = AD \times AG = f_1 f_2$$

$$AI : AH :: AJ : AE \therefore AJ = \frac{AI}{AH} = \frac{f_1 f_2}{F}$$

$$AK = AJ + AD = \frac{f_1 f_2}{F} + f_1.$$

$$AG = f_2, GK = \frac{f_1 f_2}{F} + (f_1 - f_2).$$

i.e., GK = separation.

#### REMARKS ON FOREGOING PROBLEMS.

Although, for considerations of space, all the annexed diagrams are drawn with the lines AB and AC at a rather acute angle, it is preferable in actual practice to make the two lines nearly at a right angle. The reason for this is that, in the latter case, there is less likely to be any mistake regarding the points at which the various parallels cut the base line, as might easily arise when one line meets another at a very acute angle. It will be noted that some of the problems suggest useful alternative formulæ. To quote a very obvious example, since  $F = f_1 M$  (Problem V.), it is evident that

$$M = \frac{F}{f_1}, \text{ and } f_1 = \frac{F}{M}.$$

The interested worker will be able, by an attentive study of the proportional principle involved, to find further instances where a given formula may be made to serve several purposes.

A. LOCKETT.

## RECEPTION-ROOM CONTRASTS.

[In the current issue of "Wilson's Magazine" (New York) we press photographer, and evidently a keen observer of men and must resemble that of one here, and therefore the impression of those in professional establishments.—Eds. "B.J.P."]

To write an anonymous letter is generally esteemed a mean and ungentlemanly thing to do. To travel 'round the country *incognito* is practised by the greatest and most exalted of people—so fashion sets the seal of her permission on a quibble. At the same time, while I have been guilty of doing some investigating *incog.* which would have been less successfully accomplished had I announced my purpose, I trust my readers will not think too badly of the proceeding, inasmuch as what I found out benefits me not at all, may benefit some who hear of what I saw, and hurts no one, since I shall not, either now or hereafter, mention any names.

I visited eleven different galleries, located in two cities, to see what I could learn from the standpoint of a possible customer, and what things I should find, or what indications I should come across, which would naturally demand my custom. With a couple of exceptions the work shown me was, in all cases, excellent. That is, photographically, it was good—clear negatives had been used to make handsome, clean, bright prints, which are artistically and pleasingly treated, either in a mount or a frame. As my little trip was not to determine the relative excellence of these eleven photographers, the one to the other, but to see what their externals would say to a possible customer, I lay aside all questions of good work. All the photographers I visited—with the exceptions noted and to be told of later—were good photographers. All had, presumably, a good trade; and all, let us hope, were engaged in delivering good work for money taken—as good as the samples they showed.

#### The Need of Good Appearance.

The first gallery I visited was on the sixth floor of an office building. I took the elevator and stepped from it immediately into the reception room. The general impression was very pleasing. The room was partly divided—by pillars and hangings of dark Japanese lattice-work—into several alcoves; there were a number of comfortable chairs, and the walls were fairly well covered, although not crowded, with large examples of the proprietor's work; comparatively small and inconspicuous counter and showcase were in one corner; there were windows on two sides of this room. There were several people waiting when I got there, and I had ample time to observe the receptionist and

find an article by Mr. C. H. Claudy, a well-known writer and things. At bottom the management of a studio in the States created on our author may be usefully re-conveyed for the benefit

her methods before she got around to me. There was nothing to quarrel with in her manner, which was polite and cordial, but she spent no more time than was absolutely necessary on each customer. Meanwhile I noticed a few things which became plainer as I looked: the velvet was badly worn off two of the chairs; three out of seven framed pictures hung crooked; a part of the Japanese woodwork had become broken, and its jagged end still protruded unfixed; there was a thin layer of dust on top of a table; a large portfolio, conspicuously displayed, had some magnificent photography in it, marred with poor and very dirty, and, in some cases, torn mounts. This studio is one of a chain of several in several cities. The owner leaves it entirely to his operator, receptionist, and dark-room man. I understand he visits it once or twice a year. Naturally things run down. Now this place has a good trade, but it misses a better one by a lack of attention to details and a laxness which would not be tolerated in a home of any pretensions. Yet it is offering itself as a temporary resting-place to its customers and expects the impressions of its undeniably good work to overcome the insidious impressions of the somewhat run-down furniture and fixtures.

#### The Money Value of Tact in the Reception-room.

The next studio I went to was exactly the reverse. I looked in vain for anything not spick and span. The fixtures displayed were not so many in number nor so great in size, but every one was a new print—clean and attractive, and every one showed something different from the others; the receptionist was a charming young woman, somewhat plain of feature, but very engaging in manner, professing interest in some small styles, and she could hardly do enough for me or other customers present or who passed through while I was there. I saw her sell an extra half-dozen of enlargements to a woman who had already paid for two dozen half-length panels, and she did it in such a way that the customer left enchanted with her bargain. A somewhat poorly dressed and obviously ignorant woman was waited upon strictly in her turn and received every bit as much courtesy and the same pleasant smiles that the other customers had had. I will not say she had so much time spent upon her.



but she left with a smile, and she left well treated. If she has any money to spend, she will spend it there where no account was taken of her dress or looks, but where she was greeted with a smile and an interest taken in her wants. Yet the showcase of this studio has not been changed for three months to my certain knowledge. I suppose they haven't time. They do a big business and a paying one; but I have never known any concern that had more work than it wanted all the time.

Studio No. 3 is considered possibly a little old-fashioned, but very reliable. Its show-cases and its wall decorations are the enlarged negative, platinum-prints-of-celebrities style. The furnishings are plain and prim, but clean and neat. The general impression is that all the attention goes to the work and none to the frills. No shop-girls or society women come here. A large, even trade of middle-class people, who have bought here for years, and will do so to the end of time, form its patronage. There are two receptionists, pleasant-mannered young women, who do what they should and sell you what you want; but neither is to be compared for a moment to the little woman in No. 2 in ability or in paying power to the studio.

#### The Down-at-the-Heel Business

Studio No. 4 was a sad sight. The name over the door is old and well-known. It has been over a photographer's shop, from father to son, for half a century. At one time it was one of the biggest businesses of its kind in the country. It is so no longer. On the counter in the bare reception-room is a pile of prints, pressing flat beneath two books and a dusty paper-weight. The wall about the telephone is scribbled full of pencil numbers. A man's coat and a pair of cuffs are upon a chair. Four pictures sit dolefully upon the floor with their faces turned out—two more have their backs to the observer. A pompadoured girl in a soiled apron spots prints at a window. A man in shirt-sleeves is ticking negatives by another window. The girl doesn't see me until I cough, and then she rises without a smile to her work. Almost wordless she shows me what she has—names the prices—that is all. The general impression is one of lack of interest, mould, deadness. A woman comes to return proofs as I leave. She complains about something. I do not quite hear what. I do hear the man arguing with her while the poor receptionist, robbed of her job, stands to one side helpless. I know for a fact that the work done here is beautiful, for I have often seen it, but I am afraid its quantity has largely diminished, and by a process of dry rot will presently die away entirely. When the proprietor has no pride in the appearance of things which tell his story to newcomers, you can be sure he is either trying to sell or commit business suicide.

#### The Feminine Note.

The fifth gallery I went to is owned and operated by a woman. She has two women assistants in sight, and I suppose more out of sight. She does essentially woman's work and does it well, but she does not draw the line at men at all. But she very frankly tells me—the receptionist has brought her in to interview the unusual man—that she is more successful with women and not much used to posing men. Everything about the place is as neat as a new pin and almost in good taste. But there are too many spindle-legged gold chairs, too many curtains and hangings, and entirely too much bric-a-brac for real beauty. Although each individual thing is real, and the colours harmonize, the general impression is "stuffy." Not being a woman I can't say but what this is attractive to them; but I think not. I imagine it repels many who want work done. Another thing I notice is that the work turned out is poorly finished. The negatives were good, the prints all right, but they are carelessly trimmed and mounted and spotted in some cases. This is bad business with orders, but in samples it is suicide.

#### Professional Photography de Luxe.

Gallery No. 6 is on a grand scale. There are no less than three reception-rooms, each larger than the last and all are sumptuously decorated.

There is a great deal of heavy red plush, and chain-armour and battle-axes and suits of armour—there is a multicoloured half-tent in one corner of one room and the lighting is subdued throughout. The receptionists are very busy. They show me what I ask for, after telling me they do not do that class of work. They evidently take me for what I am, a not-at-all wealthy prospect and rate me accordingly. I do not get enough attention to make me feel anxious for more. A small boy who has a package on his hand waits long for notice and is still waiting as I leave. A man whom I know by sight rushes in, fur-coat thrown back, diamonds on his shirt, wealth radiating from every pore. It takes two girls to wait on him, while several of us stand around and wait. I understand this gallery does a huge business with wealthy people and hasn't time to bother with small orders and small customers.

But I want to make a point that anyone can heed or not, as he sees fit. There is such a thing as declining a piece of work because there is not enough in it, without giving any offence. There is another way which makes the customer feel as if he would like to wreck your place. When I go to a big printery to have a hundred business cards printed, and they take as much interest in it as they should, and are polite and deliver goods on time, I am apt to send them the first big job I handle. When I go to another printery and he growls out: "Full up; haven't time to fool with such little jobs as that," and puffs smoke in my face and turns his back, I don't feel much like carrying my orders there. A photographer may readily decline to do work he knows doesn't pay him, as crowding out bigger jobs; but if he does it in such a manner as to make an enemy or hurt someone's feelings, however negligible a factor that someone may be, he is pulling bricks from his own foundation wall. Many a tale gets up the backstairs, and there is many a tradesman who loses trade—photographer or butcher, it matters not—because My Lady lends indulgent ear to the complaints of her maid. You can't afford, I don't care how big you are, to be any thing but courteous and polite, and I mean the true courtesy and the true politeness which make friends; not the technical politeness and courtesy which consist only in not kicking your customer downstairs.

#### A One-Woman Business.

The next gallery I go into is uptown. It is a little place and the lady who waits upon me is proprietor, receptionist, retoucher, and operator in one. Her little reception-room is a homey, living room—with never a pretence and never a frill, but it is genuine. Her work is good, for the prices she asks, and she tells me it is getting better. She has a good trade among a rather low-priced class of work, but it evidently pays. I have less opportunity for observation here than elsewhere as there is no one there when I come and have to talk business or get out—which I do.

Gallery No. 8 is a mass of confusion. It is the rush time of the day and a dozen customers are clamouring for attendance, and a girl, the owner, and an office boy are distractedly trying to wait on all at once. The furniture is badly arranged—the counter and showcase are where they get the worst possible light and there is considerable calling in and out of the operating-room between the owner and "Jake," presumably the operator. Instead of taking his customers one at a time, and giving each his undivided attention, this misguided man is endeavouring to sell three women three different kinds of photographs, and each is wanting to know why he isn't recommending to her the kind he is telling her neighbour she should take. As one is large and stout, the other tall and thin, and the third of impossible profile, it is obvious why; but the poor man can't explain and gets all involved and suspicion sits upon the faces of all three.

A charwoman scrubbing down the steps in the middle of the day only accentuates the note of bad management.

My inspection of these places was, of course, but superficial,

and is in no way final; but just you remember that your customer's inspection is superficial too, and final only as concerns herself! It is what she sees and hears and the way she is treated in the first five minutes of her acquaintance with you that determines if she likes you or not—and if she doesn't some other fellow gets the money. I have never realised as I did after

this little trip how much it pays to put attention in external is a business where impression at the outset is so much of the game. I really believe it will pay any proprietor of a gallery to visit himself half a dozen others, where he is unknown, in the same critical spirit which I took with me. It is certainly worth a trial.

C. H. CLAUDY.

## RESEARCHES ON THE LATENT IMAGE BY MEANS OF PLATES FREE FROM COLLOID.

[A recent address before the Photographische Sektion der Naturhistorischen Gesellschaft of Nurnberg. Dr. Weisz, who writes from the Consortium für Elektrochemische Industrie G.m.b.H., Nurnberg, has prepared the following popular account of his experiments.]

WHILE it is universally known that the exposure of silver bromide involves a chemical process, the exact nature of the change is still very obscure, though it is certain that the silver bromide, on exposure to light, loses its bromide, which is transferred to the free state. If pure silver bromide is exposed in a small closed glass tube to sunshine, it blackens and evolves a heavy brownish vapour, which has the smell and chemical properties of bromine. If the silver bromide is imbedded, as it is in dry plates, in the form of small grains in gelatine, the bromine does not then escape into the air, but remains combined with the gelatine, the products of the reaction being thus a bromide which has lost bromine and bromised gelatine. The bromide-lost bromine is the material of which the latent image, as formed in plates and films, consists, and the following experiments were made in the hope of throwing light on its character and composition.

The chemistry of silver teaches us that there is but one compound of silver and bromine containing less bromine than bromide of silver. It contains two atoms of silver to one of bromine, and is usually designated by the name of silver sub-bromide. No compound poorer in bromine is known to exist, so that the next stage in the reduction process of silver bromide is metallic silver itself. A good deal of controversy has taken place as to whether sub-bromide or metallic silver is the substance of the latent image. The following experiments were undertaken with plates free from any colloid body, such as gelatine, as gelatine and other colloids are of such chemical properties that they may act upon the bromide of silver above mentioned formed in light. The glass plate was laid on the bottom of a dish placed horizontally, the surface of the plate having been ground to a fine matt. A thin cream of freshly precipitated silver bromide prepared from silver nitrate and hydrobromic acid in the dark was poured upon this glass plate. In five to ten days the silver bromide had firmly attached itself to the matt side of the plate. The clear solution was poured off, and the plate removed from the dish and dried. The finished plates are pure yellow, have a thick appearance, and are 100 times less sensitive than the yellow label Schleussner plates. The silver bromide adheres so firmly to them that they may be exposed, developed, and even fixed as usual, and in other respects can be treated as ordinary photographic plate.

If the latent image consists of metallic silver it should be possible to develop an *unexposed* colloid-free plate on which by a suitable chemical method metallic silver has been first distributed instead of by exposure. In order to put this to the test, use was made of the fact that a solution of ferrous sulphate precipitates finely divided silver from silver nitrate solution. One end of the colloid-free plate was dipped in silver nitrate solution and the latter allowed to dry up. A subsequent dip of the same end of the plate was then given in ferrous sulphate solution of suitable strength so that a scarcely visible pale grey fog was deposited on the plate, which fog represents the latent image formed without any exposure. It consists of microscopically small particles of silver which, on account of their minuteness and fine division, may be called a silver *germ*, a name which suggests the facility with which such germs may bring about crystallisation from a super-saturated solution. One may refer here to a similar phenomenon which takes place in the case of Glauber's salt (sodium sulphate): a minute fragment of the crystals will bring about the crystallisation of a super-saturated solution. It is in this sense that the finely divided particles in the colloid-free plate are

here designated as germs, because with them the development process proceeds as the crystallisation with the Glauber's salt germs. The plates are now thoroughly washed, dried, and developed with metol. The latent image is thus converted into a dense image of metallic silver (Figs. 1 and 2), in which A is the untreated plate B with the silver germ on the upper part, C the same plate after development. Fig. 1 shows the appearance viewed by direct light Fig. 2 that by transmitted light. Both were obtained by photographing the original plates on yellow-sensitive dry plates. In the case of gelatine dry plates the above experiment yielded a similar result.

From these results it should follow that the latent image can consist of metallic silver, and many would suggest that such composition is proved by the above experiment. Although this is the case, it is possible that the latent image does not consist of metallic silver. If metallic gold, platinum, iridium, osmium or rhodium or sulphide of silver is formed in a suitable chemical manner in the unexposed film of a plate free from colloid, a latent image is formed which can be rendered visible with the metol developer. (The plates reproduced in Figs. 1 and 2, answering to these conditions, are exactly similar.) That metallic silver can be thus the substance of the latent image does not, however, prove that it actually is the substance, inasmuch as the developable properties conveyed by metallic gold, platinum, etc., might be taken to prove that the latent image consisted of these substances. Nevertheless these facts supply an explanation of the development process to which we shall come later.

That the latent image does not consist of metallic silver is shown by the following:—If a colloid-free plate in which, as above described, a latent silver image has been obtained is placed in concentrated nitric acid, the metallic silver dissolves in the acid and the plate can no longer be developed with metol. If, however, a colloid free plate be *exposed* and then brought under similar conditions<sup>1</sup> into the same nitric acid, the metol developer will give rise to a vigorous image.

This experiment shows that the substance of the latent image is different from metallic silver, and withstands concentrated nitric acid.<sup>2</sup>

We will now see to what conclusions we are led from the permanence of the latent image towards nitric acid. Metallic silver evidently need not be any further considered as a constituent of the latent image. If sub-bromide of silver forms the latent image we should be able to obtain by chemical means a sub-bromide possessing the same properties as the latent image, especially in regard to its permanence in strong nitric acid. Silver sub-bromide has not hitherto been prepared, but only silver sub-chloride.<sup>3</sup> The great chemical similarity of chloride to bromide of silver suggests that conclusions as to the sub-chloride may be applied to the sub-bromide. Silver sub-chloride does not resist strong nitric acid which extracts the silver from it. Consequently, silver sub-chloride consisting of two atoms of silver to one atom of chlorine, and thus richer in silver than the normal chloride (consisting of one atom of silver to one atom of chlorine), is made similar to this latter by nitric acid. How-

<sup>1</sup> I use a nitric acid of 1.3 sp. gr. for one hour.

<sup>2</sup> This shows the advantage of using a colloid free plate; a gelatine plate would separate from the film in acid of the above strength.

<sup>3</sup> Heyer investigation of the hypothetical silver sub-chloride inaugural dissertation, Leipzig bei Glanesh, 1902.



ever, the action of the nitric acid may remove not the whole excess of the silver, but only the greater part thereof. After the extraction with nitric acid there remains behind a substance which still contains from 1 to 2 per cent. more silver than silver chloride, which substance gives up no further silver to nitric acid. One may assume that the silver sub-bromide behaves towards nitric acid in the same way.

We saw that in the case of tubes exposed to sunlight the silver

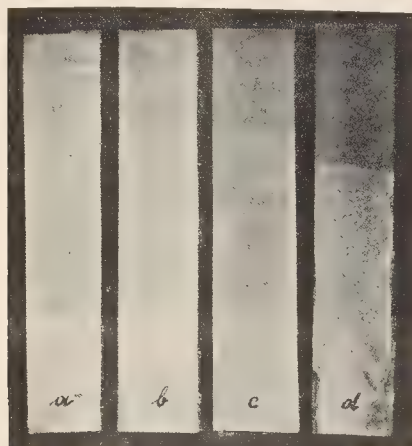


Fig. 1.

bromide lost bromine on exposure, and was converted into a substance containing less bromine and more silver than the unexposed silver bromide. We also saw that this substance withstands strong nitric acid. Finally we found that all "compounds" of silver and bromine (prepared by chemical or synthetic means) which are richer in silver (poorer in bromine) than bromide of silver (and metallic silver itself), can be attacked by concentrated nitric acid until there

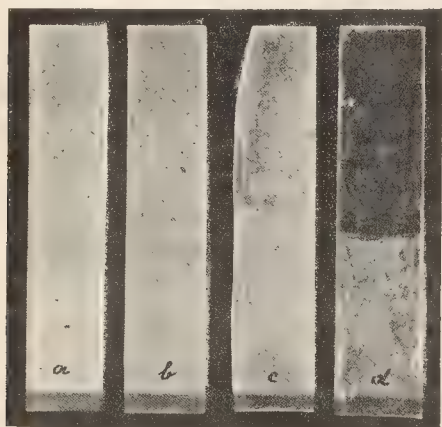


Fig. 2.

is left a compound which is 1 to 2 per cent. richer in silver than the unexposed silver bromide. Hence the substance of the latent image is identical with the substance thus produced by the extraction of the silver from sub-bromide of silver with nitric acid. A "compound" of this kind—that is to say, one which contains 1 to 2 per cent. more silver than normal silver bromide—is no true compound at all in the chemical sense. Chemical compounds, as is well

known, are characterised by the fact that in their different combinations (silver bromide and silver sub-bromide) the same elements (bromine and silver) exist in definite simple proportions. Sub-bromide, for example, contains for each gramme of bromide exactly twice as much silver as silver bromide. A compound in which for 1 gramme of bromine there is but 1.02 times more silver than in silver bromide, as in the above-mentioned case, is no true chemical compound. Modern chemistry recognises these compounds as solid



Fig. 3.

solutions in the present instance of silver bromide and silver sub-bromide. All "compounds" of this kind do not form solid solutions, but special consideration of them is not fitting in this place.

The representation of a solid solution is not easy. A good idea of the meaning of the term may be had from consideration of the composition of brass which is prepared from molten zinc and copper,

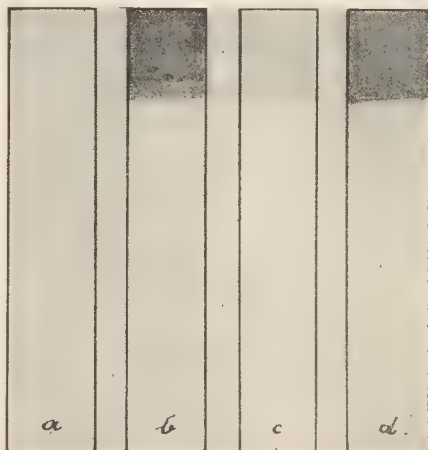


Fig. 4.

and in both the molten and the solid state contains these two metals dissolved one within the other. We must therefore imagine sub-bromide of silver and silver bromide dissolved together in the substance of the latent image as are the zinc and copper in brass. So the examination of the substance of the latent image with the aid of colloid-free plates has led us in a simple way to discover that it consists of a solid solution of silver sub-bromide and silver bromide

containing not more than 2.7 per cent. silver sub-bromide and not less than 97.3 per cent. silver bromide. The same colloid-free plates have made it possible to carry out two experiments which throw some light on the process of development.

A colloid-free plate was exposed under a photometer, and after complete exposure two gradations were rendered visible as in fig. 3a. The plate was developed in metal, when six photometer gradations then appeared, fig. 3b. On an attempt being made to apply concentrated nitric acid the whole image disappeared, and the two degrees originally visible alone remained, fig. 3c. On now washing thoroughly and developing once again the whole image, as in fig. 3d, again becomes visible, and the same process was repeated a third time and several times further until the plate fogged.

The second experiment was made as follows:—Germs of metallic silver were deposited on the colloid-free plate as described at the early part of this paper, where it was mentioned that strong nitric acid dissolved the germ entirely away. If the plate, after complete solution, is developed, nothing is obtained. But if after deposition of the germ one develops and then dissolves for the same time and under similar conditions in the nitric acid, there remains behind a scarcely visible fog on the parts where the germ has been deposited, and this is capable of being once and several times developed as in the previous experiment (see fig. 4), where A is the silver germ dissolved and developed, B the germ developed, C the germ developed as in B and dissolved after development, D the germ portion shown in C dissolved after development and again developed. Figs. 3 and 4 are hand drawings from the original plates. The first experiment shows that the solid solution of sub-bromide in silver bromide which forms the latent image is not appreciably altered by photographic developers. It withstands oxidising agents such as nitric acid, and reducing agents such as developers, and is not reduced by the developer to metallic silver. The second experiment shows that the silver bromide on development is reduced not only to silver but also to sub-bromide of silver, which forms with the unexposed silver

bromide a solid solution. The silver is again removed from this solid solution by the action of nitric acid, leaving a 1 to 2 per cent. excess.

As regards the processes carried out by development, a consideration of the foregoing experiments leads us to represent them somewhat as follows:—On an exposed silver bromide plate being placed in the developer there is dissolved a very small quantity of the unexposed silver bromide in the developing solution, inasmuch as silver bromide is very slightly soluble in water. The dissolved silver bromide is partly reduced by the developer to metallic silver which at first remains in solution. If there were no solid solutions of sub-bromide of silver and silver bromide present (that is to say exposed silver bromide) nothing more would happen. (An unexposed plate does not blacken in a developer.) The solid solution of sub-bromide and silver bromide, which, as already shown, is not altered in the developer possesses, however, the property of forming further solid solutions with metallic silver and attracts the dissolved metallic silver to itself from the developing fluid. Gold, platinum, iridium possess the same property, and an explanation is thus given of their "developability." Hence fresh metallic silver is formed from the dissolved silver bromide, and fresh silver bromide dissolves from the film into the solution. This change is repeated again and again. Wherever solid solution of sub-bromide and silver bromide had been formed (on the exposed portions) does more and more silver separate—in other words, the plate develops. Regarding the second experiment, it must not be forgotten that the silver bromide dissolved into the developing solution is also reduced to sub-bromide, and it must, moreover, be remembered that simultaneously the silver sub-bromide enters into the solid solution with the substance of the latent image, and this solid solution includes silver sub-bromide. Once metallic silver has separated it acts upon the metallic silver dissolved in the developing solution just as a crystal of solid sodium sulphate on a super-saturated solution of that compound and helps in this way to the development process.

DR. HERMAN WEISZ.

## THE STRENUOUS LIFE.

[A not very exaggerated picture of what is required of the Press photographer appears in a recent issue of the "Daily News," where a writer, Mr. W. M. Duckworth, considers the news photographer among other new types to be found in London. The article which we reprint below will at any rate give a rough idea of the temperament which must be the possession of the successful Press photographer, to say nothing of a "collapsible £60 pocket camera."—EDS., "B.J."]

To be a professional snapshotter, a news photographer, a "live" picture-taker, or whatever name you choose to bestow upon the new professor of Fleet Street sensationalism, is to be a young man of infinite daring, a strategist born, a detective bred. He must possess inordinately that craving which inspires one to get the better of one's "ellow-creatures—to risk all but life and honour for the sake of getting a photograph that will "tell the tale."

He was unknown a few years ago. The public taste has brought him to the forefront, and now a little army of a hundred of them is to be found when the sun has set, in their dark rooms in Fleet Street attics. Grit is the motto of the new race of newspaper photographers. He is an indispensable factor in modern journalism. His life is a succession of shocks and thrills—a continuous battle to snap that which seems unsnappable, and which public exigencies often demand should not be snapped. But the man is yet unborn, the thing yet uncreated, that the professional photographer cannot drag into the zone of fire.

### The Uses of an Outfit.

There is nothing on earth quite like a peep into the daily life of one of these young irrepressibles. I sat yesterday in the studio of one of the most daring of the species, enthralled by the story of some of his recent adventures. This is a young fellow who swarmed the flagstaff on top of the Hotel Cecil one night with a camera under his arm to get a nocturnal study of London. He is a man typical of his profession, who goes about with a collapsible £60

camera in a secret pocket of his coat and a tubular aluminium tripod which he can use either as a walking-stick or a weapon of self-defence. He has travelled all over the world on the great quest of news photography. Not long ago he smuggled a camera into the forbidden village of Mittupuhaka, on the banks of the Ganges, near Calcutta, and opened fire on the Hindoo fakirs. They resented his presence and hounded him out of the village in their hundreds. He escaped with his life by hiding on the banks of the river.

### "Bounders" among Press Photographers.

Royalty is not averse to the newspaper snapshotter in moderation. During the recent festivities at Sandringham the King saw the local inspector of police trying to wrench the camera away from one of these gentlemen. His Majesty sent an equerry to restore order, and commanded that the photographer should be allowed to take what pictures he liked. The King has often intervened in this wise between over-zealous policemen and the Press photographers. On this occasion the Queen showed her sympathy with the snapshotter by inducing the King to face the camera, smoothing down the lapels of his Majesty's coat herself. Moderation in the presence of Royalty is everything. There is the story of the impetuous photographer who had the audacity to climb over the fence at Sandringham and snapshot a member of the Royal family while taking a quiet stroll in the grounds. He was instantly seized, escorted back by two policemen to Wolferton Station, and sent home to London with a cancelled permit.



By the art of simulation, and by his own wit, the professional snaphotter has provided the public with many a valuable picture. Professional rivalry has forced him to disguise himself. At the Brinsmead golden wedding celebrations in North London, the snaphotter found himself outside the private residence of the famous pianoforte maker without a permit. His eye fell on a butcher boy, with whom he exchanged clothes. The meat was taken out of the basket, the camera substituted under a white cloth, and the snaphotter, in blue smock and cap, went boldly up to the tradesmen's entrance, and so the trick was done. This was the same genius who took a series of pictures of the "Nimrod" in the East India Dock before she set out under the command of Lieutenant Shackleton on the Arctic expedition.

### Strange Story of a Camera!

The policeman at the dock gates had orders to exclude any man carrying a camera. Anybody else would be admitted. "I got out of the difficulty," said this adventurer, "by pulling my camera to pieces. There were six pieces, and I passed that policeman six times, each time with a piece in my pocket. Then I put my camera together again, erected a stand of my own, and fired away unobserved. When I came out through the dock gates I discovered that the authorities had repented of their stringency, and had granted permission to the photographers at the last moment."

### Adventures for Photographers.

Earthquakes, volcanoes, tidal waves, big game-hunting in foreign climes, wars and internecine struggles, eclipses of the sun and moon—these things come within the sphere of the snaphotter. Patience is part of his catechism. He has been known to wait for hours shoulder high in a swift-flowing river to get a picture of a kingfisher in its nest. He must be a man of unbounded resource, without which he will be reckoned a failure. When Miss Edna May was married from Ascot there was a stampede of snaphotters to secure a negative of the wedding presents. But permission to enter the house was denied them. A youth, however, crept under the shadow of the house and inserted his camera in an open window where a glimpse of the presents could be got. He opened his shutter, went back to a place of safety, leaving a costly camera at the mercy of any chance finder, and after an hour's exposure returned for his picture, which was worth many pounds in the photographic market.

Portsmouth, Windsor, and London were the photographer's paradise during the Kaiser's visit. When the Imperial yacht berthed at Portsmouth Jetty, a snaphotter crept under the engine of the Royal train and crawled underneath the carriages till he found himself at the Royal saloon. He was discovered by the guard, and had to beat a retreat, but not until he had taken a picture of the Kaiser at close quarters. In Oxford Circus, when the Kaiser halted to receive the Mayoral address of welcome, a photographer in the crowd dangled his camera on the end of a telescopic aluminium pole, and released the shutter by means of a long pneumatic tube. It hung almost above the Imperial landau, and naturally the Kaiser eyed it with suspicion.

### The Flashlight Press Man.

The daring of these men has reached the stage when it becomes a necessity to jump in the way of moving vehicles containing celebrities at the risk of being run over. This was done when the first Embankment tram passed over Westminster Bridge at night time. The photographer leaped in front of the tram when it was going, and left it to the driver whether or not he should be run over. The driver, of course, instantly pulled up, there was a blinding flash of six ounces of magnesium, and a remarkable flashlight picture showing Mr. John Burns on the footboard was secured.

The noble army of photographic newsgutters is distinguished by the youthfulness of its members. The oldest Press photographer, who is not yet fifty, has given the profession up in despair. He is living now in glorious retirement in a remote village in Devonshire.

**PENROSE'S PICTORIAL ANNUAL.**—We regret that an error was made in the price of the "Process Year Book," reviewed last week. The Annual is issued at 5s. net, not 7s. 6d.

## Photo-Mechanical Notes.

### Half-Tone Screens

A PATENT (No. 26,012, 1906) has been granted to Mr. D. Cameron-Swan for a cross-line screen similar to those in ordinary use in the manufacture of half-tone blocks, in so far as relates to the crossing of two or more sets of lines at a right angle or any other suitable angle or angles, but dissimilar to such cross-line screens in that each series of parallel lines differs from any crossing it in respect to the relative thickness, and (or) distance apart of its lines as compared with those in the crossing series of lines, provided only that such shall contain uniform aperture throughout.

The screen is used for producing the negative in a similar manner to that commonly employed in making half-tone blocks, except that the diaphragm or diaphragms used in the lens have an elongated aperture or apertures so placed that the longer axis (or axes) of the aperture or apertures is (or are) parallel to the thicker or more predominant series of transparent spaces between the lines in the screen, so as to cause continuity or partial continuity of the predominant lines in the half-tone block.

## Exhibitions.

### HOVE CAMERA CLUB.

A PROVINCIAL Photographic Exhibition to which some 200 artists contribute nearly 600 pictures, not only of great technical excellence, but also of high artistic worth, may indubitably claim to be successful in the achievement of its object and aims; and the Hove Camera Club has the satisfaction of knowing that the figures given represent briefly the result of the Exhibition held at Hove Town Hall on December 11 to 14.

The Open Classes included over 300 examples of photographic art, and the successful competitors for the Club's plaques were C. H. Hewitt, with his "Flecked with Sunlight"; R. Dührkoop, with a striking portrait-study of "Hermann Gathker"; S. G. Kimber ("The College Cloisters"), A. Marshall, A.R.I.B.A.; Alfred Taylor, with "The Life History of a Kingfisher"; Miss H. Stevenson; Mrs. G. A. Barton ("Little Paul"), and J. B. Johnson, with "After the Day's Work." R. Hancock and S. E. Ward gained the awards in the Open Lantern-Slide Classes, the former by his set of Spider Studies, and the latter by his treatment of "Moonrise" over the sea.

The pictures in the Club Classes were of a high standard of excellence, and on the authority of Mr. R. Child Bayley, who judged the work, even surpassed those in the Open Classes in respect of architectural studies.

The Club "champion" this year is, without doubt, Victor E. Morris, who not only secured two plaques for landscapes and two more for his architectural picture, "Looking into the Cloister," and a set of lantern-slides, but also carried off the "Hounsom" Challenge Salver for the best picture in the Club Classes with a study of "The National Gallery," in which he displayed his noteworthy ability for obtaining delicate atmospheric effects.

Notable among the other successful Club exhibitors were E. W. Pannell, whose "Portrait of a Lady," with its tender half-tones, found an energetic contrast in his "Study" of a lady's head, with its rich depth of transparent shadow; E. Munt ("A Moorland Scene"), R. T. Alderton ("Poppies"), Stanley Read, the Club's Hon. Secretary, who took a plaque for his set of Lumière Autochrome Lantern-Slides; Col. Crawley; and Miss Best.

A Loan Collection of eighty fine examples of Modern Photographic Art from the Salon and Royal Photographic Society's Exhibitions formed an admirable addition to the attractions of the Show; and the display of the R.P.S. 1907 Lantern-Slides, together with those entered for competition, provided an interesting entertainment, which was several times repeated.

The Exhibition was opened by the Mayor of Hove (Captain A. B. S.

Fraser, J.P.), who was thanked by Mr. A. R. Sargeant, the enthusiastic President of the Club, for thus giving his official recognition to the Club's most useful help in educating local artistic taste.

Illustrated lantern lectures were given on three evenings of the Show, and were much appreciated by large audiences. Dr. E. J. Spitta's graphic account of the application of the cinematograph to scientific purposes, Mr. Harvey Piper's description of "Two Benedictine Minsters" (Norwich and Gloucester), and Mr. A. H. Dunning's notes on a tour "Homeward Across the World," from Singapore to England, gave alike many opportunities for interesting instruction, and for the exhibition by Messrs. Sanders and Crowhurst of some fine illustrative slides.

The Hove Camera Club may thus be justly satisfied with this, its 12th annual show, which should be the means of adding largely to its present goodly list of over one hundred members.

#### HULL PHOTOGRAPHIC SOCIETY.

THE annual exhibition of members' work, which was held from December 4 to 7, would appear to have been the most successful show yet organised by this enterprising society. The majority of the exhibits, of which there were more than 200, were bromide enlargements, toned to various shades of sepia, and bearing evidence to the fact that the cultivation of the pictorial side of photography received its full share of attention, though not at the expense of technical excellence. The exhibits also included a collection of colour prints and Autochrome transparencies, some by members of the society, and some lent by well-known workers in the various processes of colour photography. An attractive programme was arranged for each evening, including exhibitions of Autochrome lantern slides, and lectures by Messrs. Thos. E. Green and Alex. Keighley, the latter of whom devoted some considerable time to the preparation of a report on the exhibition for the benefit of the members. On the whole the exhibition was pronounced on all sides to have been an unqualified success, and will have not only fully recompensed the secretaries and others for the amount of hard work entailed, but will also doubtless have given a fresh stimulus to the society as a whole to in no way relax their efforts, but to resolve to go "one better" next year.

#### FORTHCOMING EXHIBITIONS.

December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1908.

January 14 to 28.—Glasgow Southern Photographic Association. Entries close January 4. Sec., W. Bryce, 29, Somerville Drive, Mount Florida, Glasgow.

January 30 to February 1.—Nelson Photographic Society. Entries close January 20. Sec., Henry H. Beetham, 98, Brunswick Street, Nelson, Lancs.

February 5 to 7.—Borough of Tynemouth Photographic Society. Entries close January 26. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.

February 15 to March 7.—Scottish National Salon. Entries close January 20. Sec., Frederick W. Kay, 183, Union Street, Aberdeen.

February 19 to 21.—Longton and District Photographic Society. Entries close February 8. Sec., T. Mottershead, 32, Stafford Street, Longton.

February 20 to 22.—South Manchester Photographic Society. Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.

February 23 to March 2.—Birmingham Photographic Society. Entries close February 8. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.

March 4 to 7.—Ilkeston Arts Club (Photographic Section). Sec., A. Smith, 11, Graham Street, Ilkeston.

March 7 to 14.—Leicester and Leicestershire Photographic Society. Sec., Lewis Ough, F.C.S., Fernleigh, St. James's Road, Leicester.

March 7 to 21.—South London Photographic Society. Sec., E. Pady, 260, Southampton Street, Camberwell, S.E.

March 9 to 12.—Worthing Camera Club. Entries close February 29. Sec., Edmund F. H. Crouch, 11, South Street, Worthing.

March 12 to 14.—Shropshire Camera Club. Entries close March 2. Sec., W. D. Haydon, The Schools, Shrewsbury.

March 16 to 19.—Cripplegate Photographic Society. Sec., J. G. Denyer, 15, Ostade Road, Brixton Hill, S.W.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been received between December 2 and 7:—

TELEMETERS.—No. 26,546. Improvements in telemeters. Otto Eppenstein, Jena, Germany.

DRY MOUNTANTS.—No. 26,592. Improvements in dry mountants for photographs and the like. Kodak, Ltd., and Simon Victor Haus Chancery Lane Station Chambers, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

PHOSPHATE SUBSTRATUM.—No. 993, 1907. This invention relates to an improved process for preparing paper for photographic purposes.

It is a well known fact that most kinds of paper contain large quantities of metallic particles or particles of other reducing substances, whereby such papers are rendered perfectly useless for the production of photographic silver emulsion paper, more especially, if emulsions, such for instance as emulsions for copying out purposes, containing a surplus of soluble salts of silver, come into consideration.

It will readily be understood that these reducing impurities are rendered harmless, if a protecting layer is placed between the paper and the emulsion, which protecting layer prevents the impurities of the paper and the soluble silver salts of the emulsion from re-acting on each other.

A perfect result can be obtained by coating the impure paper with a protecting layer which contains salt insoluble or hardly soluble in water and alcohol. These latter salts re-act upon the silver salts, diffusing from the emulsion into the paper film in such a manner that insoluble silver salts, remaining within the protecting layer, are formed.

A proper selection of the kind and the quantity of the compound distributed in the protecting layer prevents all the silver salt from getting to the paper and inversely no substance detrimentally affecting the quality of the emulsion can enter from the protecting layer into the emulsion.

In selecting the protecting layer it is further requisite that the latter should be cheaply provided in a sufficiently pure condition and have a pure white colour. In practice, the protecting layer is substituted for the white layer, for instance of baryta as usual for photographic emulsion papers, so that the paper provided with the protecting layer can be coated with the celloidin, aristo- or the like emulsion without any further operation.

With this object in view, for the purpose referred to, the neutral phosphates of the earths and alkaline earths and of zinc are useful in a high degree, and among these particularly the neutral phosphate of calcium is extremely suitable. At this stage it may be pointed out that tri- and di-phosphates of calcium



are suitable for the purpose intended, and amongst these is for an instance the calcium phosphoricum referred to in the "Pharmacopœia Britannica II."

The phosphate is mixed with a binding medium having sufficiently inactive or neutral and resisting properties and then applied to the raw paper as usual. Experiments have demonstrated that a perfect protection is obtained if, for instance, the coating contains about 40 grammes of the "calcium-phosphoricum" referred to for each square metre of the paper. The protecting layer may, of course, if desired, be mixed with additions, colouring matters, or the like, being inactive and promoting the durability of the finished emulsion paper. York Schwartz, 3, Eden Strasse, Hanover.

**CELLULOSE EMULSIONS.**—No. 26,503, 1906. Among the acid esters of cellulose, collodion cotton alone has attained considerable importance as a material for the manufacture of emulsions for photographic purposes.

Various attempts have been made to utilise also the acetic esters for this purpose. For instance, Valenta (Eder, Jahrbuch für Photographie, 1902, page 582) has made experiments with the compound described by Cross and Bevan as tetracetate, and has had some success, which, in his opinion, gives some hope that emulsion papers of very good quality may be produced by means of cellulose tetracetate.

According to the German Patent, No. 169,364, only a certain group among the various acetyl-derivatives is applicable for this purpose, the principal characteristics of this group being their solubility in alcohol.

I have found that all kinds of acetyl-cellulose, either singly or combined, may yield excellent emulsions, if they are dissolved in acetic acid. For this purpose pure acetic acid solution may be used, or acetic acid solution mixed with one or more other liquids. It is practicable even to use directly the mass obtained by the acetylation of cellulose, provided that the condensing medium contained in the same has been neutralised by the addition of suitable chemicals.

The following example will explain the details of procedure which may be employed for obtaining one of the new emulsions.

#### EXAMPLE:—

To 1,000 cubic centimetres of a  $2\frac{1}{2}$  per cent. solution of cellulose acetate in acetic acid are added 35 grammes of a mixture consisting of crystallised strontium chloride (45 parts), anhydrous lithium chloride (1.5 parts), water (9 parts), and absolute alcohol (20 parts); to the mixture thus produced are then added 25 grammes of glycerine which has been mixed with 25 grammes of absolute alcohol, after which a jet consisting of 30 grammes of silver nitrate dissolved in 40 grammes of water and 75 grammes of absolute alcohol is caused to run into the said mixture, while continuously shaking the latter. After the materials have been thoroughly shaken together, a solution of 10 grammes of citric acid in 40 grammes of absolute alcohol is added.

The emulsion thus obtained may be poured on a suitable base in the usual manner. Materials pervious to water are thereby rendered water-repellent, so that sheets of porous flexible material, such as paper, cotton, linen, and silk fabrics, become eminently suitable as bases or supports for the emulsion, and the sheets thus impregnated are suitable for photographic purposes.

If the emulsion is applied to a film, plate, or layer of cellulose acetate, an intimate fusion with the latter takes place. Dr. Leonhard Lederer, Manufacturing Chemist, Sulzbach, Oberpfalz, Germany.

The following complete specification is open to public inspection before acceptance, under the Patents Act, 1901:—

**CINEMATOGRAPHS.**—No. 26,107. Cinematographs. Dupuis.

### New Trade Names:

**ALPHA.**—No. 297,612. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives.

Colthurst and Harding, Mansion House Chambers, 11, Queen Victoria Street, and Alpha Works, Millwall, London, and Phoenix Wharf and Temple gate Bristol; white lead, paint, colour, and varnish manufacturers, oil boilers and refiners. November 1, 1907.

**C. URBAN (signature).**—No. 297,639. Cinematographic apparatus and photographic films bearing finished pictures for use therewith. Charles Urban, 48, Rupert Street, London. November 1, 1907.

**GUMMITE.**—No. 297,398. Photographic trays, basins, tanks, and similar goods, not included in other classes, all being made of material covered by Class 50. Compagnie Générale d'Electricité, 5, Rue Boudreau, Paris, France, manufacturers. October 24, 1907.

## Analecta.

*Extracts from our English weekly and monthly contemporaries.*

### An Idea for Christmas.

The following are a few instructions (writes Mr. R. J. Sutton in "Focus") to make a snow scene of any negative, providing it has not a mass of detail, which would render it a rather hard task. It is done very simply by painting on the glass side of the negative, with opaque watercolour, the parts to be obliterated temporarily, and printed in the shade, so as to produce a soft effect. Churches, cottages, etc., form very suitable subjects, and make very pretty Christmas cards. A motto can be printed simultaneously in the same manner, and gilded or coloured after the card is dry. The effect is in a good many instances very much enhanced by printing a black border round the card, which is done by placing the card, after the subject is printed, in a printing-frame, with a sheet of plain glass, and the centre masked off by black paper cut a little smaller than postcard size, and the edge exposed allowed to print as dark as is required.

### The Drying of Oil Prints.

There has been heard occasionally an outcry against the oil print not drying (writes Mr. John H. Gear in the first of a series of articles in the "Amateur Photographer"), and the difficulty in handling the print. It must be borne in mind that an oil painting is not a thing to handle for some hours after it has been painted; as a matter of fact, decorative work in general, of which oil colours play a part, is given a reasonable time to dry hard. A photographic oil pigment print must be likewise given a reasonable time to dry. If quick-drying ink is used, it will not impart the rich luminosity of the shadows, a feature in which the process surpasses all others without appearing garish. But a print should be sufficiently dry to handle with care in mounting and framing within about forty-eight hours after production, unless it has been abnormally pigmented. Personally, I much prefer a print to take several days to sufficiently harden to allow of handling; with such, the effect is generally better. It may not, however, be the consistency or constituents of the pigment which influence rapid or prolonged drying; it may be entirely dependent upon the paper used. Ink may be used upon a given sample of paper, and the print will dry in twenty-four hours. The same ink upon another paper will not dry to an equal extent in two or three months. Therefore it is of the greatest importance that a suitable paper is selected, especially by those who have not thoroughly mastered all the vagaries to which the process is subject; and one of the best-working papers in my hands is the Double-Transfer No. 76 of the Auto-type Company, which has a sufficiently thick film of gelatine to admit of all the latitude desired in pigmenting, yet not so thick as to destroy the surface texture of the paper.

**LONGTON AND DISTRICT PHOTOGRAPHIC SOCIETY.**—The annual exhibition of this society will be held from February 19 to 21, 1908, the latest date for entries being February 8. Further particulars may be obtained from the Secretary, Mr. T. Mottershead, 32, Stafford Street, Longton.

## New Books.

"The Burlington Art Miniatures," Part IV. The Fine Arts Publishing Company, Limited, London, E.C.

Part IV. of this fortnightly publication fully bears out the promise of Part I., reviewed in our issue of November 1. This new number contains Botticelli's "Madonna and Child," "The Broken Pitcher," by Greuze, Franz Hals' "The Gipsy," Millet's "The Gleaners," and other well-known pictures by Corot, Madam Lebrun, Da Vinci, Van Dyck, Holbein, etc. As we stated before, these mezzograph reproductions are well worth the cost of 1s. 6d. per number.

"Hazell's Annual" for 1908 is in no way behind its predecessors in the variety and scope of its information, which is thoroughly up-to-date and given in a form easy of reference, the book being compiled on the alphabetical system and also possessing a copious index. That it meets a need in the world of "Annuals" is evidenced by the fact that it has now attained its twenty-third year, and the Editor is to be congratulated on the way in which, year by year, he anticipates the wants of the busy man by summarising important events in such a manner that the necessary information is given in the smallest possible space without any unnecessary embellishments, and it is doubtless an appreciation of this fact that has made "Hazell's" one of the most popular annuals of the present day. The book, which is strongly bound in red cloth and published at 3s. 6d. net, may be obtained from the proprietors, Hazell, Watson, and Viney, Limited 52, Long Acre, W.C., or from Hodder and Stoughton, Warwick Square, E.C.

## New Materials.

Faverno Mounting Boards. Sold by O. Sichel and Co., 52, Bunhill Row, London, E.C.

The above firm submit samples of some new mounts prepared with fine linen surface and in an excellent series of colours. The tints are whites, browns, and greys, and, though limited in number, they are all good and of just the shades that are most commonly useful. The thicknesses are 3, 6, and 10 sheet, and the respective prices are 18s. 6d., 29s. 6d., and 40s. 6d. per gross for royal size, and 24s. 6d., 39s., and 54s. per gross for imperial size. Embossed mounts for midget, C.D.V., and cabinet are also supplied in the same boards with circular, oval, or square designs, at prices varying from 4s. to 9s. 6d. per hundred. The designs in the samples submitted to us are quite simple, and free from the unnecessary elaboration that makes many varieties of embossed mounts so objectionable. The shapes are also good, and the appearance of the whole series very satisfactory.

Passepartout Frames and Mounts. Lawrence and Aitken, Albion Works, Kilburn, London, N.W.

Messrs. Lawrence and Aitken have introduced a new line in passepartout mounts at very moderate prices. These are very complete, and include glass, cut tinted mount, back with rings attached, and a back strut that can be attached if desired. The adhesive binding strips are already attached to a front card frame, therefore in use it is only necessary to lay down the glass, mount, photograph, and backing board in due order, upon this frame, and to turn the moistened binder down over the back. The glasses and the back struts can be provided or not as the purchaser may wish, corresponding variations in the price being of course made. With mounts such as these all the difficulties of securing a uniform width of frame and of producing neat angle-joints disappear. There are, in fact, no angle-joints, as all four side-binders are in a single piece of material, and the rectangular piece cut out to form the opening is utilised as the backing board. This ingenious method of manufacture greatly simplifies the operation of mounting, and renders a neat finish almost

automatically attainable. We are glad to see that the rings are strongly and properly attached to the backs, this being a weak point with some varieties of passepartout framing.

VICTORIA POSTCARD MOUNTS.—Messrs. Houghtons Ltd. introduce a new series of embossed mounts of postcard size, arranged to take quarter-plate prints, and printed on back with "Postcard" and the usual postal instructions. Mounted prints can now be sent through the post at postcard rates, and these mounts have been designed to



conform with the postal regulations. They are sold in packets of sixteen at the moderate price of 6d., and two series are issued. Series 1 is in browns and warm tones suitable for toned prints, and Series 2 in slates and greys suited to platinotypes and black and white processes generally. The designs are simple and effective, and the colours good, hence these mounts should become popular.

## CATALOGUES AND TRADE NOTICES.

THE City Sale and Exchange, of Aldersgate Street, Fleet Street, Lime Street, and King's Road, Sloane Square, send us price-lists of optical lanterns, cinematographs, and accessories, and a very complete list of lantern slides, that fills 336 pages of small type. All slides are for either sale or hire, and the Sale and Exchange make a special feature of their subscription lantern-slide library.

FROM Mr. Jonathan Fallowfield we receive an illustrated price-list of Christmas and New Year mounts. This shows a very large variety of mounts of all shapes, sizes, and tints, listed at prices from 6d. up to 10s. per dozen. It would appear to be difficult not to find a suitable mount in such a comprehensive list as this, and those proposing to use photographic Christmas cards should send for this list without delay.

CRITERION SPECIALTIES.—The popularity of the well-known "Criterion" papers may be estimated by the fact that in the latest price-list issued by the Birmingham Photographic Company they state that owing to the increased demand for these papers they have been compelled to discontinue the manufacture of accessories, with the exception of a few which are in constant request. The list contains full particulars of the papers, postcards, and accessories manufactured by the firm, and may be had post free on application to the Birmingham Photographic Company, Limited, Criterion Works, Stechford, Birmingham.

THE TELLER CAMERA Co. are issuing a catalogue of second-hand and shop-soiled photographic goods at considerably reduced prices. The list, which extends to forty-eight pages, includes practically all makes and types of cameras, hand and stand, a large selection of lenses by well-known makers, enlargers, lecture lanterns, tripods, shutters, changing boxes, and a number of sundries too numerous to mention. The list may be obtained by any of our readers on application to the above firm at 68, High Holborn, London, W.C.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, DECEMBER 10.

Aberdeen Photographic Association. "Autochrome Colour Plates." Forbes S. Brown.  
West London Photographic Association. "Still Life by Artificial Light." F. C. Hart.

SATURDAY, DECEMBER 21.

Aberdeen Photo Art Club. "Bird Photography." Thos. Tait.

MONDAY, DECEMBER 23.

Catford and Forest Hill Photographic Society. "The Theory and Practice of Tim. Development." W. F. Slater, F.R.P.S.  
Graysend and District Photographic Society. Social Evening arranged by Messrs. Hurst & Winnett.  
Ridgeway Photographic Society. "Development." Wm. Hume.  
Kidlington and District Photographic Society. Competition, "Christmas Cards."

TUESDAY, DECEMBER 24

Royal Photographic Society. No Meeting.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, December 17, Mr. E. J. Wall in the chair. A paper by Dr. C. E. K. Mees and S. H. Whitten on "Plates sensitised with dicyanin and the Photography of the Infra-red," was read by Dr. Mees. The author described the remarkable sensitising properties of dicyanin, and instanced the particular cases in which it would be of service; its maximum of sensitiveness lay about 7,100, and there was a large gap between the blue and red. Plates bathed with the dye were particularly useful in photographing spectra where considerable resolution was required near to  $\alpha$ . In making spectra of sunspots and in other photography of solar phenomena the special properties of dicyanin had been found of service. The authors had also noticed the excellent rendering of clouds in a blue sky given by the dicyanin plates.

A short discussion, in which Messrs. C. P. Eutler, F. F. Renwick, and Oliver Dawson took part, followed the reading of the paper.

STAINES PHOTOGRAPHIC SOCIETY.—A very interesting demonstration was given at the Society's meeting on Tuesday evening, the 10th inst., by Mr. Green, a representative of Messrs. J. J. Griffin and Sons, Ltd., of Kingsway, London.

The subjects dealt with by the lecturer were "The Theory and Practice of Self-toning Papers," and "The Oil Pigment Process."

The lecturer fully explained the chemical properties of self-toning papers and the chemical reactions which take place during the process of toning.

Messrs. Griffin have recently placed on the market a new self-toning paper called "Goldona," samples of which were given away to those present. Prints on various grades of "Goldona" paper were handed round for inspection, the excellency of which was much commented on by the audience. Untoned prints were also toned and fixed, all of them with excellent results. The chief advantage of this paper is that no gold toning bath is required, the gold being in the paper itself, the toning and fixing being done by immersing the print in hypo solution until the required tone is obtained. The tone may also be varied by altering the strength of the hypo bath. A print was also shown, half of which had been exposed to the sunlight in a window for six months without any apparent deterioration.

The lecturer afterwards described Rawlins' oil pigment process. A print is made by daylight on a piece of paper coated with gelatine, sensitised in a 5 per cent. bichromate solution. The printing is allowed to continue to about the same depth as platinotype printing and the print is then washed in water for half-an-hour until all trace of the image has disappeared. The gelatine surface then possesses this peculiar property: that it has absorbed more water where the action of the light has been retarded by the density of the negative than in the thinner parts where the light has had more

effect. The pigment is then applied by means of a brush, and it will be found to attach itself more readily where the water has not fully acted on the gelatine surface, thus producing a picture. This process is very artistic, and allows the operator to exercise local control in printing to almost any extent. A print was washed and pigmented before the audience, the process appearing delightfully simple and fascinating, after which the proceedings closed with the usual vote of thanks.

SOUTHAMPTON CAMERA CLUB.—Mr. C. H. Hewitt, of Polytechnic fame, lectured to the members of the above on Monday evening, his subject being "A Chapter of English Architecture." The period chosen by Mr. Hewitt was that of Early English, and it was treated in the most exhaustive manner. The lecturer pointed out first the chief characteristics of the Norman work, showing how the Normans failed to build scientifically, though their work was so massive, and contrasting therewith the lighter Gothic work. The chief work carried out in the reign of Richard I.—that at Lincoln, Winchester, St. Albans, and Ely; in John's reign at Worcester, Fountains and Beaulieu; and under Henry III. at Salisbury, Wells, Durham, Ely, Peterboro', and Lincoln—were all referred to, and it was shown how the period was merged into the Decorated and Perpendicular. Going into detail, and illustrating by means of some very fine slides, Mr. Hewitt pointed out the chief characteristics of the Early English work. Outside the buildings he showed the lancet windows with their dripstones, the string course, and the corbel table, and explained the introduction of the flying buttress. Inside the buildings attention was called to the groining of the inner roofs, with its plain and ornamented rib work and carved bosses, then to the mouldings of the arches, with their dog-tooth carvings, the stiff foliage capitals, and the clustered pillars, with their bands and capitals. The lecturer then treated the doorways, showing Early English additions and insertions to the Norman work, and passed on to the arcading, showing by fine slides the double arcading at Lincoln and Beverley Minster. Finally came the crocket work, with its transition into the decorated stage, no single detail of the Early English style being left undemonstrated. Mr. Hewitt received a very hearty vote of thanks.

WOOLWICH PHOTOGRAPHIC SOCIETY.—On the 12th inst. Mr. H. W. Bennett gave a demonstration on his original method of toning bromide prints, with hints as to mounting, etc. This method, in which the results bear a strong resemblance to carbon prints, has the advantage of being cheaper and quicker to produce than carbon work, though it is not quite so permanent, and will doubtless appeal to many who have not the spare time necessary for the production of good results in carbon.

EPSOM AND DISTRICT LITERARY AND SCIENTIFIC SOCIETY.—Before a not very representative gathering of the photographic section of the above society last week, Mr. Peacock, of Croydon, gave a most instructive and successful demonstration on "Ozobrome." After a short description of the chemical action and the theory of carbon printing he proceeded to make Ozobromes from bromide prints provided by the members, and succeeded beyond all expectations. Under his direction several members made ozobromes for themselves, proving the simplicity of the process. Amongst the specimen prints Mr. Peacock showed some he had made with the new Ozobrome transparency tissue on unprepared glass by single transfer, which were of very fine quality. The meeting closed with a vote of thanks to Mr. Peacock, who undertook the demonstration at the eleventh hour, upon Mr. Stedman, of Messrs. Illingworth, failing through illness.

AN INTERESTING PRESENTATION.—A recent meeting of the Redditch District Council was marked by an unusual and pleasing event, when Mr. A. Harold Clarke, photographer, of Evesham Street, presented to the Council a large and handsomely framed group of portraits of the chairman and members, which now occupies a prominent position in the Council Chamber. This might well form the nucleus of an interesting and historical collection if all future members would, upon election, present a portrait of themselves to be hung beside the present group.

## Commercial & Legal Intelligence.

**CHARGE OF EMBEZZLEMENT.**—Arthur Ernest Wagner, 19, a photographer, of Drayton Road, Leytonstone, was charged at Stratford Police Court last week with embezzling various sums of money amounting to £4 10s. 6d., received by him on account of his employer, John Douglas; further, with stealing a camera, lens, case, and three slides, valued at £3, the property of Mr. Douglas.

The prisoner was in the employment of Mr. Douglas, photographer, of High Road, Leytonstone, at a weekly salary of 25s., and in the course of his duty he received moneys which he was supposed to account for to Miss Lilian Hine, the manageress. On November 2nd he received £2 from the Rev. E. W. Sawyer, of Leytonstone, but he did not account for it. Inquiries showed that he had accounted for other sums.

An examination of the stock showed that a camera was missing, and the prisoner, when charged with the theft, made no reply. The camera he had sold for a sovereign to a lad named Isaacs, who was also an assistant to Mr. Douglas. The Bench were of the opinion that it was a very bad case, and sent the prisoner to gaol for six weeks' hard labour for the embezzlement. The larceny was not dealt with.

**WHAT IS A SUMMER-HOUSE?**—On Monday the Hove magistrates gave a decision which has special interest for gardeners, photographers, and others who construct places of retreat or shelter in private grounds. Mr. Samuel Henry Perrin, a solicitor, has become a resident in Hartington Villas, in the back garden of which he had erected a corrugated iron shed, 12 ft. by 18 ft. by 6 ft. The local surveyor inspected the shed, which contained three bicycles, chairs, and other articles, and he summoned Mr. Perrin for failing to notify the authorities of the construction of the shed as required by the regulations.

One of the points raised by Mr. Perrin in his defence was that the building being in the nature of a summer-house, was exempt from the by-law, and in support of his argument he instanced cases where disused railway carriages and tramcars were utilised for garden purposes without coming within the scope of the regulations.

The surveyor denied that the shed was a summer-house.

Defendant thereupon quoted definitions of the term summer-house from Walker's and Nuttall's dictionaries, laying particular stress upon the description in an encyclopædia, 1901, of "a house, building, or shed in gardens for use in summer."

The magistrates were of opinion that the building in question did not come within the meaning of the by-law, and the summons was therefore dismissed.

Mr. Gell-Woolley, on behalf of the Corporation of Hove, asked the magistrates to state a case, with the view to an appeal, and this was agreed to.

**BRITISH PHOTO PAPER COMPANY, LTD. (Lambeth).**—Issue on November 27 of £250 6 per cent. debentures, part of series created November 6, 1907, to secure £5,000, charged on the company's undertaking and property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £1,800.

**CAMPBELL-GRAY, LTD. (Photographers, London).**—Issue on November 27 of £250 6 per cent. debentures, part of series created November 7, 1907, to secure £1,000, charged on the company's undertaking and property, including uncalled capital. No trustees. Total amount previously issued of same series, £350.

**CAMERA THEFTS.**—Morris Meyer Cohen, 49, a general dealer, living in St. George's Road, Southwark, was charged at Marlborough Street last week with the theft of a pair of binocular glasses, worth £6 10s., from James Sinclair and Co., opticians, Haymarket; also with stealing a camera, valued at £8 8s., the property of the Stereoscopic Company, Ltd., Regent Street. The articles in question were missed a few days ago from the shops of the prosecutors, and while Detective-sergeants Clarke and Burton were in Bedford Street they saw the prisoner there with the missing camera. When the officers approached him he ran away, but was

eventually captured, and said that he had stolen the articles from the shops mentioned, and also twenty sixpenny diaries from the premises of Messrs. Boots, in Southwark Street.

Sergeant Clarke informed the magistrate that another prosecutor who had lost valuable bronzes was present, and the prisoner answered the description of a man "wanted" for a number of thefts of cameras which had been disappearing of late all over London.

The accused was remanded.

### NEW COMPANIES.

**SERIKON, LTD.**—Registered November 27.—Capital £7,000, in £1 shares. Objects: To acquire the business carried on by Birt Acres at Whetstone as the Whetstone Photographic Works, and to carry on the business of manufacturers of and dealers in celluloid, cinematograph and photographic films, plates, chemicals, and apparatus, photographers, opticians, etc. No initial public issue. Registered office, Whetstone Photographic Works, Whetstone, Middlesex.

## News and Notes.

**THE HOME OF THE AEROGRAPH.**—It is very probable that a large proportion of the many workers in all parts of the globe who are users of the "Aerograph" are unaware of the modern developments of this instrument. Even the passer-by along Holborn Viaduct may scarcely notice in the window of the Aerograph Co.'s premises the examples of air-brush work along lines which have virtually created a new industry. The "Aerograph," as everybody knows, was invented by Mr. A. L. Burdick in the first instance as a time-saving tool for artists, a tool, too, which allows its possessor to obtain effects he could not reach by hand. It is fifteen years since photographers in this country first had the Aerograph offered to them, and few at that time anticipated that the firm exporting it would soon be showing its wares in as handsome a showroom as any in the City of London, and be occupying a four-story factory within the City itself for the manufacture of the instruments. We will confess it was with some surprise that we recently found at Mr. Burdick's working establishment in St. Luke's, E.C., no less than seventy-five workpeople, chiefly mechanics, engaged in the manufacture of air brushes of various types. In 1895 the staff consisted of two workmen and a boy, and the back streets of Clerkenwell were ransacked for artificers capable of carrying out certain of the delicate work in the production of the instruments. Now the company has its own machinery and tools, and is fully equipped for exercising its own supervision over the manufacture of every working part of the product. This state of things is no doubt the result of Mr. Burdick having himself worked out the actual making of Aerograph parts at a time when he could not get the necessary accuracy elsewhere. We were interested in witnessing the adjustment of the German silver stylus of the Aerograph to the platinum nipple, and the nicety of fitting which is necessary for (1) the proper flow of colour and (2) the ability to draw a fine line. In other respects the Aerograph has undergone great developments since its inception: it has its working parts enclosed, it is readily cleaned and recharged with a different colour, and it has proven itself capable of withstanding constant working usage year in year out, much as a well-made camera may get somewhat out of date, but does not wear out. That such facts may be put down to the credit of the Aerograph is not surprising when the facilities of the maker's factory are inspected.

Yet the quite recent developments of Aerography are even more surprising than the perfection to which the photographer's special instrument has been brought. The use of the air-brush through a stencil has shown itself capable of great industrial applications, and we saw last week the first completed rotary Aerograph machine, designed and built by Mr. Burdick for the automatic decoration of fabrics, wallpapers, and the most diverse materials. Several colours are simultaneously applied, and patterns of any required intricacy dealt with. Many photographers who pride themselves on their technical knowledge very likely do not suspect the air-



brush as the active agent in the ornamentation of the voile or mousseline de soie which forms parts of the toilette of their women-folk. Yet these and many other articles of commerce owe their adornment to the machine-aerograph which has proved itself a serious competitor with other methods of applying colour.

**SPIRIT PHOTOGRAPHY.**—Mr. A. J. Butler writes as follows in the "Westminster Gazette":—"May I refer any of your readers who are interested in this subject to a book by Miss Georgiana Houghton which appeared in the year 1882, entitled "Chronicles of the Photographs of Spiritual Beings and Phenomena Invisible to the Material Eye" (E. W. Allen)? They will, I think, find it instructive. I need not take up your space with a detailed account of it, but I may say that a study of the specimens of the art which are given in it shows clearly that the same young lady, and a good-looking one at that, did duty for such diverse spirits as those of "Manoah's wife," "Mrs. Ramsay's daughter," "the sister of George Sutherland, Esq.," as well as a number of less precisely identified visitors from another world. There is also a male figure—less prepossessing—who appears sometimes with, sometimes without, a beard, but perfectly recognisable in either guise. I do not know, not having given much further attention to the subject, how far the art of "spirit-photography" has progressed in the last quarter of a century, but it seems from the letters in your columns, that the scientific training of its devotees remains much where it was.

**PHOTOTELEGRAPHY.**—The Berlin correspondent of the "Daily Mail" states that it is announced that the first regular station for the transmission of photographs by telegraph will be established at Munich on December 15. A similar station is to be established in Berlin, London and Paris will later be connected with a service, so that the first commercial exchange of pictures by wire will shortly be inaugurated between these four cities.

**THE NEW EGYPTIAN HALL.**—Sir William Treloar, Bart., on December 11, opened the New Egyptian Hall, which is to be devoted to the display of high-class cinematograph pictures. He said he was sure the entente cordiale would not be diminished by the support which the English people were sure to give to the entertainment carried out mainly by Messrs. Pathé. Mr. A. E. Simonsen, on behalf of the management, thanked Sir William for his presence, and asked him to fix a day on which he would send his cripples there to enjoy the entertainment.

**LANTERN SLIDES OF HOLLAND.**—Messrs. A. E. Staley and Co., who, in August last, held an exhibition of Mr. Stanley E. Fincham's photographs of Dutch scenery, now announce that they are preparing a collection of 150 lantern slides made from negatives also taken by Mr. Fincham during his recent visit to Holland. These slides, which will be ready by January 1, 1908, Messrs Staley will be pleased to lend to any photographic society desirous of giving its members an interesting and instructive lantern evening. Mr. Fincham has also written a lecture to accompany the slides giving details and description of the various places, etc., represented in the tour. Those secretaries who wish to avail themselves of Messrs. Staley's offer should make early application, with dates, to the above firm at 19, Tavies Inn, Holborn Circus, London, E.C.

**TRADE ENLARGING AND PRINTING.**—Mr. E. P. Grigg notifies us that he has opened new premises at 29, Neal Street, West Bromwich, where he will in future carry on his business of enlarging, printing, etc. Whilst undertaking all descriptions of photographic work, Mr. Grigg makes a specialty of enlargements, which from an inspection of samples submitted, appear to us excellent in quality and reasonable in price. Those desirous of availing themselves of Mr. Grigg's services may obtain a copy of his trade price list on applying to the above address.

**PHOTOGRAPHY OF PAINTINGS.**—On Thursday, December 12, at the L.C.C. School of Photo-Engraving and Lithography, Mr. Donald Cameron-Swan, Managing Director of the Swan Electric Engraving Co., lectured concerning the photography of paintings, showing in illustration of his remarks a very large number of reproductions of works by artists of world-wide eminence, negatives, positives, and prints. The latter were mainly photogravure proofs, many being

signed by the artists. These exhibits being of such exceptional interest, they are by request remaining on the walls for inspection until Wednesday next, at the L.C.C. School of Photo-Engraving and Lithography, 6, Bolt Court, Fleet Street, E.C. Admission is free between the hours of 10 a.m. and 5 p.m.

**"ABEL'S PHOTOGRAPHIC WEEKLY."**—A week or two ago we recorded the purchase of the "Photographer" (New York), edited by Mr. J. C. Abel, and its amalgamation with the "Bulletin of Photography" (Philadelphia). This latter journal has therefore for the past few weeks been the only photographic weekly in America, a distinction of which it is to be deprived by the issue by Mr. Abel of a journal under the title "Abel's Photographic Weekly." Events seem to take place quickly in the American journalistic world, and we hope that both active competitors will meet with precisely the reward in prestige and hard cash which they merit.

**SOUTH MANCHESTER PHOTOGRAPHIC SOCIETY.**—The seventh annual exhibition will be held in the Public Hall, West Didsbury, from February 20 to 22, 1908, inclusive. Mr. A. A. Bellingham and Dr. T. G. Crump have consented to act as judges, and fourteen specially designed bronze plaques will be placed at their disposal for award. There will be three classes open to all, four for members only, and one (Class 4) open to members of societies federated to the Lancashire and Cheshire Union, in which the "Amateur Photographer" special silver medal will be given to the best picture. The "Photographic News" silver medal will be awarded to the best picture shown by a member of the society. Entries close February 8, 1908, and entry forms, which are now ready, may be obtained from the Hon. Sec., Mr. M. W. Thompson, 22, Albert Street, Manchester.

**ILKESTON ARTS CLUB.**—The photographic section of this club will hold its fifth annual exhibition in the Town Hall, Ilkeston, from March 4 to 7, 1908. Mr. Arthur Marshall, A.R.I.B.A., will undertake the office of judge. The Secretary is Mr. Arthur Smith, 11, Graham Street, Ilkeston, from whom further particulars may be obtained.

**MESSRS. W. BUTCHER AND SONS, LTD.,** notify us that their telephone number is now 5995 Holborn (three lines), and their telegraphic address, "England, London."

**MESSRS. ELLIOTT AND SONS, LTD.,** ask us to notify that their factory, warehouse, and offices, will be closed from Tuesday night, December 24, until the following Monday, the 30th inst.

**CHRISTMAS HOLIDAYS.**—Mr. S. H. Fry, of Frisian House, Highbury Grove, N., intimates that his business premises will be closed from Tuesday, December 24, to Monday, December 30.

**ARTIFICIAL LIGHT PORTRAITURE.**—In reference to the recent letter from a correspondent, a reader of the "Journal," Mr. W. Carter, of 167, Old Kent Road, London, S.E., in sending us a large number of excellent commercial midget photographs, writes:—"I have taken this opportunity of forwarding for your opinion of same a batch of bromide prints from negatives taken by seven ordinary Bray burners, with tissue paper in front to diffuse light. The exposure is not ten but two seconds on 'Royal Standard' E.R. plates with Dallmeyer's 2B lens with full opening. In no case are the negatives retouched."

**PHOTOGRAPHING FANCY DRESS BALLS.**—The Baths Committee of St. Pancras Borough Council reported on Tuesday having received an application from Mr. L. Francis, 243, Kentish Town Road, N.W., for permission to take photographs at the baths on the occasion of fancy dress balls. He is prepared to provide his own apparatus, and will only require a supply of electric current. He is willing to pay for the privilege 5s. on the occasion of cinderellas and 7s. 6d. when long night dances take place. The Committee having ascertained that the proposal would not involve any alteration in the existing electrical fittings, acceded to the application.

**JUVENILE LECTURES AT THE SOCIETY OF ARTS.**—Mr. F. Martin Duncan will deliver two lectures, suitable for juvenile audiences, at the Society of Arts on Wednesday afternoons, January 1 and 8, at five o'clock, taking for his subject "The Scientific Applications

of the Cinematograph." Though at first sight the title may convey an idea of matters rather above the comprehension of the "juvenile" mind, yet those who have heard Mr. Duncan lecture, and who have read his books on Nature subjects, will fully realise that his peculiarly happy methods of imparting information render him particularly suitable for such a position as he now proposes to occupy, and those juvenile hearers who will doubtless throng the Society's rooms on January 1 will not be satisfied unless they are again amongst Mr. Duncan's audience on January 8.

**MARBLE ARCH IMPROVEMENT.**—The scheme suggested by Mr F. W. Speaight came before the Paddington Borough Council on Tuesday last, when the Works Committee recommended the Council to contribute £2,112, or one-ninth of the estimated cost (£19,000) of forming a crescent carriageway, 85ft. wide, minimum, at the rear of the Marble Arch, and thus isolating the arch. Alderman R. F. Whur, chairman of the Works Committee, in moving the adoption of the recommendation, stated that the London County Council had agreed to pay two-thirds of the cost of this improvement if Westminster, Marylebone, and Paddington gave the rest in equal proportions. The First Commissioner of Works had consented to concede a portion of Hyde Park for the purposes of the widening. Paddington, he contended, would most largely benefit by the improvement, although only a few square yards of the ground were within the limits of the borough. After some discussion, the recommendation of the Committee was adopted.

**GAZETTE NOTICES.**—Notice is given in Tuesday night's "London Gazette" that Harry Chapman Whiteley and Ernest Crossley, carrying on business under the name of the "Novelty Animated Picture Co.," in Huddersfield, as cinematograph and lantern entertainers, have been adjudicated bankrupts. Notice is given of the release of the trustees of Arthur Henry S. Draycott and John Arthur Draycott, trading under the name of the "Draycott Galleries" as photographers and dealers in works of art, at Leamington and New Street, Birmingham. The case was before the Birmingham Court in 1906.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper.*

*No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### PINHOLE APERTURE NUMBERS.

To the Editors.

Gentlemen,—In the table of Watkins-Power pinhole numbers, page 944, BRITISH JOURNAL ALMANAC, just published, the editorial footnote states that the system is due to Dr. D'Arcy Power. The fact is that it is a modification (and a very happy one) made by Dr. Power on a system originated by me. I devised the plan to name the pinhole aperture as if it were sixty times its real area, so that a calculation made in seconds will be correct if given in minutes, and Dr. Power adopted this plan. For example, here is one line from my original table of about ten years ago:—

No. of Needle (as packet).	Diameter.	Diaphragm value.	Working distance.
5	$\frac{3}{16}$ inch	$\frac{1}{10}$	15 inches.

Here I gave the diaphragm value for the working distance of 15 inches only. Dr. Power gives it for one inch, and so enables it to be multiplied by any working distance. As a matter of fact, the Power numbers can be found from my original table by dividing the diaphragm value by the working distance. In the above example, for instance, the Power number is 4 (being  $\frac{4}{10}$ ), and it will be seen from the footnote I refer to that a pinhole of  $\frac{3}{16}$  inch diameter is called No. 4 by Dr. Power. I do not count my later modification of making

an allowance of 50 per cent. for the "law of error" as entitling me to give my name to the system in conjunction with that of Dr. Power. It is the basic idea of dividing the aperture by  $\sqrt{60}$  in order to name it—which method had been published and practised for years before Dr. Power's modification—which entitles me to a full half-share of credit in the Power or Watkins-Power method.—Yours truly,

ALFRED WATKINS.

Hereford, December 14, 1907.

### PORTRAITURE WITH THE MERCURY VAPOUR LAMP.

To the Editors

Gentlemen,—I have read Mr. Henderson's letter in your issue of the 13th, and although he says at the end that he cannot enter into any further discussion on the matter, I think it is only fair to myself to shortly reply to his remarks. Because some provincial firm of photographers could not start their eight arc lamps when they wanted to show them to Mr. Henderson, he commits himself to the statement that "an extraordinary amount of practice and skill," and "enormous amount of patience," an "unlimited amount of energy and zeal," and a few other adjectives are required to work photographic arc lamps; also "the uncertainty of the electric arc lamps," "the difficulty in starting the lamps, the flickering and unsteadiness of the light, and other minor faults which seem inseparable from the arc lamp," as sufficient reason to account for the shyness which photographers show in adopting this form of lighting for the studio." Sufficient reason, indeed, if such troubles existed anywhere out of Mr. Henderson's imagination. My firm have supplied a large number of photo. arc lamps during the last nine years which possess none of these characteristics. This is also some answer to the "shyness" which I am only too pleased to say does not exist, as we find the demand for such lamps rapidly increasing. We receive many testimonials from photographers remarking on the extreme simplicity and ease of working, and the excellence of the results obtained. The originals of these are quite at your service.

By the way, what did Mr. Henderson's provincial photographer want eight arc lamps for? One or two are sufficient for most studios. Of course, the arc lamp gives heat, but there is no need to put the frames so near to the lamp as to cause any trouble. The printing is quite rapid enough at a safe distance. A "Westminster" No. 114 lamp on a 200 volt circuit takes 15 amperes, which is three units per hour, and not seven, as Mr. Henderson says, which, of course, knocks the bottom out of his statement as to comparative economy.

In looking through Mr. Henderson's article again (November 22nd issue), under the heading "Installing the Lamps," there are some remarks about wiring, which I will quote. "Another point which is of great consequence is the main wiring, which should be what is known as 22 wire. This should have a distance of not less than two inches between positive and negative wires. This is necessary to prevent induction. It is only necessary to have this space left from the switch to the lamps." Now this is simply nonsense, and brings me to the reason for my intervention in this matter at all, as I am an electrical engineer and not a photographer. Mr. Henderson has had some mercury vapour lamps, and has used them for twelve months with results that are satisfactory to himself. He is therefore perfectly justified, and indeed, much to be commended for giving an account of his experience, but why! oh why! does he consider it necessary to attack and condemn other systems, and give instruction about other matters which are evidently outside his knowledge? Let him stick to his mercury-vapour lamps, and I am sure all your readers will be pleased to read whatever he has to tell us about them as the result of his own experience.

I am sorry if I have said anything to hurt his feelings, but I should expect to be pitched into in much the same way if I wrote an article on arc lamps and condemned everything else, including mercury-vapour lamps (which are, no doubt, excellent lamps, and will take portraits if you wait long enough, or use a sufficient number of them) without first making sure of my facts.—Yours faithfully,

J. O. GIRDLESTONE.

The Westminster Engineering Co., Ltd.,  
Victoria Road, Willesden Junction, N.W.  
December 16, 1907.



## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
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### PHOTOGRAPH REGISTERED:—

E. A. Basevi, 26, Tenison Road, Cambridge. Photograph of the Rev. R. H. Benson, M.A.

**THE PEDLARS ACT.**—A few days ago I was walking along the road, with my camera slung over my shoulder and a few samples of my work with me. I met a police constable and his sergeant, who stopped me, and, after looking at the samples, said I was hawking and required a pedlar's licence. I argued with them for some time, telling them that I was not selling anything, but canvassing orders, whereupon the sergeant said he warned me not to do it, passing some remark about my selling my skill and handicraft and obtaining orders for same, and if he saw me again he would apprehend me. Do you think he is right, or is there some mistake? This is the first time I have been stopped. Sometimes I go out with my handbag containing samples and obtain orders from houses for postcards, etc., and at present Christmas cards (photographic ones). I also carry samples of views, from which stationers give their orders. On another day I may go out with my camera to photograph houses or persons from whom I had obtained an order. On this particular day, when stopped, I had both camera and samples. I should like to know, through your valuable journal, if I am doing wrong and if a licence is absolutely necessary. There must be hundreds of other photographers who earn their living in this manner. I may say that I do not go about from one town to another doing this, but have a place of business in this town.—ANDCO.

The police-sergeant is quite right. Your method of doing your trade certainly brings you within the Pedlars Act, and you require a licence. As you have been cautioned by the police, you will do well to get it at once, or you may find yourself in trouble. The licence costs 5s. a year—not a large sum.

**PRINTING BY ARTIFICIAL LIGHT.**—I wish to know, through the medium of your paper, if I could get a lamp with which I could print P.O.P.—something like Houghtons' Jandus arc lamp, but which would not require electric power. I am in a large village, and am without the advantage of having either gas or electric light, and as I do a large amount of P.O.P. postcards and larger work, a lamp such as the above would be a great boon to me.—W. M. JONES.

There is no such lamp made. What we would suggest is that you partially print by daylight and then develop the prints in the usual way—that is, if you must use P.O.P. On p. 819 of the "Almanac" for 1908 are formulæ suitable for the work.

**BLOCKING-OUT SKIES, ETC.**—1. I have some negatives marked in red ink, and would feel greatly obliged by you telling me of anything which would remove this? The marking is on the film, and I doubt if anything will remove it. 2. I got in your paper some time ago directions for making defective skies dense without actually blocking-out in Indian ink. The negative was to be varnished with collodion and then worked over with elect. plumbago, then (as I read it) to be varnished a second time

with seedlac, sandarach, oil of lavender, castor oil, and alcohol. This to be matted with powdered resin, and electrotypers' plumbago applied. I am not sure whether I am right in supposing this to be one process, or is it two different methods of blocking-out. 3. Also, please say what may be used to remove the coating if it should be necessary to do so.—RETOUCHER.

1. The composition of red ink varies with different makers, and without knowing that of the one used we cannot help you. 2. We do not call to mind the method referred to, and "some time ago" is too indefinite a date to enable us to search for it. However, if you coat the negative—back or front—with matt varnish you can work on that with the plumbago. 3. The matt varnish can be removed with methylated spirit.

**TRANSFERRING COLLODION FILM.**—I intend making a positive on a glass support by the wet-plate collodion process. Will you kindly tell me the best way to transfer it from the glass to a metal support as soon as it has been fixed and while still wet?—WET PLATE.

To do this successfully will require neat handling. First remove the film from the edges of the glass. Then put the plate in dilute hydrochloric acid—about one part to ten parts of water. In a few minutes the film will be loosened. The plate must then be carefully rinsed under the tap to remove the acid; it is then put into a dish of water, when the film may be floated off the glass on to the metal support. It will be well to employ a rather thick collodion—one with a good body.

**CARBON TISSUE.**—Will you kindly give formula and directions for making (on a small scale) carbon tissue for three-colour work—something with pigments that are practically permanent, if possible?—W. H. THOMPSON.

No very definite instructions are published on the manufacture of carbon tissue. The best, perhaps, are those given in Wall's book on the carbon process. We may tell you, however, that the making of carbon tissue on a small scale is by no means an easy matter to the novice, particularly for three-colour work. We should advise you to purchase the tissues, specially made up for the work, as supplied here by the Rotary Photographic Company or the Autotype Company.

**SALARY.**—A late employer owes me salary amounting to £10, and in reply to my requests for payment says he has not forgotten me, but cannot pay me yet. I know he will shortly become bankrupt, and I would like to know if I (a past employee) would be classed as an ordinary creditor and receive the same percentage of payment, or should I get full payment for my services. Thanking you in anticipation.—HILDA.

If you were an employee at the time of the bankruptcy you could, if a weekly servant, claim a month's salary in full. But we are not sure how you now stand, as the late employer is not yet a bankrupt. We would think your best procedure will be to take out a summons at once in the county court for the sum due, so that you will stand as a preference creditor for your salary.

**POSITIVES ON CELLULOID.**—At a holiday resort here I saw a machine taking direct positive pictures on celluloid, and shall be glad if you can give me any information as to how this is done. The machine was operated somewhat as follows: A gelatine emulsion is coated on celluloid, exposed, then developed, apparently, I believe, in hydroquinone; then the negative image reversed with a second solution, and fixed by a third, the whole operation taking about fifty seconds before the picture was delivered. In order to facilitate the drying, a few drops of alcohol were sprinkled on it, so that the moisture would evaporate quickly. It is a good many miles to write for such information, but I feel sure that you are in a position to give me some suggestion as to how this is done, as I should very much like to make some experiments to produce some of the pictures. The results were very fine, looking just like an ivory miniature, and from questions asked I learned that they were developed with a very strong hydroquinone developer.—W. GREEN (New York).

Without seeing a specimen of the pictures we can give no decided opinion as to how they are done. We imagine, however, that the system is somewhat similar to that which is

employed for taking ferrotypes in the automatic machines, except that the emulsion is on celluloid instead of being on a ferrotype plate.

W. SCOTT.—"The Kinematograph and Lantern Weekly," published by E. P. Heron and Co., 9-11, Tottenham Street, Tottenham Court Road, W.

F. Q. WARNER.—Your idea seems a good one for practical workers, but you had better approach a manufacturer before spending money on patents. We doubt if there is much in it, as the process in question is only practised by very few. In any case we fear that stock size masks would hardly be popular.

SPOTTED NEGATIVES.—I enclose with this three negatives (of no value), and will be greatly obliged if you can assign a cause to the peculiar blotches of silver deposit that appeared on development. The plates were all No. 1 of twelve, loaded into two similar magazine hand cameras. The camera was loaded for a week before use in the case of No. 1 negative, for two days in No. 2, and for four hours in No. 3. None of the remaining eleven plates exhibit any marks. The cameras were made by myself (for stereo work). They are of aluminium, and are lined inside with black silk velvet, glued to the aluminium; at no place is any bright aluminium exposed. I have exposed hundreds of plates in the cameras without noticing any markings, but they were not of this particular brand, and I have not before kept plates in the camera more than a day. The plates are "Imperial NF" brand, the fog is due to an unsafe ruby light, the plates being highly colour-sensitive. The plates in each case were developed (with their complementary 11) in the same tank and with the same developer (rodinal 1-100) that I generally use. There are not particles of metallic aluminium in the cameras, and I brush them free from dust. In their construction there is a little ash wood, rubber, and brass, as well as the aluminium, velvet, and glue.—A. C.

It is impossible to give any definite cause for the markings, but from the information you give it would appear as if the effect is due to some emanation, perhaps from the glue. If you used fish glue or seccotine, or any adhesive of that nature, markings might be expected.

A. HILLS.—We think you will not find anyone prepared to advance the money except on a low estimate of value of the lenses offered as security. We certainly know of no one who makes a regular practice of such business.

VARIOUS.—(2) I have been doing some portraits lately in a sepia tone, mounted on Cosway mounts. As these portraits somewhat resemble old mezzotint engravings, I have thought that I should like to call them "mezzochromes." Should I be within my rights in doing so, or should I be infringing any registered title? (3) If I cannot call them "mezzochromes" can I call them Cosways? Or, if not, can you suggest another name, as I want to describe these portraits in my price list?—CONRAD.

(1) You are in error in saying that the two lenses you name have the same aperture. The portrait lens you say has an aperture of  $f/3$ , but the aperture of the other, for the  $10 \times 8$  size, is  $f/4.5$ . The focus of the latter is between 16 inches and 17 inches, so that with it a distance of about 25 feet would be required between camera and sitter for a full length cabinet portrait. As your studio is but 25 feet long it would not be suitable for full length cabinet pictures. The portrait lens would only require about 18 feet for a similar portrait. (2 and 3) You can call the portraits by whichever of the two names you like.

PINHOLE PHOTOGRAPHY.—I should be very much obliged if you could inform me of the name of a cheap guide to pinhole photography, and also on the construction of a pinhole camera (hand). If, however, you have had an article on this subject in your esteemed journal kindly let me know the date, and I will order the copy.—A. O. PULFORD.

Messrs. Dawbarn and Ward issue about the best guide to pinhole work in their "Photo-Miniature" series (6d.). Your dealer can probably supply you, or you can address the pub-

lishers at 6, Farringdon Avenue, E.C. We would also refer you to the chapter on pinhole work in the "Watkins Manual" (The Watkins Meter Company, 1s.), which contains practically all that is necessary.

PURCHASE OF BUSINESS.—Just about a year ago I bought the above business. It was represented that the returns were — a year, and the net profits —. I was shown the books, which seemed to prove that things were as stated. I have been in the business for a year, and I now find that the returns have been but a little more than half what I was told, and the net profits not half what was represented. Unfortunately, I paid the whole of the money down. Can I recover it back, or any part of it, as the thing is not paying at all, and there is little prospect of its ever doing so, as another photographer has set up close by?—R. A. J.

Unless you are able to show that the books you were shown were fraudulently kept, in order to deceive a purchaser, we do not see how you can recover anything. If action were taken the defence would probably be that your work was not equal to that of your predecessor, or that you did not conduct the business in the same way as he did. Furthermore, that the newcomer had taken some of the business away. If, however, you can prove a fraudulent misrepresentation, you have a good cause of action.

CARBON LANTERN SLIDE TROUBLE.—I have made about three dozen lantern slides by the carbon process, from negatives taken in the autumn, and I am very pleased with them. But on showing them in the lantern a few nights ago I found that the pictures, in several cases, had peeled off the glass. The carbon tissue used was —'s portrait brown. The glass was thoroughly cleaned, and the tissue adhered well in the development, and when the pictures were finished. Ought a substratum to have been used on the glass, and if so, what? Also can you tell me how to prevent the films that are yet intact going like the others?—DISAPPOINTED.

We are not altogether surprised at your experience. The tissue you employed contains a small amount of pigment in proportion to gelatine. Consequently it yields a thick film when the picture is developed. That, with the heat of the lantern, contracted, and hence left the glass. A good substratum is:—

Nelson's No. 1 gelatine, 1 oz.; water,  $1\frac{1}{2}$  pint. When dissolved, add a solution of bichromate of potash, just sufficient to give a plain sherry-colour. Coat the plates with this, and dry them in full daylight, which will make the coating insoluble. With this substratum there will be no danger of the films splitting off. We fear you can do nothing to prevent the other pictures peeling off, if they are allowed to get treated in the lantern as were the others.

APPRENTICE.—Without seeing the indenture, we can express no opinion. We may tell you, however, that if it is not stamped it is of no value. It is not binding on you or on your master. In fact, you are an ordinary weekly servant, and can leave on giving a week's notice, or your master can get rid of you by a similar notice.

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## SUMMARY.

The annual index to the "British Journal" and to the "Colour Photography" Supplement is presented as a twelve-page supplement to the present issue.

The full prospectus of the International Photographic Exhibition to be held at Dresden in 1909 is reprinted on page 931. Mr. E. O. Hoppe has been appointed honorary corresponding secretary for England.

Professor Lowell has published the results of bathing experiments as a means of securing fine definition in astronomical photography (Page 977).

A test for the freedom of an instantaneous shutter from jar is mentioned on page 974. It is one which could be applied on a shop counter.

A finder, which also indicates the distance of an object, has been patented. (Page 984.)

The description of the new type of brilliant finder worked out by Herr K. Martin appears on page 979.

A remarkable case of reversal said to be caused by intensification with mercury and ammonia is noted on page 974.

The Royal Photographic Society announces the abolition of medals in both the technical and pictorial sections of the annual exhibition. (Page 973.)

The attendances of officers of the Royal Photographic Society are given on page 983.

Some practical notes on the customary method of glazing gelatin and collodion prints by means of enamel collodion appear on page 976.

We give the conclusion of instructions in the working of the albumen process for the making of lantern slides. (Page 975.)

## EX CATHEDRA.

### Abolition of R.P.S. Medals.

It is announced in the Journal of the R.P.S. that the Council have decided that no medals shall be offered in the next exhibition, in either the pictorial or technical sections. For some time past no medals have been offered in the pictorial section, but their abolition in the technical section is a new feature that will no doubt be received with very varying emotions on the part of prospective exhibitors. In the extracts from the Articles of Association quoted in the Journal we see that article 50 reads: "If awards be given, the judges shall be elected by the members of the society." It follows from this that if no awards be given those responsible for the selection of the exhibits must be elected, not by the members, but by the Council, and it is announced that they will be so elected. In view of this fact the abolition of the medals would appear to have a slight advantage, in that the Council can ensure that the Selection Committee shall include men competent to criticise work in all the various branches of technical photography. This could not be ensured when the committee was elected by the members; but the advantage of a more competent committee is only secured at the cost of abolishing the medals, and it is an open question whether the disadvantages of the old system were sufficient to warrant this extreme course.

\* \* \*

### The Annual Index to the "B.J."

The twelve pages of indexed items which we present with this issue will, we hope, not be overlooked by our readers, but will be bound up by them with the text of "The British Journal of Photography" and of the "Colour Photography" Supplement for 1907. There are many good friends of ours in the trade from whom we hear in the course of the year with requests for information which they might obtain in a moment, as we do for them, if we are asked, by consulting the index to the bound volume of our pages. In the present instance we have made one or two additions, which we hope will still further add to the usefulness of the index to those in the photographic business. Thus the trade names registered during the year are indexed under "Names, New Trade," as are also the names of companies registered, authors of patents, and cases of bankruptcy. Moreover, as we pointed out last week, we have been at some pains to differentiate between the various items under a given heading, as witness the entries under "Blisters on Bromides," "Developer, Developing, and Development," "Reflex Cameras," and "Shutters," to take a few at random. It will be seen from the few cases in which there are a number of references to one item to what degree of thoroughness this process

of identification of each entry has been carried out—at what labour we leave the reader to conjecture.

\* \* \*

### The Making of an Index.

We may be excused for pointing out one or two rules which an indexer needs to adhere to, and a user of the index to bear in mind in looking up an item. An important one is to bring all the items on a given subject under one heading, and to attach cross references to this main section to any others which cannot be brought readily into line. Thus "Screen Plate Colour Processes" are indexed as "Colour Photography—Screen Plate" in the main section, and separate references attached to entries such as Omnicolore, Warner-Powrie, etc. On the other hand, where the sub-division of a subject turns out to be larger than the subject itself, a separate series of items is transferred to another part of the index. This has been done in the case of "Cameras, Reflex," which are found under "Reflex Cameras," to the number of 46 entries. The reader will thus see that the guiding principle to the index is that of subject. The essential descriptive feature of an article or paragraph, such as "Plate," "Camera," "Lens," or "Developer," is that under which it should be looked for in the index. Thus "Eastman Ortho Plates" will be found under "Plates," not under "Eastman." In short, the entries in all cases fine down from the general to the particular.

\* \* \*

### An Index of Colour Photography.

We believe we are consulting our readers' wishes in issuing the separate index to the "Colour Photography" Supplement and incorporating with it the series of items from the "B.J." of 1907 relating to colour photography. The "Colour Photography" Supplement can thus be bound up as a separate publication if so desired, or may be separately collected at the end of the "B.J." volume. A chronology of colour patents having appeared in the course of the year, the "Colour Photography" Supplement will, we hope, be deserving of preserving for reference purposes.

\* \* \*

### Jarring Shutters.

A writer in a contemporary draws attention to the nuisance of a shutter that opens with a jerk and thereby shakes the camera, and, as an alternative to returning the shutter to the maker, suggests taking it to pieces to see what is required in the way of a little watchmaker's oil or scraping! Such advice may be very beneficial to the shutter-maker, but the person who adopts it is likely to regret his action. The little oil will probably upset the working of the shutter altogether, while the scraping will almost certainly be fatal, unless the operator is skilled in the mechanism of shutters. As a matter of fact, a shutter that jumps when it opens is defective in design. Jumping is not an acquired habit, but one peculiar to the design, which in some way or other offends against the laws of mechanics that govern shutter construction. If the defective shutter cannot be changed for one of better make the only effective remedy is to change the camera for a more rigid one. Shutters should always be tested for this defect of jarring before purchase, and the test can easily be made at the dealer's counter. Set the shutter to time, and lay it down on the counter. If this happens to be a glass case so much the better, for the test is then more delicate. Squeeze the bulb and so open the shutter, and note what happens. If the apparatus remains perfectly still it is unusually free from jar. If it moves very slowly and slightly there is not much

the matter with it, but if it gives a decided jerk it may be rejected without hesitation. We possess one shutter that under such a test turns half round, and frequently attempts a somersault. On any ordinary light camera this shutter is quite useless, but on a camera with a rigid front and mounted on a stiff tripod it is very serviceable. Its usefulness is, however, so limited that it is not a desirable instrument to possess. It may be as well to mention that a jerk at the end of the exposure, when the shutter closes, is of no moment. One at an earlier time is fatal, and the time setting is the one with which the defect is generally most noticeable.

\* \* \*

### A Strange Case of Reversal.

A very curious specimen of a reversed image has been submitted to us for an explanation of the probable cause of the effect. Unfortunately, however, we are no better able to give one than is the producer of the image. The original, as we are informed, was a rather thin negative, and the owner sought to improve it by intensification with mercury and ammonia. The result is not an intensified negative, but a fairly complete positive, the whole image being reversed with the exception of a small piece of sky seen between some trees. This is as seen by transmitted light. By reflected light it still has the appearance of a negative, whether examined from the back or the front. The appearance is somewhat curious, however the image is examined. By reflected light we see a black negative image on a brown ground, while by transmitted light the whites are white and translucent (not transparent) and the shadows are a deep bluish-black and nearly transparent. The silver deposit thus appears to be still existent in the lights, but to be of a white colour, while the gelatine of the lights seems to have been stained black. The suggestion, therefore, is that the ammonia solution failed to blacken the image completely, while a black stain of some kind was formed in the lights. No doubt there was an error in the procedure somewhere, but we are not able to point out where, as we have never before seen any effect of the kind. We may point out that when viewed as a transparency the positive image is a good one, full of detail. The opalescent whites suggest a backing of opal glass, while the unusual transparency of the shadows escapes notice. Indeed, the result is good enough to render the cause worth investigation, on the chance of finding a new and useful method of converting negatives into positives.

\* \* \*

### Early Photographs.

In view of the strange want of knowledge of the history of photography displayed recently by a "learned counsel," early specimens of photographs on paper are matters of great interest. Through the kindness of a friend, we have been afforded the opportunity of examining two very early specimens, dated 1847. These are Talbot-types tinted in water-colour. Both are very considerably faded, so much so that the photographic origin of one is barely traceable, and it now has more the appearance of a drawing in water-colour alone. The other, however, is still obviously a photograph. Each has an inscription in pencil: "Photograph. Gerethwohl and Tanner, 1847," and they were evidently made at or about the same time. The "touching-up" in ink, colour, and gum is rather crude, but it has saved the results as portraits. Without it they would probably have been unrecognisable by now, but with it they still form excellent portraits of the sitters. They are extremely interesting specimens of early work, and as they are highly valued by their owner, we trust that they will be carefully preserved for a very long time to come.



# A NEGLECTED METHOD OF MAKING LANTERN SLIDES.

In last week's article on the albumen process the preparation and sensitising of the plates were fully described. There are, however, one or two little points that may be added here. The silver bath, after a number of plates have been sensitised in it, will become discoloured, as does the bath employed for sensitising albumen paper. While the colouration is but slight it may be disregarded, but when the bath becomes deeply tinted it must be decolourised. That is done by shaking it up in the bottle with a little pure kaolin. After standing a few hours for the kaolin to subside, the clear portion is decanted off and filtered, when the bath will work as well as when it was first made. The kaolin may be left in the bottle and the solution returned to it each time after use. In this way the bath will be kept quite colourless. Those who make albumen plates for the first time will probably be surprised at their thinness; they are quite unlike gelatine plates, for the film is but very slightly opalescent. We mention this, as some may imagine that there was something wrong with their procedure.

When the coated plates have dried it is difficult to distinguish which is the coated side, and for that reason it is convenient to mark the back. This is best done, after the plate has been coated with the albumen, by attaching a small scrap of paper, using the albumen as a cement. If this is done the cement will be made insoluble when the plate goes into the silver bath, and the paper will remain firmly attached through the after operations.

With regard to the exposure required for albumen plates nothing definite can be said, as all must necessarily depend upon the character of the negative and its density, though with this process there is very considerable latitude; within wide limits errors may be remedied in the development. The process, as we have said, is a slow one, but as an approximate guide we may describe the sensitiveness of the plates as on a par with that of most gaslight papers. The majority of albumen lantern slides are made by contact printing, but they may also be made in the camera from larger negatives, and if a lens with large aperture be employed the exposure is not unduly long. The negatives best suited for albumen transparencies are those of a somewhat vigorous type, such as are best adapted for carbon or platinotype printing, though any kind may be utilised if the development of the image is modified to suit them.

There are several methods of developing the albumen image, all of which yield excellent results, and although the colour of the image, when developed according to some, may be different from that by others, yet all may be made pretty much the same in the toning.

The original method of working was with a saturated solution of gallic acid. The plate was placed on a leveling stand, and some of the solution, to which a few drops of a ten-grain solution of nitrate of silver had been added, was poured on and distributed with a glass rod or a camel-hair brush. By this method the development took a very long time, sometimes two or three hours, according to the temperature and the exposure the plate had received. The image obtained by this method was usually of a yellowish olive-green colour. In the more modern methods of working pyrogalllic acid is the developer employed, and it may be used in different ways, according to taste, yet the results are much the same in the end.

The following is a satisfactory and fairly rapid method of working. A stock silver solution is made as follows:—

Silver nitrate .....	50 grains.
Citric acid .....	50 grains.
Distilled water .....	10 ounces.

Another solution is made as under:—

Pyrogalllic acid .....	30 grains.
Water .....	10 ounces.

The plate is first flooded with water, to which a drop or two of the silver solution has been added. This is allowed to remain on for two or three minutes so as to thoroughly permeate the film, and then is drained off. A mixture of four or five drops of the acid silver solution, with one ounce of the pyro solution, is then poured on and allowed to rest for a minute or so, when, if the exposure has been rightly timed, the high lights should begin to show. The solution is poured off and on until the details are distinctly seen, though they will be thin and feeble by transmitted light. The developer is now poured off, about half a drachm of the silver solution added to it, and development continued until sufficient density is obtained, which should be in three or four minutes, or less, if the temperature is high and the plate has been very fully exposed. If the developer, during the time, becomes muddy, it should be thrown off, the plate slightly rinsed under the tap, and a fresh lot applied. Should the film show stains—as it may do if the development is much prolonged—it is of little consequence if the plate be immediately washed under the tap and the surface rubbed over with a pledget of cotton wool. On continuing the development with a fresh lot of solution, some pressure may be freely used, as there is little fear of the albumen film being injured; its hardness is such that a scrubbing-brush would do it little injury. In any case, it is well to rub over the surface of the film with cotton wool while under the tap before fixing. It may be as well to say here that the development should be stopped before quite sufficient density is obtained, as the image gains strength in the toning. The fixing-bath is:—

Hypo .....	5 ounces.
Water .....	20 ounces.

The plates fix quickly, and the fixing is complete when the opalescence disappears. The picture is then ready for toning. By this method of development the image obtained is of an olive-brown colour.

Another method of development is as follows: After exposure the plate is immersed in a dish of warm water at 90deg. to 100deg. F. It is then flooded with a three-grain solution of pyrogalllic acid, also warmed to a similar temperature. The image should almost immediately appear as quite a phantom one. From its appearance we may judge if the exposure has been rightly timed. If the image appears regularly, as in other processes with rightly-timed plates, it should be slightly rinsed and intensified with the following:—

Pyrogalllic acid .....	30 grains.
Citric acid .....	20 grains.
Water .....	10 ounces.

This is flowed on and off the plate for a minute or two, drained back into the measure, ten or a dozen drops of the silver solution added, and the mixture poured on and off until sufficient density is obtained. If the picture appears at all over-exposed, the silver should be the more liberally used; in the case of under-exposure it should be employed more sparingly. Should stains appear at any stage they should be dealt with as just described. The colour yielded by this method will be of a somewhat less olive tint than by the former one. If by chance by this latter method the high-lights should have a slight pinkish tint—due, most probably, to the plate and solution being made too warm—the fact is of little moment, as the stain will disappear in the toning.

After the pictures are developed and fixed they require to be toned to obtain a pleasing colour. The most satis-

factory bath for albumen transparencies is the hypo and gold bath, made as under:—

Water .....	10 ounces.
Hypo .....	2 ounces.
Chloride of gold (in one ounce of water) .....	4 grains.

After the hypo is dissolved the gold solution is added slowly and with vigorous stirring. The bath should be made about twelve hours before it is required for use. The solution may be used over and over again if more gold is added occasionally, according to the number of plates

toned in it. Indeed, it seems, up to a certain point, to improve by use. The toning is somewhat slow, taking, usually, twenty minutes to an hour or more, according to the temperature and the depth of tone desired. In toning the olive tint passes to a light warm brown, then a deeper brown, warm black, and if continued long enough (with a very strong image) to a purple-black. After toning the plate must be well washed, and is then finished. It will not require varnishing. If it is not convenient to tone the pictures directly they are fixed and washed, they may be allowed to dry, as they can be toned at any future time, when a number may be dealt with at a time.

## ENAMELLING GELATINE AND COLLODION PRINTS.

NOTWITHSTANDING that there has been a steadily increasing taste with the majority of the public for pictures with a matt surface, there is still a demand, among a certain proportion of it, for glazed prints. The fact is evidenced by the number of highly-glazed postcards one sees in the shop windows. If further evidence were required, it is supplied by the queries constantly addressed to us as to the method of enamelling photographs with a collodion surface. The following notes may therefore be of service to many more than those who seek assistance through the "Answers" columns.

### Cleaning and Polishing the Glass Plates.

In the first place some glass plates are required. They should be somewhat larger than the prints to be enamelled, and they must be free from scratches, as any deep ones would show in the finished pictures. The plates must be very thoroughly cleaned; but before that is done the edges should be roughened either by rubbing two together or, preferably, by a ragstone, or a corundum file. It is a good plan also to roughen the edge of the plates the eighth of an inch or so round the margin, as that will give a better hold to the collodion and prevent it springing off as it dries, should it be of a contractile nature. The glass, as just said, must be made thoroughly clean, otherwise the film will be liable to stick permanently. Whiting and water, or, better still, tripoli and methylated spirit are good cleansers, and are both to be applied after the plate has been well washed with soda and water, and rinsed. When the glass has been thoroughly cleaned and polished, it must be prepared so as to prevent the collodion film from permanently adhering. There are two methods of doing this. One is by waxing, and the other by treating it with French chalk.

For waxing the following solution is made:—

Pure beeswax (not white wax) .....	50 grains.
No. 1 benzole .....	10 ounces.

The whole of the wax will not dissolve and make a clear solution, but that is of little moment: the clear portion is decanted for use. A little of this is poured on the plate and well rubbed over with a piece of soft flannel. The surface is then polished with another piece of flannel, so that no streaks or markings can be seen, and the glass looks as if there were nothing upon it. The same pieces of flannel may be used over and over again; indeed, up to a point they improve by use, as they polish better than does the quite new material. Waxing the glass is certainly more trouble than treating it with French chalk, but some prefer it, as they think it yields a brighter surface to the print. If the French chalk be used, it should be dusted over the plate and then rubbed over with a piece of soft rag, with some pressure; the surplus is then dusted off with a broad camel-hair brush.

### Collodionising the Plate.

The plate is now ready for collodionising. A good enamelling collodion is made as under:—

Pyroxyline (not powdery) .....	100 to 120 grains.
Methylated spirit .....	10 ounces.
Ether .....	10 ounces.
Castor oil .....	4 or 5 drops.

The pyroxyline should be put into a bottle with the spirit, and well shaken before the ether is added; it then dissolves rapidly. When dissolved the castor oil is added. The collodion should be allowed to stand for a day or two for any undissolved particles to subside, when the clear portion can be decanted for use. Some pyroxilines yield a more viscous collodion than others; but if with the larger proportion, given above, it should prove too thick to flow freely over the plate, more ether and spirit can be added. Enamel collodion, ready for use, is supplied commercially at a low price, and many prefer to buy it rather than have the trouble of making it.

### Applying the Prints.

The plates, prepared as already directed, are coated in the usual manner, and when the collodion has very thoroughly set are put into a tray of cold water and allowed to remain, with occasional agitation, until all traces of the ether and alcohol are washed away. This may be known to be complete when the surface of the collodion ceases to appear greasy. We must now have ready the following gelatine solution:—

Nelson No. 1 photographic gelatine .....	1½ ounces.
Water .....	1 pint.

The gelatine should be soaked in the water (cold) until thoroughly softened, and then dissolved by heat. This, after straining through muslin, is put into a dish, which is placed in another containing hot water to keep it warm—about 120 deg. Fahr. The print to be enamelled is immersed face downward in this for a minute or two. The plate, after rinsing under the tap, is then slid, collodion side upwards, under the print, the two brought into contact, removed, and squeezed together. A piece of thin india-rubber cloth—that known as nursery sheeting is best—is laid over the plate so that the squeezing does not injure the collodion, as, if it did, it would have a tendency to split up before the print upon it were dry. If it is gelatine prints that have to be enamelled, they should, previously, be hardened, either by alum or formaline. Otherwise, with some papers, the warm gelatine may have a tendency to dissolve that of the print. The plate may now be put away to dry. When thoroughly dry, and not before, the print can be stripped off, and will have an exceedingly high gloss. Much of this, however,



may be lost in the mounting, if the print be put direct on the print. Therefore, it is better, after the plate and print has been exposed for an hour or so, to put another sheet of thick paper upon it. This paper should be soaked in the hot solution of collodion until it has fully expanded, and then be squeezed on the back of the print. In place of using plain paper for this purpose, thick double transfer paper, as used in the carbon process, is more convenient in use, as it requires only to be heated in warm water to be at once ready for squeegeeing upon the print. With small prints a number are, of course, put on the large plate, and a great saving of time thus effected.

**Trimming and Mounting.**

When the prints are stripped off the glass they are trimmed, and that is the more neatly done with one or other of the cutting machines now on the market. They are best attached to the mounts by a little glue applied just round the edges of the pictures. When the prints are stripped off, any collodion adherent to the glass should be scraped off with a knife, and the plates will then be ready for use again, simply by polishing with wax, rubbing them over with French chalk. Indeed, the more the plates are used, provided they are not wetted, the less waxing or rubbing they will require to prevent the collodion sticking.

**Enamelling with Celluloid.**

The above is the method most generally adopted, yet a far better way, and one that involves much less trouble, is to enamel with thin celluloid. This, however, requires a special, but not expensive, appliance, consisting of an iron slab, and a heavy iron roller, weighing from three-quarters of a hundredweight to a hundredweight, according to size, and some eight inches in diameter. The roller is heated, from the inside, by gas supplied by a flexible tube, and made as hot as the hand can well bear. The print to be enamelled is immersed, for a minute or so, in methylated spirit, drained, and laid, face upward, on the slab, with two or three thicknesses of blotting-paper below it, to absorb the superfluous spirit. A piece of the celluloid is then placed on it, and the heated roller passed slowly over it two or three times. The celluloid is thus caused to adhere firmly to the print. It will be seen that this system of enamelling involves far less trouble than that first described. It also has the advantage that the surface of the celluloid, being so much harder than that of collodion, is not so liable to become abraded by slight friction. Thin celluloid suitable for the purpose is sold in sheets 36 by 20 inches, and can, of course, be cut to any size.

WILLIAM MICHELL.

**A NEW MEANS OF SHARPENING CELESTIAL PHOTOGRAPHIC IMAGES.**

(A communication to the current issue of "Popular Astronomy.")

Among the many devices, combination of which has made possible the successful photographing here of Mars, enabling the canals of the planet to print their own record on the film, next to steadiness of air, the more vital than the approximate monochromatisation of the light, got by the use of a suitable colour screen placed in the cone of light before that reaches the sensitive plate. For by means of this device is attained the practical unity of focus essential to definition, was by application of the principle that Ritchey secured his excellent pictures of the moon which marked so great an advance in celestial photography, and a colour screen of much the same character was first employed here by Mr. Lampland in photographing Mars, specially designed by Mr. Wallace for the colour-curve of the planet.

The planet, however, is a much more difficult subject for photography than our satellite, inasmuch as the markings desired are of a finer texture. To reveal the canals involves the getting of a definition far surpassing that sufficient to make beautiful portraits of the moon; as the scale upon which the two pictures are made is not enough to show. Now several things militate against the obtaining of sharpness of delineation of the degree required for the registering of planetary detail. Chief, of course, is unsteadiness of the air, which rarely permits approach to perfection in the image. Next comes the chromatism of the telescope. While, lastly, linked for bad results with both, is the relative insensitiveness and granularity of the photographic plate. It is the latter's comparative slowness of action and coarseness of grain that renders the eye the more delicate instrument in decipherment of the sort. Nevertheless, owing to a suitable prolongation of the effect, and to the accentuation of contrast secured by the film, the camera has recently done some surprising work in the case of Mars in registering what, without its prompting, the eye had failed to detect.\* The main proposition, however, remains true. For accuracy of form in the Martian markings one must be recommended to the eye, for the finer detail comes out by flashes of prolonged exposure results only in a blur.

To reduce the time of action to its shortest compass is thus one of the essentials to success. On the other hand, to shorten the time to reduce the light, and a modicum of light is necessary to securing an image in which the finer detail shall show. Here again the plate is at a bar in the coarseness of its grain as compared with the

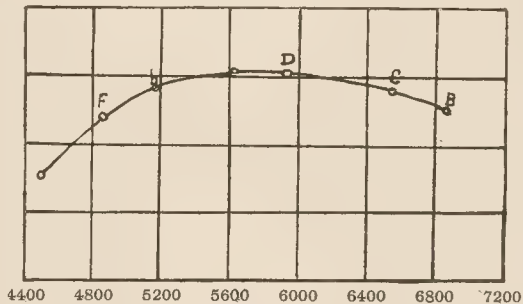
On one of my plates at this opposition a canal stood recorded where none had previously disclosed itself. On searching for it visually the next night, the canal was seen for the first time.

markings to be registered, since to magnify the image much is prohibitive to the getting of any revelation at all. What has been said will give some idea of the difficulties to be overcome.

It is evident, then, that two points must be assured. Enough light action on the one hand and approximate monochromatism on the other. To attain these two results has been one of Mr. Lampland's exhaustive studies in this field for the last four years. He has carefully tested all kinds of plates, and we have even gone so far as to try to get new plates made for us.

During this time Mr. V. M. Slipher had been engaged in experiments upon bathing plates for extension of action into red. His

COLOUR CURVE OF LOWELL REFRACTOR.



The ordinates represent focal distances in millimeters; the abscissae, wave lengths of the spectral rays.  
(Positions determined by Mr. V. M. Slipher.)

remarkable success led me to a new departure. Mr. Slipher's plates were for spectroscopic purposes, but in considering the colour-curve of the 24-inch objective, it occurred to me that another use might be made of them, to wit: that unity of focus might be more nearly approached without loss of light by bathing the plates in suitable solutions for prolongation of their sensitiveness into the red, and then cutting off the light of greater focal length toward the blue by a colour-screen specially contrived for the purpose. By previous colour-screens the light admitted had been made up of rays extending from wave-lengths  $\lambda = 4660$  or  $\lambda = 4700$  to the extreme limits red-wards

of the sensitive plate which in the case of unbathed plates stopped in the yellow; even Cramer's Instantaneous Isochromatic only going to  $\lambda = 6000$ .

Now, according to the colour-curve of the 24-inch objective, and for that of Clark's glasses generally, the light waves for  $\lambda = 4600$  are not brought to the same focus as those for  $\lambda = 6000$ , falling in the case of the 24-inch some 12-mm. beyond it. Light from them, therefore, is worse than useless in the formation of the image where form is what is sought. For though they add to the intensity, they detract from the definition. To secure the maximum effectiveness the problem consisted in integrating, as it were, the illumination within such limits as to give sufficient light with the least focal deviation between the different rays. Their intensities had to be summed, weighted for their respective focal lengths.

Investigation on my part indicated  $\lambda = 5000$  as the blue-ward limit of the light to be admitted to attain the best result. Accordingly I asked Mr. Wallace to construct for us both a solid and a liquid filter to cut off all the rays up to that point, which, with some difficulty for precision, he very successfully did.

The colour-curve of the objective is given in figure 1, the ordinates representing the focal length, the abscissæ the wave-lengths of the several spectral rays. It will first be noticed that F,  $\lambda = 4861$  and B,  $\lambda = 6875$  have the same focus, the result striven for by Clark in the grinding of the glass; and, secondly, that any light of less wave-length than F has a focus further out, increasingly so as the wave-length is decreased. Also that the curve is flatter, or in other words, the focal distances of neighbouring rays differ less from one another in the region of the yellow or about  $\lambda = 5600$  than in any other part of the spectrum. The nearer the rays to be used are, therefore, to this minimum focus the less the resulting image will be blurred, and especially must the rays at the blue end be excluded, as the focal curve falls much more rapidly on that side than on the red.

Turning now to the combination-bathed plates and selecting two, we perceive one bathed with pinaverdol and pinacyanol, the other with pinaverdol, pinacyanol and pinachrome (figure 2); that their curves of sensitiveness run approximately level from a minimum at about  $\lambda = 5000$  to  $\lambda = 6500$  and  $\lambda = 6800$  respectively, or in the case of the latter from about F to B, and of the former from F to C; both including far more of the red rays than the unbathed plates. By bathing, therefore, enough rays could be secured at the red end to offset the loss of light from cutting out those between  $\lambda = 4600$  and  $\lambda = 5000$ , and at the same time secure a less deviation in their integrated focal lengths. With the plate bathed in pinaverdol and pinacyanol, one should be able theoretically to obtain as much illumination as with an unbathed one, after cutting out all the rays below  $\lambda = 5000$  and, with a total deviation in the extreme focal lengths of only 4.4 mm. as against 12.4 mm., or but a third as much, not to mention the fact that in the unbathed the intensity of the out-of-focus rays is relatively much greater. The conception was theoretically sound; it only remained to see if it would work in practice.

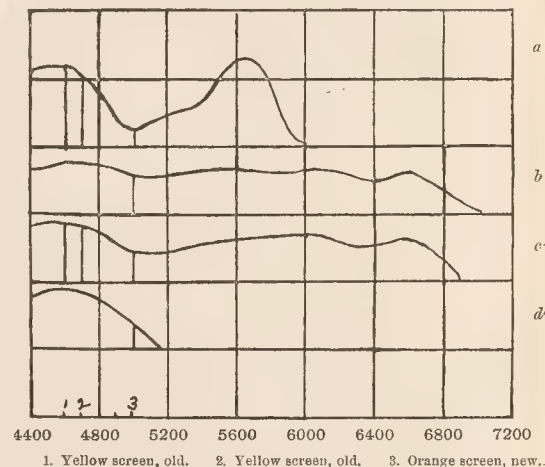
The screen was first tried on Seed "23" plates bathed in a solution of pinachrome and pinacyanol under Mr. Slipher's able manipulation, and then exposed by me at the telescope. Owing to the unavoidable introduction of other factors, increased length of exposure principally due to the relative slowness of the Seed "23" further accentuated by the bathing, the result was not successful, Mr. Slipher being of the opinion that the developer used, pyro, had some hand in the failure. Whatever the cause, desire to get photographs of the planet induced me to defer the experiment in this form, though I hope to take it up later. In the meantime I applied the device to Cramer's Instantaneous Isochromatic plates, and this time with success.

The curve of sensitiveness of the Isochromatic plates, Fig. 2, is peculiar. Though the plate is called the Isochromatic Instantaneous.

it is neither isochromatic nor instantaneous, and stands justified on its name only on the syllogistic ground that two negatives make an affirmative. But its very lack of isochromatism proved its salvation. For, in it we note two maxima, one about  $\lambda = 4600$  and another at  $\lambda = 5650$ : while a minimum exists at  $\lambda = 5000$ . The theoretical difference here, between the action of the two screens, is evident at a glance. The yellow or old one admits out-of-focus rays of theoretically great intensity between  $\lambda = 4600$  and  $\lambda = 5000$  which the orange screen at  $\lambda = 5000$  entirely cuts out.

Exposing a plate of this kind on Mars in our usual way—a method by which fifty or more images are taken consecutively on a single plate in a few minutes—I took half the number behind the old screen and then replacing it by the new one, took as many more, both sets being exposed equally, about two seconds being given to each image. The plate was then developed as a whole. The result stood self-

#### CURVES OF SENSITIVENESS OF PHOTOGRAPHIC PLATES.



- a. Cramer's Instantaneous Isochromatic.
- b. Seed 20 bathed with Pinaverdol and Pinacyanol.
- c. Seed 20 bathed with Pinachrome and Pinacyanol.
- d. Seed 20 unbathed.

Fig. 2.

confessed. The detail came out sharper in the images taken with the orange screen than with those taken with the yellow, although the images of the former were not quite so dense on the average, showing that in their case a slightly longer exposure would generally be necessary.

In order to be sure that the outcome was not due to change in the seeing during the interval, short as was the time between the first image and the last, I later exposed another plate in the same way, and to the like conclusion. The orange screen gave the sharper definition, while the exposure time for effect was about as 7 to 6.

The bettering of the image was much greater than I had anticipated, and than the spectrograms taken with the two colour-screens respectively, and here reproduced, would show. I regret that it is out of the question to reproduce satisfactorily the images showing the success of the theory, for the improvement, though evident in the original prints, loses too much in definition by reproduction processes.

This improvement has come too late to affect our results at the opposition, but I trust to put it in practice at the opposition of two years hence.

PERCIVAL LOWELL.

ROYAL ALBERT INSTITUTE, WINDSOR.—A photographic exhibition will be held in the above institute on February 19 and 20, 1908, under the patronage of T.R.H. the Prince and Princess Christian of Schleswig-Holstein, the Mayor of Windsor, Viscount Maitland, Sir Benjamin Stone, and other distinguished personages. There will

be both open and local classes for amateurs and professionals, in each of which (with the exception of one class) a bronze plaque will be placed at the disposal of the judges for award. Entry forms are now ready, and may be obtained from the secretary, Mr. J. W. Gooch, 9, High Street, Windsor.



## A NEW TYPE OF BRILLIANT FINDER.

[The following description of the new mirror-finder, designed by the inventor of the instrument appeared in *THE BRITISH JOURNAL OF PHOTOGRAPHY* for October 18 last, on the occasion of the publication from the inventor will perhaps better explain the advantages of the

INCITED by the frequent complaints of the ordinary finder in

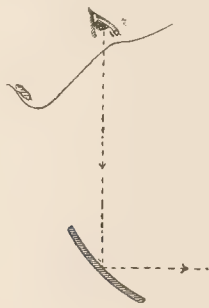


Fig. 1.

the autumn of 1906, I took up the question of making one on an entirely new principle, which should do away with all the disadvantages of the existing types.

The ordinary Newton finder (the direct vision concave lens—Eds. B.J.) is certainly satisfactory to a great extent, but the chief disadvantage is that the camera must be held level with the eye. Although this is undoubtedly the correct position, it is not a favourite one with amateurs for the reasons it is not comfortable

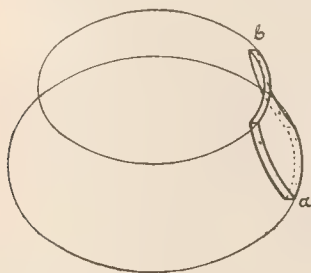


Fig. 2.

and renders it difficult to work unnoticed. The ideal finder for amateurs is one that can be looked down on.

A good finder should fulfil as far as possible the following requirements:—1. The image must be as large as possible and the right way round, not upside down or reversed. 2. The finder must be free from troublesome reflections and be very brilliant, so that it can be used in the open in bright light, a point in which many brilliant finders fail.

The fulfilment of these conditions appeared to me to be most readily effected by means of a mirror. If a spherical concave mirror is placed in the line of sight (Fig. 1.) and looked in from above a bright, clear picture of an object is seen, which is, how-

ever, very badly distorted and reversed as regards right and left, as with all finders that are looked down on. I considered that the distortion could be cured by departing from the spherical form and the thought occurred to me to give it the form of a convex instead of a concave mirror across the meridian (paper) plane.

At the risk of being considered an absolutely empirical or rule-of-thumb worker, I may state that the first experiment was made

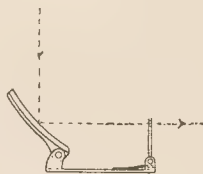


Fig. 3.

with a Benedictine bottle, the neck of which has something of the desired shape. The experiment was a complete success.

The surface of the finder-mirror must therefore have a double curvature, the so-called saddle surface, a shape which, so far as I know, has not been previously used in optics. There is no great difficulty in making such a surface. The desired surface is a section of a so-called "chamfer." (Fig. 2.)

In order to obviate the rather great distortion remaining, I gave the convex (side) curvatures different values in zones. This can be easily done by choosing a chamfer (Fig. 2), in which  $a$  has a greater diameter than  $b$ . Obviously, one can calculate mathematically the surfaces, so that every distortion would disappear. For photographic work the above method, however, is quite satisfactory.

The mirror surface of the new finder, "Sellar," is extremely interesting optically. It is hermaphrodite, in the direction of the line of sight it is concave, but at right-angles thereto convex. It

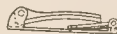


Fig. 4.

is impossible, therefore, to project an image by means of the finder on to a ground glass, as one would obtain instead of points image lines, and the latter, corresponding to the principal curvatures of the mirror, are partly real and partly virtual. When looked at the two constituent images merge into a single bright, clear image, in consequence of the slight accommodation of the eye.

The new finder, which has been introduced commercially by the Rathenower Optische Industrie-Anstalt, formerly Emil Busch, under the name of "Sellar" for the various foci and sizes of plates, is shown in Figs. 3 and 4. It takes up no more room than the usual concave finder. It may also be mentioned that the new finder and its various modifications have been protected in Germany and other countries.

K. MARTIN.

MR. WALTER POUNCY, of Dorchester, on Saturday last received a letter from Count Paul Wolff-Metternich, the German Ambassador, stating that the German Emperor had been graciously pleased to accept two large photographs of Corie Castle, which Mr. Pouncy had sent him, and conveying to him his Imperial Majesty's best thanks for the gift.

BLAIRGOWRIE PHOTOGRAPHIC ASSOCIATION.—At the last monthly meeting a very handsome volume, "Women Painters of the World,"

was presented to the Association by Mr. A. Geekie, Coupar Angus, the president, who was very cordially thanked. The result of the "Flower Study" competition was announced—1 and 2, W. D. M. Falconer; 3, D. G. Monair. A large number of prints were handed in for the "Figure Study" competition. An interesting manuscript magazine was submitted and read by Mr. L. Falconer, jun., the editor, and was favourably criticised.

## A SUGGESTED SYSTEM OF DEVELOPMENT.

HERR KÖNIGLICHER UNGARRISCHE SEKTIONS-RAT PAUL VON JOANOVICH, of Budapest, in the current number of the "Photographische Korrespondenz," makes the following statement as to his particular system of development. If borne out in practice his suggestions should certainly revolutionise our present methods of working.

Among other advantages claimed for the process are its rapidity and cheapness. Two tanks are used. One is filled with a solution of

I. Metol .....	5 gms.
Hydroquinone .....	5 gms.
Sodium sulphite .....	100 gms.
Water .....	1,000 ccs.

The other with

II. Potassium carbonate .....	100 gms.
Water .....	1,000 ccs.

Twelve plates, placed in a metal rack, are lowered into the tank containing Solution I., are moved up and down to dislodge any air-bells, and then left for thirty seconds. The rack is then removed and placed in the potash (II.) solution for 30 seconds, then instantly rinsed and fixed. Single plates may be treated in flat dishes in the same way.

As the plates are removed from the Solution I. after half a minute, only just the amount of the reducing solution which can be taken up by the gelatine in that time is used. This quantity is so small that when the plates are placed in II. solution, over-development cannot occur, and the silver bromide is reduced in proportion to the exposure. If the exposed particles of silver bromide are reduced, and the small

quantity of absorbed developing agent used up, the action stops, since there is no longer any reducing solution present. The unexposed parts are not affected in the presence of the minimum quantity of the reducing solution absorbed in the first tank. Fog cannot form, hard negatives are extremely rare, as this defect is mostly caused by prolonged treatment of the plate in the hope of developing the unexposed portions. As the developing solution is allowed to act equally over the whole plate, the more fully exposed parts are over-developed, or fog is caused. By the new method this danger is as good as excluded.

The cheapness of the process is due to the fact that the Solution I. can be repeatedly used, as the quantity of solution absorbed by the plates is very small.

Solution II. is the only one which suffers. After every fifth or sixth dozen plates a fresh solution must be made up.

Another advantage according to the author is that the process is purely mechanical. Control of the plates during development is not required, is, indeed, useless. (We would also add impossible.—Eds., "B.J."). What is exposed is promptly reduced. Thus the process is simple. Everyone able to follow the very simple directions can immediately develop with excellent results. The process should therefore appeal to beginners.

Another advantage claimed by the author is that on his system development can be carried out in total darkness.

It should be added that every developing agent, with the exception of amidol, which requires no alkali, can be used for this method. All alkalies, either carbonate or caustic, may be used.

## FLOWER PHOTOGRAPHY.

(The Abstract of a Paper read by Mr. E. Seymour before the Royal Photographic Society.)

MR. SEYMOUR said that in his little studio, which was a coach-house, he softened the light by means of art muslin. The width of the place was 4ft. 9in. He did not believe that it was necessary to work eight or nine feet away from the source of light, and all his studies were made within two feet of the glass. He had a packing case and a drawing board on which he arranged his studies. For backgrounds he used picture-framers' cards, choosing the shade according to the subject, so as to obviate hardness. He carried out the work of arrangement by means of wires and pins of various sizes. He fastened the flowers right on to the background, thereby giving them shadow and strength. The pins, even when liberally used, were not at all obtrusive in the resulting photograph. When seen, he said, they looked like dewdrops. He claimed that in some cases the pin or nail improved the result, a three-inch nail in a branch of apples study appearing like a bit of rugged bark. With pansies he used wires instead of pins. He did not often use vases as receptacles for the flowers, finding that they gave a top-heavy appearance to the arrangement. When he did use them he used also a lighter background, and tried, by keeping the vase in the shadow as much as possible, to make it merely an after-thought of the picture. In some cases he used scooped-out potatoes as receptacles for the flowers, and when tablecloths were needed to complete a study he used brown paper, which was cheap and effective, all the more so if it had previously been used for packing.

He used an ordinary studio camera and studio stand, and a whole-plate Goerz lens made to cover 12 x 10 by stopping down. His favourite plate was the Barnet orthochromatic, but he rarely used a screen. He was able so to select his colours that blue rarely came into his compositions, and therefore the main reason for the use of a screen disappeared. With regard to the exposure, if he found it necessary to give ten seconds for the white, he would give twenty seconds for the yellow, and, if bordering on orange or deep yellow,

forty seconds. In fact, he continually over-exposed, giving the yellow colours the opportunity, as it were, to fix themselves upon the plate. He admitted to a partiality for yellow flowers, which he photographed in preference to all others. In many cases, such as the poppy and other delicate blooms, the exposure needed to be fairly rapid in order to obviate difficulty arising from the movement of the flower and the curling of the leaves.

In development he used the "Imperial pyro-soda" formula, less the bromide, which he found clogged the shadows. His practice was to take three ounces of No. 1 to half an ounce or one ounce of No. 2. The secret of success in flower photography was to expose for the shadows and develop for the high-lights. Directly the highest light became sufficiently dense, so that the texture could just be seen, and the other high-lights were beginning to appear, he took the plate out of the developing bath, and put it into the hypo solution; there was no time for washing. If it had been under-developed he could always build up the image with mercuric iodide. Prolonged development would give him contrast, but at a sacrifice, for the succeeding half-tones following in the wake of the highest light, which was already dense, would join forces, as it were, to extinguish the detail in the high-lights, just where it was above all things needful in flower photography. He did not mind how flat the negative was, he could build it up as much as he pleased by intensification. But if development were allowed to go on in the ordinary way it meant the disappearance of texture and softness.

Proceeding to speak of composition, Mr. Seymour said that he first conceived an idea of what he wanted, and then made his subjects "go that way." He was at first in the habit of photographing his flowers as soon as possible after they were picked, but now he always picked them over-night, kept them in a cool place, and photographed them the next morning, when they showed up quite fresh, except dandelions, which were not amenable to that form of treatment.



He laid stress on the value of side-lighting. In some cases he turned his studies away from the light, at an angle of 45 degrees. Texture and light and shade were lost if the subject were too much to the light, while beautiful effects could be produced when the light just caught the tip of the flowers. He dwelt upon "the art of leaving out," and impressed upon his audience the necessity of judging the arrangement through the camera. Many studies, he said, appear to be beautiful to the eye, but, seen through the camera, were shown at once to be too crowded and lacking in simplicity to be effective as photographs.

He showed some excellent results in fruit photography, and said that the best tone value photograph he had ever produced was one of a bunch of black and green grapes, which was remarkable for the strong shadow and texture of the fruit. Grapes with much bloom were bad from a photographic point of view. Leaves often lent themselves to beautiful compositions, although as a general rule the aim should be to have the leaf noticed last of all. Raspberry leaves and the leaves of the pink American currant were particularly good. The structure of the leaf of the nettle was also very beautiful. It was Rodin who said that there was as much beauty in a leaf as there was in a mountain, if only we were able to see it. Mr. Seymour found it useful, just before exposing, to wet the green leaves with a sponge of cotton wool, the greens appearing much lighter when wet. One of the advantages of flower photography was that the artificial was often indistinguishable from the real, and on one occasion, wanting some flowers to complete a composition, and finding none available, he took some flowers from a picture hat, thereby making a very effective study. Mr. Seymour added that his best picture, which had been sold fifteen or twenty times over in the exhibitions, was a study of currants, and owed its arrangement to the suggestion of a friend. The arrangement displeased Mr. Seymour at first, but he ultimately decided to waste a plate upon it, with the above result. One of the flowers which gives hard prints, he said, was the dahlia, on account of the heavy shadows which it casts.

#### THE INTERNATIONAL PHOTOGRAPHIC EXHIBITION, DRESDEN, 1909.

In publishing the English version of the prospectus of the proposed International Exhibition of Photography, to be held in Dresden in 1909, we should mention some few of the names of those who have consented to serve on the Council of Organisation. Among the well-known Continental authorities who have thus given the exhibition their support are: Herren R. Dührkoop, Hugo Erfurth, Heinrich Ernemann, the well-known maker of cameras, C. P. Goerz, Fritz Hansen, and Franz Goeke, Ernst Juhl, Fritz Loescher, L. Mayerhofer, director of the Peütz plate factory, Dr. Adolf Miethe, Dr. Neuhaus, Dr. Schultz-Hencke, and A. Schwarz, of the Neue Photographische Gesellschaft.

The exhibition will have solely for its own purposes the large block of buildings erected by the Dresden Municipality, and including 1½ acres of covered space and 16 acres of grounds, where, from May to October, 1909, a collection of exhibits is to be brought together, which it is hoped will be thoroughly representative of the photographic art, science, and industry of all countries. We understand that in the sections devoted to the photographic trade competition for the awards will be between exhibitors of each separate country only, a policy which should relieve the management from the charge of favouring their own country above others.

The general offices of the exhibition, whence the prospectus may be obtained on addressing a postcard, are Hotel Stadt Berlin, 1 Neumarkt, Dresden, but we understand that Mr. E. O. Hoppe, F.R.P.S., of 10, Margravine Gardens, Baronscourt, London, W., has been appointed honorary secretary of the exhibition for England, and is prepared to deal with inquiries of a general nature and to refer them to the proper quarter in Dresden.

The following is the official prospectus of the exhibition:—

The International Photographic Exhibition, Dresden, 1909, is to be a collective representation of Photography in all its branches and in all civilised countries. It is proposed to show the evolution of Photography and its achievements in Art, Science, and Commerce, its technical application and its various branches.

To this end the following classes have been arranged:—

#### I.—EVOLUTION, SCIENCE, AND SPECIAL APPLICATION OF PHOTOGRAPHY.

- (a) History of Photography.
- (b) Colleges for Photography.
- (c) Photographic Literature.
- (d) Scientific Photography.
  1. Astronomical Photography.
  2. Meteorological Photography.
  3. Botanical Photography.
  4. Zoological Photography.
  5. Anthropological Photography.
  6. Pathological Photography (including Röntgen Ray Photography in Medicine).
  7. Photography for Mineralogical and Geological Purposes.
  8. Balloon Photography.
9. Photogrammetry (including Architectural and Geometrical Photography).
10. Photography in Museums and Libraries.
11. Photography in Government, Administration of Justice, Trade and Public Committees.
12. Photography in Physics.
13. Photography in Chemistry.
14. Photography in Scientific Research and Experiments.
- (e) Ethnological Photography.
- (f) Entertainment and Instruction by Photography.
- (g) Colour Photography.

#### II.—COMMERCIAL PHOTOGRAPHY.

- (a) Professional Photography.
- (b) Photographic Reproduction Processes.

#### III.—AMATEUR PHOTOGRAPHY.

#### IV.—PHOTOGRAPHIC INDUSTRY.

##### I a.—HISTORY OF PHOTOGRAPHY.

This class will be divided into:

- (a) History of Pictorial Photography.
- (b) History of Technical Photography.

It is proposed to show as far as possible everything which has played an important part in the invention and evolution of photography. The pictures will be shown in chronological order, when possible with particulars as to authorship, the year of production and the process employed. Where it is thought of importance a short biographical note of the author will be given, with account of what practical value his work has been to the development of photography, and its relation to later improvements.

In a separate sub-division there will be a portrait gallery of those whose work and investigation have been of special value, possibly with particulars of their work. Also all available documents, manuscripts, and letters in any way relating to the history of photography, will be included here.

There will further be a special class to demonstrate the evolution and extension of photography as applied to technical, artistic, and scientific purposes, and the revolution photography has brought into the technique of pictorial reproduction, together with its influence on various departments of civilisation.

Under the history of technique will be shown all appliances, lenses, apparatus, and other articles used at any time for photography, in chronological order. The objects will have the names of the authors, the year of production, and all further particulars attached.

Illustrations of the history of photographic industry will be found here, such as photographs of the making of the camera, of the manufacture of lenses, of the production of plates and papers, the way in which the technical articles were first used, and their development from simple handiworks into objects of wholesale manufacture.

Under this class will also come statistics and all particulars of the national domestic importance of photography and the industries connected with it, with reviews of its present strength and standard professionally.

This class will be thoroughly international—that is to say, it will not be separated into different countries; only chronological order will be maintained. It may possibly be divided into periods. All objects shown under History must have been in existence for at least five years.

Trophies will be given.

##### 1b.—COLLEGES FOR PHOTOGRAPHY.

In this division will be exhibited the arrangements, appliances, and working methods of existing schools and colleges, with particulars of their different aims and degrees of success. It will be a means of comparing what has been achieved in the way of photographic instruction and showing how it is done.

A special division will contain testing apparatus for lenses, plates,

and papers, with method of employment, and the arrangement of photographic laboratories.

This class will be divided into countries.

Trophies at the discretion of the jury.

#### I c.—PHOTOGRAPHIC LITERATURE.

There will be no sub-divisions in this class, except as to languages. It will take the form of a library and reading-room, furnished with all writing requisites. All books and periodicals relating to photography, or any branches connected with photography, will be admitted.

Trophies at the discretion of the jury.

Class prize: Plaques for special merit.

#### I d.—SCIENTIFIC PHOTOGRAPHY.

This class will be divided in the manner before stated.

Further classes may be added.

The arrangement of these classes is international. The whole Scientific Division is to give a complete survey of the employments photography finds for scientific purposes. No special qualities will be demanded in the pictures, but they must show the object depicted in a clear and correct manner; they must also be technically perfect. Details as to object photographed, purpose of picture, and its relation to science, and, where feasible, manner of taking, apparatus used, etc., should be given.

The classes will be again sub-divided, so that each part will afford a general view of the whole of that branch. In such a division there can be shown special apparatus and expedients used, so long as they are not objects of industrial produce.

Trophies.

#### I e.—ETHNOLOGICAL PHOTOGRAPHY.

In this division all the larger countries of the world are to exhibit their particular beauties in nature and art, or the characteristic features of their people and land. The colonies should, for the time being, incorporate themselves with their mother-country, so that this exhibition, which is to be in the principal hall of the Exhibition Buildings, will afford a view of the beauties and characteristics of the nations of the whole world.

Naturally only a rough idea of the countries will be obtained in this way, but, all the same, it should prove instructive to the public in general, and reveal fresh fields of interest to the large proportion of travellers who visit Dresden.

A few objects relating to the art and ethnography of the different nations are to be depicted here to complete the picture. The whole is to form the great central point of the Exhibition, to emphasise the internationality of its character and to show the sphere of representation from which the various classes are made.

#### I f.—ENTERTAINMENT AND INSTRUCTION BY PHOTOGRAPHY.

This class will be divided into:—

Stereoscopic Photography.	The Optical Lantern.
Cinematography.	Methods of Photographic Instruction.

Each division will be sub-divided according to countries. Pictures and all kinds of apparatus, light arrangements, etc., relating to any of the above branches, will be shown. It is intended to fit up stereoscopic panoramas, revolving stereoscopes, and to give lantern lectures, cinematographic displays, etc.

It is proposed to show here to what extent photography is used for instruction in schools, etc.

It has further been arranged that regular lectures shall be given in the separate divisions of the Exhibitions, such as portraiture, astronomical photography, etc., with practical demonstrations.

Trophies at the discretion of the jury.

Class Prizes: Diplomas for gold and silver medals.

#### I g.—COLOUR PHOTOGRAPHY.

This class will be divided into countries. It is proposed to show here everything of practical importance in the employment of colour photography. The pictures will not be judged as to artistic merit, but they must be the sole work of the exhibitor, and produced by photographic means. Details must be supplied as to technique employed. Unlike in the other divisions, apparatus and appliances

of colour photography may be shown at the same time. Demonstrations of the various colour-processes may possibly be given.

Trophies.

#### II a.—PROFESSIONAL PHOTOGRAPHY.

This class is divided into:

Portraits.	Landscapes.
Groups and Genre-pictures.	Technical Photography.

A division into countries, towns, and, if advisable, societies will be made. Pictorial merit will be demanded in the pictures shown, and a jury will be appointed for judgment. Only those using photography as a profession will be eligible in this class. The method of production is optional, but prints should not be smaller than half-plate size, and must be the sole work of the exhibitor, or emanating from his or her studio. All pictures must be sent in framed.

In the technical division prints of a commercial and technical character, such as photographs of machinery, or for posters, calendars, decorative purposes, etc., will be exhibited. Also in these pictures a certain standard of artistic merit will be demanded in so far as compatible with the nature of the photograph. The object of this class, as a whole, will be to show the present-day standard of professional photography in portraiture, landscape, or illustration.

Trophies.

Diplomas for gold and silver medals.

Placing "hors de concours" by the jury will be the highest distinction in this class.

#### II b.—PHOTOGRAPHIC REPRODUCTION PROCESSES.

The following divisions will be made:—

(a) Direct Photographic Reproduction (including rotary printing, pictorial postcard printing, photographic ceramics, etc.).	(b) Indirect Photographic Reproduction (including photo mechanical processes, such as photogravure, half-tone, and block-making).
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This class will be divided into countries. Here are to be shown as far as possible not only the results of all different kinds of technics and processes in photography, but also their manner of employment, if feasible by the representation of the printing machines at work. The process of block-making in all its different stages, from the first taking of the photograph to the finished printed article, will be shown. All materials, machinery, raw products, papers, etc., used in the reproduction of a photograph will be included here.

Diplomas for gold and silver medals.

Trophies at the discretion of the jury.

#### III. AMATEUR PHOTOGRAPHY.

This class will be divided into:—

Portraiture.	Landscapes.
Groups and Genre Pictures.	

There will be sub-divisions into countries, towns, or societies. Pictorial merit will be demanded in the pictures shown, and a jury will be appointed for judgment. Only amateurs will be eligible. The method of production is optional, but prints smaller than half-plate should be avoided, and each picture must be the sole work of the exhibitor.

It is proposed to give in this class a comprehensive representation of what has been achieved by amateur photography. On account of the large number of productions in this field only the best can be admitted for exhibition.

Trophies at the discretion of the jury.

Class Prizes: Plaques.

#### IV.—PHOTOGRAPHIC INDUSTRY.

The following divisions will be made:—

Cameras and Lenses.	Photographic Papers.
Dry Plates and Films.	Photographic Apparatus.
Chemicals.	

The sub-divisions will be according to countries.

This class, which will probably be the largest in the Exhibition, will give a general idea of the industry photography has created. It is proposed to show here cameras, lenses, plates, etc., not only as finished articles, but also during the process of their manufacture from the raw products. These raw products will be displayed, and the machinery used in the manufacture of each article will be shown at work. There will be illustrations of the manufacture of lenses, the making of glass plates, machinery for preparing sensitive plates



and papers, and the exhibition of raw paper and other materials with demonstration of their process of making. Methods of artificial lighting, studio construction and arrangements will be exhibited.

This collection of articles of manufacture is to be on a larger scale than any hitherto made, at the same time it is not to simply consist of a meaningless heap of dry plates, printing paper, glasses and bottles, incomprehensible to the general public, but it is desired that the apparatus, lenses, etc., shall be shown opened out and in sections, the comparison of plates and papers exemplified by actual results; in short, each exhibitor should display his originality and make his exhibit as attractive and useful as possible. At the same time the Exhibition must not lose its collective character.

Each object must be manufactured by the exhibitor, or must be sold under his trade-mark.

Machinery for manufacture of objects for photography, equipments and appurtenances for photographic studios or businesses, and all kinds of frames may be exhibited here.

Trophies at the discretion of the jury.

Class Prizes: Diplomas for gold and silver medals.

### THE ROYAL PHOTOGRAPHIC SOCIETY. ATTENDANCE OF OFFICERS.

The following are the official figures of attendances of officers members of council and committeemen during 1907:—

#### ATTENDANCES OF OFFICERS, MEMBERS OF COUNCIL AND COMMITTEEMEN DURING 1907.

Council Meetings. Number of possible attendances	Committee Meetings. Number of possible attendances	Name.	Number of attendances at	
			Council Meetings.	Committee Meetings.
14	<i>Ex officio</i> all	J. C. S. Mummery, A.R.I.B.A. (President)	13	4
14	—	The Earl of Crawford, K.T., F.R.S.	—	—
14	—	Sir W. Abney, K.C.B., D.C.L., F.R.S.	—	—
14	2	Sir Joseph W. Swan, D.Sc., M.A., F.R.S.	—	—
14	4	Maj.-Gen. J. Waterhouse, I.A.	—	—
14	<i>Ex officio</i> all dealing with finance.	J. Sterry (Hon. Treasurer)	7	1
14	—	Francis Ince (Hon. Solicitor)	—	—
14	4	A. W. W. Bartlett	10	4
14	2	H. W. Bennett	7	—
14	4	Leslie E. Clift	11	4
8	2	Douglas English, M.A.	—	—
12	—	A. R. F. Evershed, M.R.C.S., L.R.C.P.	10	—
14	2	T. E. Freshwater, F.R.M.S.	11	1
14	—	John H. Gear	10	—
3	—	Sir W. J. Herschel, Bt.	—	—
14	4	E. T. Holding	11	1
14	3	F. Hollyer	8	—
14	—	Gen. Lindsay Johnson, M.A., M.D., B.Sc., F.R.C.S.	—	—
14	2	Rev. F. C. Lambert, M.A.	7	1
14	3	Furley Lewis	12	3
14	—	Ernest Marriage	10	—
12	—	Arthur Marshall, A.R.I.B.A.	1	—
12	2	C. E. K. Mees, D.Sc., F.C.S.	13	2
14	3	F. J. Mortimer	—	2
3	—	C. H. Oakden	2	—
12	1	C. Welborne Piner	11	1
14	4	E. Sanger Shepherd	11	1
3	—	C. Winthrop Somerville	1	—
14	—	John Spiller, F.I.C., F.C.S.	3	—
14	—	H. Snowden Ward	9	—
14	3	B. Gay Wilkinson	10	1

The following gentlemen are members of committees only. It should be understood that the attendances of members of the selecting and hanging committees at the New Gallery are not preserved.

Possible attendances.	Name.	Actual attendances.
2	Conrad Beck	2
2	T. Holas, F.I.C., F.C.S.	1
2	Geo. E. Brown, F.I.C.	1
2	A. Haddon	1
2	John Hodges	—
4	Chapman Jones	2
2	E. J. Wall	1

## Photo-Mechanical Notes.

### Photo-Mechanical Processes in Penrose's Annual.

A correspondent writes:—As one interested in process work for my livelihood, I may be allowed to add a few comments to the review of Mr. Gamble's wonderful annual in the "B.J." of December 13. If there is a photo-engraver anywhere who can go without the "Process Year-Book" he must be a funny fish, but there can hardly be many of him about. Photographers, too, may learn a lot as to the facilities at their disposal for the wholesale reproduction of their prints. But to come to my subject:—

There are sixty-eight specimens in colour, thirty-eight in three-colour, nineteen in two-colour, ten in four-colour, and one in six-colour, the last being a photo-lithograph.

There is also this year quite an exceptional list of contributors. Every notable authority upon process work or subjects allied to it appears to be gathered into Mr. Gamble's net. Of the sixty-five articles, no less than nineteen deal with colour-work. Probably the two most important articles in the book are the description of the Omnicolore plate by Alcide Duos du Hauron, and the description of the Warner-Powrie process by Mr. Powrie. He has well illustrated it, and included a very good reproduction of a negative and a positive by three-colour blocks. There is also a reproduction in the book of an Autochrome.

There are no photogravures this year, but three collotypes, one by a Continental firm and two by English firms. The Continental example is certainly far and away ahead of either of the English ones, and should spur our English collotype houses to greater endeavour if they are to equal the work that is being done abroad in this direction.

The chief feature of the whole volume is the attempt to use a paper which should be less uncomfortable than the usual glazed art paper. On the whole the experiment must be counted a success, for although some of the subjects are perhaps a little unsuitable, and appear to bear marks of less careful printing than is required under such exacting conditions, most of them are quite excellent. The half-tones on the text pages are particularly good. No doubt some of the engravers will be upset to think that their work does not show that brilliance and amount of detail that the glazed paper proof showed. Nevertheless, they will be foolish if they do not welcome such an innovation, as nothing has stood so much in the way of further progress of half-tone illustration as the implied necessity to use shiny-surfaced paper, and directly the publishers and public find that they can use something more pleasant there will be a still greater increase in the use of half-tone illustrations.

### FORTHCOMING EXHIBITIONS.

December 31, 1907, to January 4, 1908.—Wishaw Photographic Association. Sec., R. Telfer, 138, Glasgow Road, Wishaw, N.B.

1908.

January 14 to 28.—Glasgow Southern Photographic Association. Entries close January 4. Sec., W. Bryce, 29, Somerville Drive, Mount Florida, Glasgow.

January 30 to February 1.—Nelson Photographic Society. Entries close January 20. Sec., Henry H. Beetham, 98, Brunswick Street, Nelson, Lancs.

February 5 to 7.—Borough of Tynemouth Photographic Society. Entries close January 26. Sec., J. R. Johnston, 29, Drummond Terrace, North Shields.

February 15 to March 7.—Scottish National Salon. Entries close January 20. Sec., Frederick W. Kay, 183, Union Street, Aberdeen.

February 19 to 20.—Royal Albert Institute, Windsor. Entries close February 14. Sec., J. W. Gooch, 9, High Street, Windsor.

February 19 to 21.—Longton and District Photographic Society. Entries close February 8. Sec., T. Mottershead, 32, Stafford Street, Longton.

February 20 to 22.—South Manchester Photographic Society.

- Entries close February 5. Sec., M. W. Thompstone, 2, The Grove, Whitworth Park, Manchester.
- February 23 to March 2.—Birmingham Photographic Society. Entries close February 8. Sec., Lewis Lloyd, Church Road, Moseley, Birmingham.
- March 4 to 7.—Ilkeston Arts Club (Photographic Section). Sec., A. Smith, 11, Graham Street, Ilkeston.
- March 7 to 14.—Leicester and Leicestershire Photographic Society. Sec., Lewis Ough, F.C.S., Fernleigh, St. James's Road, Leicester.
- March 7 to 21.—South London Photographic Society. Sec., E. Pady, 260, Southampton Street, Camberwell, S.E.
- March 7 to 12.—Worthing Camera Club. Entries close February 29. Sec., Edmund F. H. Crouch, 11, South Street, Worthing.
- March 12 to 14.—Shropshire Camera Club. Entries close March 2. Sec., W. D. Haydon, The Schools, Shrewsbury.
- March 16 to 19.—Cripplegate Photographic Society. Sec., J. G. Denyer, 15, Ostade Road, Brixton Hill, S.W.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

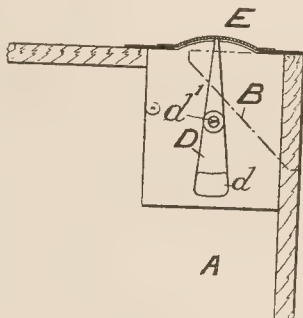
The following applications for patents have been received between December 4 and 19:—

- STEREOSCOPIC APPARATUS.—No. 27,331. Applications of stereoscopic vision to optical tubes and camera obscuras. Arthur Bernard Miall, 24, Bournevale Road, Streatham, London.
- SCREEN-PLATES.—No. 27,372. Improvements relating to screen-plates for colour photography. Ilford, Ltd., and Frank Forster Renwick, 8, Quality Court, Chancery Lane, London.
- VIGNETTING.—No. 27,419. Improved vignetting appliance for photographic printing. William Lawrence Parkinson, 15, Water Street, Liverpool.
- CAMERAS.—No. 27,588. Improvements in or connected with photographic cameras. Samuel Lowe, 139, Dale Street, Liverpool.
- MOUNTANT.—No. 27,594. Improved adhesive composition principally intended for use in mounting photographs and the like. George Wilson Morgan, 121, West George Street, Glasgow.
- LENSES.—No. 27,644. Improvements in and relating to objectives or lenses for photographic, stereoscopic and like apparatus. Luiz Auguste Teixeira De Aragao, 11, Southampton Buildings, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

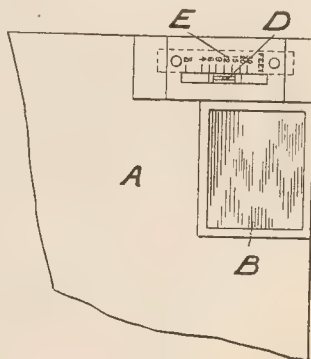
FINDERS.—No. 10,269, 1907. This invention relates to an improved device for finding or gauging the distance of an object for the purpose of photographing it. It refers to that type of distance



finder or gauge in which a plumb indicator is employed to indicate the distance on a scale. Such an indicator can be worked in combination with a view-finder without any sighting or levelling

tube or similar device, and can in consequence be affixed to the side of an ordinary camera or view-finder, and can be used therewith, and the distance for focussing determined while finding the view.

In carrying out the invention there is attached to the camera A on the side, or otherwise adjacent to the view-finder B, or attached to the view-finder B (or in any other suitable position) a plumb or gravity-indicating finger D weighted at  $d$  pivoted on a horizontal pin  $d^1$  with a scale E calibrated and inscribed with feet, yards, and other units of distance. The scale E is placed horizontally or approximately so with the finger D vertical. The



scale is preferably in the same plane as the surface of the view-finder or slightly curved as shown.

The plumb indicating finger D is set in such a position relative to the view-finder or to an index line or point inscribed on the finder that when the ground line of the image is brought to coincide with the edge of the finder or with the index line or point thereon the pointer of the plumb indicator or finger indicates on the scale the distance of the object away.

By recording on the scale the amount of tilt given to the camera the meter can be utilised to indicate the amount of swing back necessary to preserve the perpendicularity of vertical lines in architectural subjects. This can be carried out by engraving or fixing a double scale. The Thornton-Pickard Manufacturing Co., Ltd., Altrincham, and William Booth, 160, Church Street, Eccles.

PHOTOMETERS.—No. 19,768, 1907. The invention relates to means for rapidly indicating the intensity of light, especially for the purpose of determining the required time of exposure of a photographic plate or film. In the present invention use is made of the well-known fact that the diameter of the pupil of the human eye rapidly changes according to the intensity of the light.

In the drawing are shown two forms of apparatus embodying the invention. Fig. 1 is a perspective view of one form of

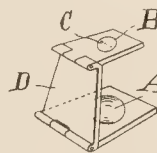


Fig. 1.

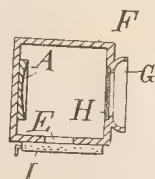


Fig. 2.

apparatus, and Fig. 2 is a section through another form of apparatus.

A is a mirror and B a lens, preferably a plano-convex lens, having its plane face turned upwards. On the upper face of the lens a scale C is marked on the glass. The mirror and the lens are mounted in the two parallel plates of a folding frame D, as shown in Fig. 1. When in use the eye is held close to the lens B and the enlarged image of the pupil and the scale will then be seen in the



mirror, and the diameter of the pupil can thus be directly measured. A table for calculating the time of exposure for a certain sort of plate or other body having a sensitised surface and a certain size of aperture may be attached to the frame.

The device shown in Fig. 2 consists of a box F, which is closed so that no light can enter it except through the eyehole C; closed by a glass plate H, or through the opening E, which may be more or less or wholly closed by means of a diaphragm I (for instance an iris diaphragm). When the device is held tight up to the eye no light can therefore reach the eye as long as the diaphragm I is wholly closed. The pupil will then assume its largest size. On gradually opening the diaphragm I, light will be admitted to the box and the pupil will successively become smaller, and this alteration in size can be observed in the mirror A. On the glass H are provided two marks, and when the pupil is of a diameter equal to the distance between these marks, the size of the opening of the diaphragm will indicate the intensity of the light. As will be seen, this method is an indirect way of measuring the size of the pupil. Haakon Bryhni, Börsen, Drontheim, Norway.

## New Trade Names.

**FEROL.**—No. 297,353. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Charles Francis Dautreband, 117, Pitt Street, Sydney, New South Wales, Australia, manufacturer. October 23, 1907.

**EURYSTIGMAT.**—No. 297,772. Photographic lenses. The London Stereoscopic and Photographic Co., Ltd., 106 and 108, Regent Street, London, W., photographers, photographic apparatus dealers and opticians. November 7, 1907.

## Analecta.

### A New Print Washer.

A writer in the "Photographic News" remarks: Quite a new idea in print washing occurred to me the other day. Filling a large washing-basin with water, I placed the same on a turning-table of a gramophone. I secured to a wooden erection above a flat piece of wood about six inches wide, so that it remained in the water, nearly touching the inside bottom of the basin. After the prints had been put into the water I set the machine in motion, and let it run itself out, the operation taking ten minutes. This I did several times, frequently changing the water. After the first revolution the prints remain against the piece of wood, so that there is a strong current of water rushing about them.

### Gaslight Photography.

I have now used gaslight (says a writer in the "Photographic Monthly") for portraiture, flower and still-life work, interiors, and copying. This last is somewhat more difficult to manage, for a strong top light is a disadvantage, but it is possible to obviate this by placing the object to be copied on steps, or something to raise it sufficiently high to have more front than top light. For portraiture I have found it answer excellently, except from a speed point of view, and this would be more difficult if children were the subjects, so that I would suggest any one wishing to take their portraits should take them while asleep, when, at least, they will not be following an overcrowded path, and many charming pictures should result. In taking adult portraits it is essential to provide the sitter with a comfortable chair, and some provision must be made for a head-rest, as very few people can keep absolutely still for even one minute, and the shortest exposure I have given so far is 1½ minutes. Even if they succeed in keeping still, it is more than likely they would wear rather an agonised expression. By using incandescent gas the exposure can be considerably shortened, particularly if you have at command a light arranged like a billiard-room light, with a large opal shade. With a sitter who has dark hair it is difficult to distinguish the outline of the head when the colour values approximate too closely.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

FRIDAY, DECEMBER 27.

Aberdeen Photographic Association. Association Portfolio and Criticism.

MONDAY, DECEMBER 30.

Searborough and District Photographic Society. Photography Prize Slides.

TUESDAY, DECEMBER 31.

Royal Photographic Society. No Meeting.

WEDNESDAY, JANUARY 1.

Borough Polytechnic Photographic Society. "The Camera as a Historian—County Record Work." Frank F. Wood.  
Mill Camera Club. "Autochromes." N. Fearnley.

THURSDAY, JANUARY 2.

Rodley, Farsley and Calverley District Photographic Society. Lantern Evening (Members' Slides).  
Hull Photographic Society. "Practical Re-touching." A. E. Matthews, J. W. Atkinson, and F. Wollons.  
Tunbridge Wells Amateur Photographic Association. "Photography of Marine Life." F. Martin Duncan.  
Balham Camera Club. "Rotary Carbograph Paper."

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—At a special general meeting, held on Monday, December 16, at the society's new headquarters, the South London Art Gallery, it was resolved to rescind the resolution to offer bronze plaques only at future exhibitions, which was passed at the last annual general meeting, and to now offer silver as well as bronze plaques in all classes. It is hoped that the awards offered, coupled with the fact that the exhibition will be held in a handsome and spacious Art Gallery, remaining open a fortnight, free of charge; in a densely populated district, will attract a large open entry.

## Commercial & Legal Intelligence.

**RAJAR (1907), LTD.**—Registered December 5: Capital £25,000, in £1 shares. Objects: To adopt an agreement with Rajar, Ltd., H. T. Parke and others, and to carry on the business of manufacturers of and dealers in photographic films, plates, cameras, apparatus, and materials, etc. No initial public issue.

**PHOTOGRAPHIC MATERIALS, LTD.**—The petition of the London Press Exchange, Ltd., for the compulsory winding-up of Photographic Materials, Ltd., was heard in the Chancery Division of the High Court of Justice, before Mr. Justice Parker on Tuesday.

Mr. Gordon Browne, K.C., for the petitioners, who are judgment creditors for £132, said they were supported by other unsecured creditors representing debts to the amount of £231. The Company was formed in 1905 to acquire a business which had been carried on by the Automatic Printing Syndicate, Ltd., and the purchase was effected through a third company, apparently formed for the purpose, and styled "Bertram and Egerton." The consideration was £1,500 in cash and £7,000 in shares. Debentures had been issued at various dates by Photographic Materials, Ltd., as security for debts the company owed—in one case £184 worth of debentures were issued to a creditor three days before the resolution to voluntarily wind up the company was passed. Counsel mentioned that the shareholders complained that the liquidator had sold the business without first consulting them. The petitioners' case was that the transactions relating to the original purchase, and certain dealings of the directors, required investigation.

Mr. Buckmaster, K.C., for the company, pointed out that the petitioner did not suggest that the receiver or liquidator had acted improperly, or that the recent sale of the company had been improperly effected. The petition appeared to have arisen from a feeling of pique that the receiver sold without consulting the creditors. Even assuming that the transaction relating to the issue

of debentures for £184 was a fraudulent preference, the granting of a compulsory order would not help the creditors—it was so long ago the order would not apply.

Mr. Justice Parker said this was one of those cases where it would be of no use to make an order, and therefore the petition failed. The petitioners must pay the costs of the voluntary liquidation.

Mr. Buckmaster: That in form is the costs of the company.

## News and Notes.

MR. TOM REVELEY has purchased the premises and business of Mr. Brewston, of Abingdon-on-Thames, who has occupied the same premises for more than forty years. Mr. Reveley is having the premises rebuilt absolutely, and a new studio of the most modern construction erected. Mr. Reveley believes that it will be as near perfection as possible, with natural backgrounds, such as open fireplace, casement windows, etc. The studio will probably be open soon after Christmas.

ELECTRICAL TRANSMISSION OF PHOTOGRAPHS.—A new method of electrical transmission of photographs, devised by S. Sivelli (writes "Electrical Engineering") is described in an article in "L'Elettricità." The sending apparatus consists of an ordinary photographic camera, in which the sensitive plate is replaced by a plate divided into a large number of small squares, each carrying a selenium cell connected to a constant source of E.M.F. A wire from each cell is taken to a contact-maker, which, when working, makes connection with each circuit in regular order, so that current impulses of varying strengths are sent corresponding to the amount of light falling on the cells. A synchronously moving apparatus forming a part of the receiving instrument causes a sort of pencil to traverse every part of a sheet of paper, and an electro-magnet is provided which causes the pressure of this pencil upon the paper to vary according to the current, so that a heavier line is produced at points corresponding to the selenium cells in the sending apparatus which have not been strongly illuminated.

NOTABLE PORTRAITURE.—MESSRS. Carl Zeiss send us a copy of "Deutsche Kunst und Dekoration," the November issue of which is of very special interest to photographers, as it contains a very fine collection of photographs by Nicola Perscheid, all of which have been produced with Zeiss lenses. The reproductions are excellent and are well worth possessing, while the publication as a whole affords a complete refutation of the idea that high-class anastigmatic lenses are unsuitable for artistic portraiture. Photography is perhaps the only art in which indifferent tools are assumed to be beneficial in the artistic sense. Such an absurd idea would be derided in any other art, and the fact that it is equally ridiculous when applied to photography is fully proved by a study of these productions of Herr Perscheid. The man of genius and ability cannot be provided with too good tools. With indifferent ones he is handicapped, and the results will often show that the tools have exercised more control over the work than the artist himself. Some of the portraits in this book are very striking productions, and a notable instance is the one of Karl Sarnprecht. In this the pose and composition are excellent, while the result conveys the impression that it must be a perfect likeness of the sitter. The portrait of Friedrich Paulsen is another fine example, and so also are those of Fritz Aug. von Kaulbach and Alexander Koch. Messrs. Carl Zeiss, of 29, Margaret Street, Regent Street, inform us that they have only a few copies of this work at their disposal. These, however, they will be pleased to lend to amateur or professional photographers, and we would strongly advise all interested in portraiture to either borrow one for inspection or to call at Margaret Street and see it. The number being very limited Messrs. Zeiss wish all copies to be returned as soon as possible after inspection.

R.P.S. FELLOWSHIP.—At the last Council meeting of the Royal Photographic Society six applications for admission to the Fellowship came before the members, and the following five candidates were admitted:—Mr. George Bankart, a well-known worker and

for many years a contributor to the pages of the "British Journal"; Mr. Henry J. Comley, secretary of the Society of Colour Photographers; Emil Otto Hoppe, an exponent of professional art portraiture in West Kensington; Mr. H. Armytage Sanders, head of the firm of Sanders and Crowhurst; and Mr. J. McIntosh, the hard working secretary of the R.P.S.

THE PHOTOGRAPH CURE.—Whenever an intoxicated man is conveyed to the Denver Police Station his photograph is taken, and the next morning he is shown how he looked the night before. The photograph cure, the police say, is accomplishing wonders.

THE "HOUGHTON" SMOKER.—Last Friday evening the spacious Georgian Hall of the Gaiety Restaurant was filled with the staff of Messrs. Houghtons Limited, and a goodly company it was which cheered to the echo an excellent musical programme provided by Mr. Phil Payne. Mr. Edgar Houghton occupied the chair, and was supported by Mr. George Houghton, Mr. G. A. Spratt, and other directors of Houghtons Limited. Among other prominent members of the wholesale and retail trade present were Messrs. F. Greenwood, H. C. Zerffi, Chas. Zimmermann, Austin Edwards, W. Winter, P. R. Staley, R. J. Kindon, W. A. Furze, J. W. P. Rawlins, W. Lashbrook, T. Foulks Winks, W. Robbins.

Towards the close of the proceedings, Mr. A. Horsley Hinton, in a few appropriate words, congratulated the firm of Houghtons Limited on the success of the function and on the prosperity which it expressed of the well-known British firm. Mr. Edgar Houghton, in responding, spoke of the loyal support which was contributed by every member of the staff. Mr. George Houghton also expressed the pleasure it gave him to meet his friends, old and new, and to watch the continuous progress of the firm with which he had been connected for so many years. A most enjoyable evening came to a conclusion shortly before midnight with vociferations of thanks to Mr. Phil Payne, the entrepreneur of the evening. Among the performers were:—Mr. Mansell Stevens, Miss Carrie Herwin, Miss Rita Bianchi, Miss Ruby Wilson, Miss Marie Schulz, Mr. Randall Jackson, Mr. Percy Watson, Mr. Harry Paul, Mr. Arthur Helmore, Mr. Charles Wreford Graham, Mr. Will Edwards, Mr. Wilson James, Mr. George Blackmore.

CINEMATOGRAPHS NOT A STAGE PLAY.—Although no legal weight can be attached to the incident, a recent ruling of the Lord Chamberlain calls for mention. "Christmastide," which was to have been produced by the New Bioscope Company, by arrangement with Messrs. Jerrard Grant Allen and Jerrold Robertshaw, at the New Theatre, last week, has been banned by the Lord Chamberlain. The performance was to have consisted of three pantomimes in pictures—"The Forty Thieves," "Cinderella," and "Blue Beard"—and a pictorial representation of the origin of Christmas, illustrating the Birth, Childhood, Passion, and Death of Christ. Besides the pictures, "The Fairy Uncle," an adaptation of Tom Gallon's "Christmas Story," and Mr. Barclay Gammon's entertainment were to have been given. But all has now been knocked on the head; there will be no "Christmastide" at the New Theatre. On learning of the Lord Chamberlain's intervention, a representative of the "Pall Mall Gazette" called at the office of the New Bioscope Company to ascertain the reason. "It is because," a representative of the company stated, "the Lord Chamberlain does not consider moving pictures to be a stage play." It was added that it was thought that all difficulty had been overcome by the inclusion in the entertainment of the little play "The Fairy Uncle," that has already been produced at the New Theatre. But the Lord Chamberlain, it seems, is not to be moved from his decision. Whilst the Lord Chamberlain's ban thus prevails in London, it is curious to note that the New Bioscope Company are giving similar entertainments to that proposed for the New Theatre in the provinces. "Indeed," it was stated, "there is a growing demand for pantomimes in pictures. Instead of taking a whole company round for the production, all that is now required is one man with pictures that can be carried in the hand."

A DISPLAY IDEA.—A local dentist—and dentists' cases are much like those of the photographer—has (writes "Camera Craft") a very effective display that gives what seems to be a good idea for the maker of portraits by photography. The entire case is lined with a soft



surface black paper, as is also the front glass, with the exception of an oval opening near the centre. Just back of this opening is supported one of those enlarged models of a tooth about five inches in height, with several gold fillings clearly shown. The effect is very striking, and if the photographer will substitute a neat little medalion in a gold or silver frame the effect would be even better. The general public can be advised that the steal is from the dental profession, and this will, perhaps, stimulate their ingenuity of mind to invent new variations of the alleged dental-chair joke.

## Correspondence.

- \**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \**We do not undertake responsibility for the opinions expressed by our correspondents.*

### ARTIFICIAL LIGHT PHOTOGRAPHY.

To the Editors.

Gentlemen,—Mr. G. R. Henderson's letter in your issue of December 6 contains so many misleading statements referring to arc lamps that, as makers of the Jandus photo-lamp, we should be obliged if you would give us space to answer his statements.

The failure of eight arc lamps on Mr. Henderson's visit would be in no way due to the lamps. Even from Mr. Henderson's statement, any electrician would see at once that the trouble was due to the electric fuses, which are used for both mercury-vapour and arc lamps, and a failure of these would have put mercury-vapour lamps out of action for the time being.

Mr. Henderson also implies that no heat appears in using the mercury-vapour lamp. Baron von Hübl, from whom Mr. Henderson quotes, says:—"Compared with the carbon arc the light is weak, and consequently the heat is small, so that the printing-frames can be placed very close." We need hardly point out that if one wishes for still less heat and a still weaker light the familiar candle will answer all requirements, but we hardly think this would be considered by an up-to-date photographer.

Baron von Hübl further says, in page 886 of the "British Journal":—"The disadvantages of the mercury-vapour lamp are its fragility and the impossibility of increasing the illumination—that is, reducing the time of printing by reduction of the distance, as with other arc lamps." The crux of the question lies in the printing time of any given source of light when the frames are placed at a sufficient distance to prevent any bad effects whatever from heat.

We have repeatedly demonstrated the capacity of the Jandus arc in this respect.

With reference to the exposure of six seconds with a stop of  $f/6$  on a special rapid plate, we would refer readers to page 886 of the "British Journal," where Messrs. Houghtons Ltd. illustrate a photograph taken by the Jandus arc lamp, medium size only, special rapid plate, stop  $f/5.6$ , exposure *half to two seconds*. This was taken on an alternating electric circuit, a circuit on which mercury-vapour lamps will not burn at all.

We do not quarrel with the photographer who considers the mercury-vapour nearer to daylight than any other, although he has not yet used an arc lamp. We claim that the Jandus lamp is, for photography, far better than daylight, and we have many letters from actual users that confirm this.

We believe that it is important for the profession to adopt artificial lighting as extensively as possible, so that the public may be impressed with the fact that they can have their photographs taken at any time, and on any day. Postponement of the visit to a photographer on a dull day often means a total loss of the order. We think that the thorough appreciation of the public that their portraits can be taken whenever they wish without the necessity of a previous appointment, will not only result in great benefit to the photographic profession, but incidentally to,—Yours very faithfully,

THE JANDUS ARC LAMP AND ELECTRIC CO., LTD.

A. DENMAN JONES, Works Manager.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

J. Giles, 45, London Road, West Croydon. Photograph of Mr. F. Anson as "The Iron Mask."

INQUIRER.—If your arrangement was in writing, and was stamped at the time with a sixpenny stamp, you can make a pretty good claim for the money; otherwise we do not advise you to take any action.

LONG-FOCUS LENSES.—With regard to the article on page 934 of this week's issue on the use of long-focus lenses in small cameras, will you kindly enlighten me on the following point? In the latter part of this article it is stated that in using a large aperture lens with rather a wide angle, the centre of the plate would be more exposed than the margins. I should like to know if these remarks apply to such a lens when used with the size plate for which it is listed. I ask this, because recently I purchased a lens of an anastigmatic type which has not been long on the market, and the results have not yet been to my satisfaction, but the photographs seem similarly affected, as described in your article. Awaiting the favour of your remarks,—W. J. Howe.

Our remarks apply to all lenses of big aperture that are not specially designed for wide-angle work. To get fairly even illumination the lens should "cover" a very much larger plate than that for which it is listed. Different makers describe the behaviour of their lenses in differing fashions. Some understate the size that it will cover, so as to ensure the lens being used to the best advantage, while others do not take this precaution.

BROKEN NEGATIVES.—A little while ago I sent three half-plate negatives to have enlargements made from them. These came all right, but a few days after the negatives were returned broken in several pieces. I did not take the parcel in myself, and the railway book was signed in the usual way. When I took the box in my hand I heard the broken glass rattling inside, and when I opened it I found, as I expected, the negatives smashed. I immediately wrote to the enlarging people making a claim, which they repudiated, saying the negatives were carefully packed (and they seemed to have been, but the wooden box was broken), and that they were not liable for damage in transit, and that I must claim from the railway company. I have written them, and they reply that as the package was received and signed for, which implied that it was received in good condition, they are not liable, and that as more than a week had elapsed from the time of its receipt they cannot entertain any claim for compensation. How am I to act, as the negatives were valuable ones?—J. B. B.

Under the circumstances we are afraid you will not be able to obtain any compensation for the damage. Most enlargers state on their price lists that they do not hold themselves liable for damage in transit, which relieves them, seeing that the negatives were carefully packed. On the other hand the parcel was received and signed for without comment, which implies

that it was received in good condition. What your representative should have done, seeing that the box was broken, was to have called the carman's attention to it, and opened it in his presence, and then signed the book as received damaged, or not to have received it at all. Then the railway company could not have denied responsibility.

**CONDENSED MOISTURE ON LANTERN SLIDES.**—Whenever I show my slides in the lantern to a few friends, I am always annoyed by their becoming dimmed by moisture settling on the glasses. Sometimes it is on the condensers, sometimes on the slides, and sometimes on both. I do not often notice this in public lantern shows. Will you kindly say how the trouble may be avoided? Thanking you in anticipation.—**GEO. THORNE.**

The trouble may be entirely avoided, or at least greatly mitigated, in this way: Before the display the condensers should be put in front of the fire so that they may gradually become quite warm: that will prevent the moisture condensing upon them when in use. The slides should be dealt with in the same way, and kept warm until they are put into the lantern.

**YELLOW STAINS.**—I printed some three or four dozen postcards with masked borders, intending to use them as Christmas and New Year cards, but they are all more or less stained in yellow patches, like the three I send herewith, and, of course, they are useless. Will you be good enough to inform me, through the "Journal," what is the cause, and how the trouble is to be avoided in the future? I do not think it can be in the fixing, as I used a bath made as follows:—Hypo three ounces, water twenty ounces, and kept them in for eight minutes, and then thoroughly washed for an hour.—**T. PERRY.**

The cause of the stains is not far to seek. It is imperfect fixation. The prints were not kept moving while they were in the fixing solution, consequently it had not free action equally all over. Some were allowed to stick together, as shown by the sharp outline in two of the pictures. The avoidance of the trouble is obvious. We may say that eight minutes' immersion in a solution of the strength mentioned is scarcely sufficient with thick postcards, if many are put in at a time.

**STUDIO QUERY.**—In the spring I propose putting up a studio in my garden for professional purposes. I am a stationer, and intend adding photographs to the business. The studio will be 20ft. by 10ft., and will be 3ft. from the back of the house, being connected by a light covered way. What I want to know is, if the local council can at all interfere with my doing so. I may mention that two or three years ago they did with another person, and made him put up quite a different thing from what he intended to do; but his was on leasehold property, while mine is my own freehold. I shall call the building a conservatory, and that, I fancy, will avoid the building laws. Any advice will be thankfully received.—**BUCKS.**

We do not know the building by-laws of your district, and they vary in different districts. Whether you call your proposed building a conservatory or a photographic studio, it is still the same building, and will come within the same by-laws, whatever they may be. The fact that your premises are freehold while the other man's were leasehold makes no difference. We should say that your best way will be to get out plans of what you propose to do, and then submit them to the local surveyor for his opinion. We may add that a studio of the size you mention is small for professional work.

**POWDERED BITUMEN.**—Will you please tell me if powdered bitumen, as used by photo-engravers, is to be purchased anywhere? I have tried grinding it up in a mortar, but find it very troublesome, as I only want some for experimental purposes—graining copper plates.—**BITUMEN.**

Powdered bitumen, suitable for the purpose, is supplied by Messrs. Penrose and Co., Farringdon Road; also by Mawson and Swan, Soho Square, London, W.

**SPOTTY PRINTS.**—Can you please tell us the cause of the spots on the enclosed prints? We have had several returned by customers like these that have only been done a few weeks. Every care is taken in the washing of the prints, so that cannot be the cause.

We have seen the spots make their appearance after they have only been mounted a week or so. It is only the mounted prints that go in this way. Unmounted ones, done at the same time, show no sign of spots, and for this reason we suspect the mounts to be the cause. We shall be extremely obliged if you will give us your opinion on the subject.—**QUANDARY.**

**T. McLEOD:**—You will find the formulae about which you inquire in the "Almanac," just issued. We cannot afford space to repeat them.

There is very little doubt that the spots are in no way due to the mounts. They are evidently caused by contact with deleterious matters, such as dust, while they are in a wet or moist condition, probably while they are drying after mounting. Most of the spots have a nucleus which can be rubbed off. The dust of photographic work-rooms is usually of a very deleterious nature, being largely composed of particles of hypo, developing agents, and the like. Dust from coke stoves would be likely to produce spots similar to those on the prints sent.

**THE POISONS ACT.**—I am a photographer here, and also work for amateurs, as well as supply them with apparatus and chemicals. Amongst the latter I supply an intensifier, one of which contains bichloride of mercury. I have been told by a chemist here, who also supplies photographic chemicals, that I am liable to a penalty for supplying this one, as I am not a pharmaceutical chemist, and the bichloride of mercury is a scheduled poison, and cannot be sold by me. Will you be good enough to tell me if this is the case, and, if so, whether, if I labelled this solution "Poison," I could still sell it?—**COUNTRY DEALER.**

According to the Poisons Act, no one, except a pharmaceutical chemist, is permitted to sell any of the poisons mentioned in the schedule, and bichloride of mercury is one of them. To label the bottles "Poison" will not exempt you.

**DIRECT CARBON ENLARGEMENTS.**—Will you please tell me if it is possible to make enlargements direct from the negative on ordinary carbon tissue, say, from quarter-plate to 15 x 12? I have one of —'s enlargement lanterns, with oil lamp. I know that is of no use, but a friend will lend me an arc lamp, which I can easily fit to it. What I want to know is, if I fit that and give a fairly long exposure, shall I get a good result? Also, if I sensitise the tissue in a 6 or 7 per cent. solution instead of the usual 3½ per cent. one, will that increase the sensitiveness?—**T. CONNOR.**

If the lamp is a focus-keeping one, so as to keep the arc always in the same position, you can make enlargements, supposing you give sufficient exposure. It will, however, have to be very prolonged. If it is a non-focus-keeping lamp you must not expect to get sharp results, as the point of light will alter its position during the necessarily long exposure. The sensitiveness of the tissue would be increased by using the stronger sensitising solution. If you desire to make carbon enlargements direct, why not use "Carbograph" paper, as described in the "Journal" a few weeks ago? That only requires about the same exposure as bromide paper.

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THE  
British Journal of Photography.

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LARGE ADVERTISEMENTS should reach the Publishing Office not later than TUESDAY. \* \* \* To prevent delay communications relating to advertisements and general business affairs should be addressed to the publishers, and all advertisements are received subject to their approval or revision, and the right is reserved to refuse any advertisement without giving a reason for so doing.

HENRY GREENWOOD &amp; CO., 24 Wellington Street, Strand, London, W.C.

## Situations Wanted.

**AS** Assistant.—Youth (20) requires Situation; well up in gaslight, Bromide and P.O.P., printing and toning, develop, etc. (no retouching); salary, £1; ex. refs.—"F." 2, Little Ealing Lane, Ealing, W.

**F**IRST-CLASS Retoucher wants Work, have been at Sarony's, New York, & A. Z. Brunswick House, Clifton Gardens, Maiden Vale, W.

**W**ANTED, Post as Manager, thoroughly experienced; own business for 7 years; age 28; smart and up to date in all processes; own apparatus if desired; disengaged.—Morgan, 9, Holme St., Bedford.

## Situations Vacant.

**L**ETTERPRESS Printer.—Crapper-platen Machine Minder; good work. State age, wages, and experience.—Redjeb, Photo. Works, Shenley Road, Boreham Wood, Herts.

**S**MART Receptionist required; prepossessing appearance; good business man; capable of taking entire charge of reception room.—Apply C. Vandyk, 37, Buckingham Palace Road, S.W.

**W**ANTED to commence Dec. 30, Young Lady for Counter, and operate occasionally, midgits; high-class shop, N. Wales; permanency.—References, salary, experience, age, photo, to "B.", 26, Sherriff Road, W. Hampstead, London. Letters only.

**W**ANTED, smart Young Man as General Assistant; one used to glossy Bromide work. Specimens, references, and salary required.—Owen Brooks, 83, Dewsbury Road, Leeds.

**Y**OUNG Man, thoroughly experienced in roll film development and bromide printing; knowledge of enlarging and P.O.P. printing would be recommendation.—Write, stating age, exp., and wages, to H. 3, 24, Wellington Street, Strand.

## Businesses, Premises, &amp; Partnerships.

**A** FLOURISHING Business for sale through ill-health; average takings for the last six years over £300 per annum; £700 wanted.—Address H 5, 24, Wellington Street, Strand.

**P**HOTOGRAPHIC.—Fully equipped Factory within easy rail of London; unique position; ample accommodation; rent £32. Manufacturing P.O. papers and postcards. The finest papers produced. Low cash offer accepted; must sell immediately. Good opportunity for any one with capital of £350.—Apply Gershon W. Davis, Chartered Accountant, 42, Poultry, E.C.

**R**ARE Opportunity for Young Man having Small Capital.—Partnership in a nice Business, just opened in southern city, Ireland; good prospects. Must give reliable proofs of respectability.—H. 4, 24, Wellington Street, Strand.

## Miscellaneous.

**B**LACK and White Finishing School; retouching, colouring, miniature; the highest testimonials and references.—All applications to Elish Webber, 10, Fitzroy Street, London, W.

**C**OPYING and Enlarging Plant, complete, for day or artificial light; £250. Part agents, premises, or instruction if required.—Address H 2, 24, Wellington Street, Strand.

**F**OR Sale, Cooper-Hewitt Lamps, six 26in., with resistances and fittings. What offers? Can be seen any time after Xmas.—Redjeb, Boreham Wood, Herts.

**G**OOD Half-Plate Negatives of Figure Studies and Animal Life will be purchased for cash.—Write Patent "Exposit" Advertising Co., 27, Chancery Lane, London, W.C.

**P**ORTRAIT Lens for sale, quite new; Zeiss Series 1.1 x 8 Lens, 250 mm., works at F. 4, covers 12 x 10 at F. 5, extremely rapid and most up-to-date instrument; cost £21 few months ago.—H. 1, 24, Wellington Street, Strand.

**T**REAK Printing Frames, 12 x 10, screw corners, quite new, 32s. per dozen. Sample, 2s. 11d.—Redjeb, Photo. Works, Boreham Wood, Herts.

**W**ALNUT Showcase, inside 58in. x 29in., plate glass.—Kay, Ridgefield, Manchester.

**12** x 10 LENS, of long focus, wanted; must be good make; cash purchase.—Wakefields, 64, High Road, Chiswick, W.

## Miscellaneous Trades.

**A**RTIST, painting enlargements, photos, or miniatures in oil or water-colours; finishing in B. and W., Sepia, etc.; high-class expert work at moderate prices.—Allan C. Hill, 50, Forest Hill Road, Honor Oak, S.E.

**A**CCESSORIES.—Studio Cameras, Backgrounds, etc., etc.—Before deciding on any second-hand goods write for our P. list and special cash terms.—O. Siebel and Co., Showrooms, 52, Bunhill Row, London, E.C.

**A**B C System of Accounts (for Photographers).—Works out gross and net profits, balance-sheet and income-tax statement with guaranteed certainty. Particulars free. McQueen & Co., Mount Rd., Leicester.

**A**RTIST long exp. with Court photographers. A finishes enlargements or miniatures in B. and W., Sepia, or Water-Colours; satisfaction guaranteed.—Holden, "Fairview," Grove Lane, Kingston, Surrey.

**B**ACKGROUNDS.—See our soft, up-to-date designs. Nothing better on the market: 8 x 6, 16s.; 8 x 7, 18s.; 8 x 2, 2s.; extensions, 2d. square foot.—G. Garo, Rishton, Lancashire.

**B**ACKGROUND.—See our cloud design, painted with the assistance of the American air-brush; beautiful and soft: 5 x 4, 6s.; 6 x 5, 6s. 6d.; 7 x 5, 8s.—G. Garo, Rishton, Lancs.

**B**ACKGROUNDS.—Gardens, Conservatories, Landscapes; interiors: 8 x 6, 5s.; 6 x 4, clouds, 3s. 3d. All best canvas. Designs, two penny stamps.—S. Hocking, Artist, Church, Lancashire.

**B**LACK and White Enlargers and Finishers to the trade. Stretchers, 11d.; cardboards, 9d. Dealers in bromide paper.—Art Co., 79, Upper Brook Street, Manchester.

**B**OARDMAN'S Electric Lamps produce negative equal to daylight pictures; used in 400 feet simple, cheap, reliable. Descriptive circulars free. Boardman, 10, Southwark Bridge Rd., London.

**C**OLLOTYPE.—Gentlemen requiring information above can have the same on moderate ColloTYPE emulsion and silicate of soda supplied. Riley, 89, Stone Street, Newcastle-on-Tyne.

**E**XECTION is Beautiful.—"I have received three new subjects; the execution of each is beautiful."—C. M. Pictorial Postcards produced from owners' own originals, in ColloTYPE, best quality, each subject, 1s. per 250; 500 each subject, 8s. 500; 1,000 each subject, 12s. 6d. per 1,000. Coloured—12s., 16s., and 26s. respectively. Return for 12 or more subjects. Also real photo, glossy (penny line), Chromo, etc. Samples and price free.—Philip G. Hunt, Pictorial Postcard Printers, 34, Paternoster Row, London, E.C.

**E**LECTRIC Light Portrait for P.O.P. Printing. Full-length groups, 4 sec., two dozen 4 plates under 10 minutes. Circular free. Call and see apparatus.—Boardman, 10, Southwark Bridge Road.

**F**ERROTYPE Plates, for squeezing and wet process: 1 dozen 14 x 10, post paid, 2s. 6d. British make.—Moore, 5, Shipway Road, Hay M., Birmingham.

**F**ERROTYPE Dry Plates.—Sample box, Victoria 30, in sheaths, 1s. 6d.; one dozen 3 1/2 in. x 2 1/2 in. 2d.; post paid to any address.—Moore, 5, Shipway Road, Hay Mills, Birmingham.

**M**ARTIN'S P.O.P. Postcards, 2s. 6d.; self-toned, 3s. 6d.; daylight, 3s. 6d., 100. Matt or glossy are not to be equalled. Try a sample, 6 stamps. Martin, Chemist, Southampton.

**M**IDGET Photos.—New list of most practical apparatus for midgits, cameras, reproducers, bromide printing frames, incandescent light.—Hilchiff's Camera Works, Manchester. S.W.

**O**ILS! Oils!—12 x 10 Enlarged, and beautifully painted, solid oil, 4s. 6d.; 15 x 12, 6s.; 18 x 7s. 6d.; 24 x 20, 10s. 20 years' experience.—Mack, 8, Hazeldene Road, Chiswick, London, W.

**P**ICTORIAL Postcards.—We reproduce from our own views. Estimates given for all ColloTYPE work. Quality unsurpassed. Write for samples and prices.—The Cotswood Publishing Co., Chardfield.

**P**ICTORIAL Postcards printed in best quality ColloTYPE and toned glossy bromide, produced from customers' own negatives, plain or hand coloured, and mounted on their work being executed in the very best quality and style, and with promptitude.—Harvey Barton and Son, Ltd., established for 46 years at St. Michael's, Bristol, our address.

**P**OSTCARD Printing.—P.O.P. by electric light waiting; from your own sets of negs.; finished quality and finish only; 1s. dozen, 100 6d., 1,000 5s.—Droegge, 59, West Kensington Mansions, London.

**P**OSTCARD Printing.—Bromide or Gaslight, either or Matt, 10s. 6d. Special quotations for quantities. Toned Bromide, 25 per cent extra. Despatch.—Droegge, 59, West Kensington Mansions, London.

**P**PRINTING Cabinets, also Half-Plate P.O.P. or mid, handsomely mounted, p.s., 2s. doz. Sepia enamelled, 2s. 6d. doz. Post free for quantities. Droegge, 59, West Kensington Mansions, London.

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**P**ICTURE Postcards, etc., done by ColloTYPE process; crisp and clear work guaranteed. 250 cards, 5s. 6d.; or coloured, 8s. 3d.—Johann Hoff and Co., 1, Henleaze Avenue, Bristol.

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**P**ICTURE Postcards and large views printed in ColloTYPE from customers' own subjects. Colours work and half-tone also done. We guarantee the highest class of work at moderate prices.—Senior Co., Cotnam Hill, Bristol.

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**R**ETOUCHER, clever with knife, used to best work. Late head retoucher to Byrne and Co., Gunn and Stuart's; terms moderate.—Holden, "Fairview," Grove Lane, Kingston, Surrey.

**R**ETOUCHING and Lessons given in Retouching. Moderate terms. Working-up enlargements, spotting also undertaken; good work.—Miss H. 52, Stockwell Park Crescent, Brixton, S.W.

Continued on Page IV.



# ILFORD

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ON DULL DAYS

BEAUTIFULLY SOFT RESULTS

At Popular Prices of All Dealers

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**NEW LINE**  
In 20 x 16 Enlargement Frames.  
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Samples and prices of our numerous other lines for 20 x 16 frames on receipt of six penny stamps.

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Wholesale and Export Moulding and Picture Frame Manufacturers (E. Dept.),  
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Price List Free on Application.

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**SEPIA ENLARGEMENTS  
& FINISHING from 1/-**  
PRICE LIST FREE.

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**THE Artist Retoucher**—Evans, 6, Sussex Gardens, Eastbourne. Cab. head, 6d.; 3, 3d.; full, 2d.; Cartes, half. Return postage parcels over 2s. 6d. 20 years' exp. Consistent work. Prompt despatch.

**THE Miniature Painter**—Evans, 6, Sussex Gardens, Eastbourne. Good houses wanting exhibition class work, write me. Black and White and Colour Enlargements at prices by arrangement. Nulli Secundus.

**THE "Barton" Pictorial Postcard Co.**, 15, St. James', Barton, Bristol.—Note prices your own subject: 100 Collotypes 13s. 6d., 500 7s. 6d., 250 5s.; 1,000 coloured postcards 27s., 500 15s. 6d., 250 9s.

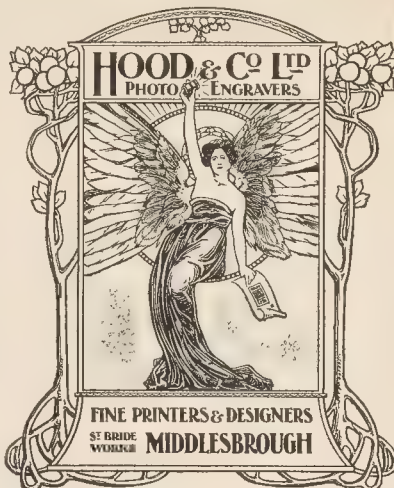
### Received too Late for Classification.

**AS Consulting Photographer**—Mr. J. W. Hilder, M.P.P.A. (formerly with Marion and Co. and Fry and Co., Ltd.). 30 years' practical experience. Fees moderate.—Lyndhurst, Clarence Road, E. Croydon.

**OPERATOR-RETOUCHER** required for Branch Studio; must be good at lighting and posing; quick trade; open Sundays.—Full particulars to Hamnett, Manningham Lane, Bradford.

**SEE** Page xi. of last week's "Journal."—10 x 8 Art Grey Mounts, for half-plate prints, 7s. 11d.; 100 Xmas mounts (slip-in), for three exposures on half-plate, 2s. 11d. 100; ditto, on a 8 1/2 x 3 1/2, 2s. 3d. 100; Stamp and Midget, 1s. 11d. 100; gilt gum motifs, "Christmas," 1s. 9d. per 100; "Remembrance," 1s. 11d. 100; "To Greet You," 2s. 3d. 100; "Good Wishes," 1s. 11d. 100.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—Projecting Lens, 3s. 6d.; Lancaster's Half-Plate Lens and Shutter, 5s.; 1-1 R.R., 7s. 6d.; Ross 15 x 12 Symmetrical, 27 10s.; Half-Plate R.R., fitted with Bausch and Lomb shutter, 35s.; half-plate ditto, with Iris shutter, 25s.; Half-Plate View Lens and Shutter, 3s.; Quarter-Plate Portable Symmetrical, 17s. 6d.—The Tress Co., 42, Oxford Street, W.



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It represents the emblem of aspiration—the hope that we may soar with wings of effort to greater heights of excellence in our special paths of Photo-Engraving and Printing.

But just now we seek heartily to thank all those friends, our customers, for the past year's work.

We have really tried to do well for you all, and though things sometimes "get askew" (as they will occasionally, even in the best of places) yet we seem to have pleased most of you, if we are to judge by your many appreciative letters.

Thanks Ladies and Gentlemen, thanks, and

## A MERRY CHRISTMAS TO YOU ALL.

**SEE** Page xi. of last week's "Journal."—Ross Wide-Angle Landscape (6 x 4), 10s. 6d.; Half-Plate View Lens, with shutter, 4s. 6d.; Quarter-Plate View Lens, with Iris diaphragm, 2s. 6d.; 15 x 12 R.R. (by Hermann), £3 10s.; Cabinet Portrait Lens (Ross), £2; Grubb Cabinet Lens, 25s.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—Litho. Midget Mounts, circle opening 1 1/4 in., 4s. 6d. per 1,000; strut back, 1 1/4 in. x 1 1/4 in. opening, 6s. 6d. per 1,000; slip-in, 1 1/4 in. x 1 1/4 in. opening, 2s. 6d. 1,000; Midget Camera (two slides), for 2, 3 and 8 exposures on a 6 1/4 in. x 4 1/4 in. plate, 19s. 6d.; repeating back, three on a 5 1/4 in. x 3 1/4 in., 7s. 6d.; ditto, 18 on a half-plate, £1; ditto, 24 on a half-plate, 25s.; Billiciff Quarter-Plate and Postcard Printing Frame, 4s. 6d.; repeating back for quarter-plate and stamps, 21d.; dark slide, three on a half-plate, 6s. 6d.; dark slide, six on 1 of a 2, 6s. 6d.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—Shorts Finch Lamp, 17s. 6d.; high-pressure Incandescent Burners, 1s. each; Printing Cabinet for mercury tubes, 19s. 6d.; Penny Picture Outfit, £2 10s.; Cantilever Enlarger, 8 1/2 in. condenser, 24 10s.; 12 x 10 Studio Camera, £3 10s.; Postcard Quick Bromide Printing Frame, 1s. 6d.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—8 x 6 Back-ground, 7s. 6d.; 6 x 4 ditto, 3s. 6d.; continuous ditto Seascape, 17s. 6d.; 12 in. Globe Enameller, £2 10s.; Bromide Printing Lamp (used), 3s. 6d.; Rapid Bromide Printer, anything up to 12 x 10 (used), 12s. 6d.; 15 x 12 Field Camera and three slides, 25 10s.; 12 x 10 ditto, 24 10s.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—Gaze Photo. Holders, 9d. per dozen; Postcard Frames (blocked in gold), 3d. dozen; plated Cigarette Cases for inserting photos, 6d. each; half-plate tripod, 2s.; Studio Stand 7s. 6d.; ditto, £2; 1-1 mahogany Retouching Desk, 3s.; professional Retouching Desk, with drawer, 6s. 6d.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—Air-brush (by Hunters, Ltd.), £2 10s.; Burgis Patent Vignetter (half-plate), 1s.; Bellvue Postcard Stands, 6d. per dozen, postage 2d.; Xmas Postcard Mounts, 4s. 11d. 100; Leatherette Cabinet Frames, 6s. 6d. dozen; Roccoco Cabinet Frames, 5s. 6d. dozen.—The Tress Co., 42, Oxford Street, W.

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ARTIST AND ENLARGER,

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Begs to inform his patrons that cannot undertake any more orders for Oil Paintings for delivery before Xmas.

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CARD AND PHOTOGRAPHIC  
MOUNT MANUFACTURERS.

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IF YOU WANT  
**FIRST-CLASS ENLARGEMENTS**

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12 x 10, 1/-; 15 x 12, 1/6; 18 x 15, 2/-; P.S. Mounted 1/6, 2/-, 3/-.  
Full Price List posted on application.

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**C. BUTLER & CO.,**  
223, Friern Road, Dulwich, London, S.

**SEE** Page xi. of last week's "Journal."—The M. curio Portrait & Printing Outfit. Enclosed are P. trait Lamp and our new Gas Portrait Lamp can seen working in our new showrooms, and is at liberty with the use of our dark-room for you to experiment.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—We now in a position to despatch all orders on receipt of same. Enlargements in 24 hours if required. We have a good selection of background studio furniture, and accessories, at rock bottom prices. A visit will save you pounds. New series mounts ready shortly.—The Tress Co., 42, Oxford Street, W.

**SEE** Page xi. of last week's "Journal."—Ross Ty Lens Quarter-Plate Camera, 25 10s.; Beck ditto fitted with film pack, £4 10s.; pair of Stereoscope Lenses, £2; Optimus 7 x 5 Portable Symmetrical 25s.; 15 x 12 Busch Aplanat, £3 10s.; Quarter-Plate Telephoto Lens, 15s.—The Tress Co., 42, Oxford Street, W.

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12 h.p. ENGINE in first-class order,  
Bell's Asbestos Co.;

Exposing Machine; Coating Machine and Festoon quantity rolls of Cardboard Paper, Glossy and Matte, length 365 metres, 6 1/2 in. wide, 4 1/2 roll; Marc Vapour Lamps, Tubes, and Printing Outfit. Absolut bargain to be cleared.

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The best results that personal care and experience can produce.

Unmounted Prints sent off within 24 hours, post free 12 x 10, 1/-; 15 x 12, 1/6; 20 x 16, 2/-; plus postage return of neg. Mounted P.S. or Art Board and finished B. & W., 12 x 10, from 2/6; 15 x 12, from 3/-; packing board and postage, 1/-; Cash with order.

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Good Snapshots in bad weather when you use a GOERZ 'CELOR.'

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**ENLARGERS AND ARTISTS TO THE TRADE.**  
We are daily receiving complimentary letters on the quality of work we produce. The following is a sample:—

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It will PAY you to do so, whether you wish plain enlargements, B. and W., Oil or Water-Colour work.

Moderate prices, but Good, Telling, and Artistic work. Send for Price List.

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BEST POSSIBLE RESULTS.  
Bottom Prices. 16 Bromide Print and Aerograph Finish, 2/3.  
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**HERCULES MOUNTS.**  
Extra Stout Quality. Plain Bevel.  
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Name & Address Neatly Printed.  
POST FREE. 100 250  
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**Mr. J. C. STEVENS' Sales by Auction**  
of MISCELLANEOUS PROPERTY of every description  
take place every FRIDAY. Lists for Catalogues should  
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**OUR EXCHANGE SCHEME.**  
We are prepared to take OLD Cameras in part-payment for NEW Cameras, &c., of any make. The difference in price can be paid in Cash or on an EXTENDED PAYMENT SYSTEM. Acknowledged to be the most liberal ever offered.  
Write for Particulars. Interesting List Free.

**Service Photographic Society,**  
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SEND FOR CATALOGUE OF ART FRAMING, POST FREE.

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Is the lightest and most compact of its type. It has no bellows, focussing being done by a novel method with the Focussing Cooke lens. The speed may be altered after the focal plane shutter is set. The plate cannot be accidentally exposed. Send for Camera Booklet A9.

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STOUGHTON STREET WORKS, LEICESTER.

18 BERNERS STREET, LONDON, W.  
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**A  
FOCAL PLANE  
REFLEX  
CAMERA**  
by the makers of  
**COOKE LENSES.**

**XMAS, 1907.**

With the COMPLIMENTS and GOOD WISHES of  
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**YEAR 1908.**

THIS ADVERTISEMENT IS ADDRESSED TO THE

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PHOTOGRAPHERS who are already using **BECK LENSES.**

THE NEW **ISOSTIGMAR**

ANASTIGMAT LENS CAN BE OBTAINED IN EXCHANGE for a BECK SYMMETRICAL or  
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**LENS EXCHANGE COUPON SYSTEM.**

FREE on application to

**R. & J. BECK, Ltd., 68, Cornhill, London, E.C.**

**1908!**

**A HAPPY NEW  
YEAR TO ALL!**

We must have the NEW year  
and happiness will come to those photographers who use

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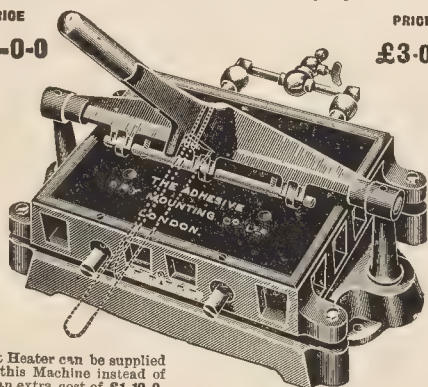
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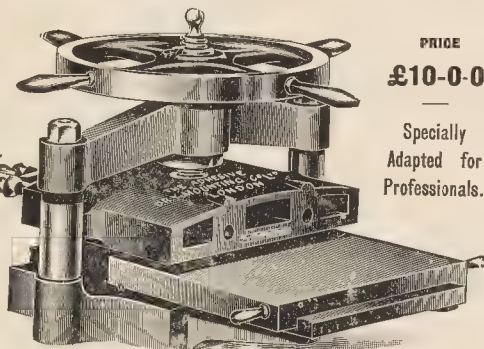
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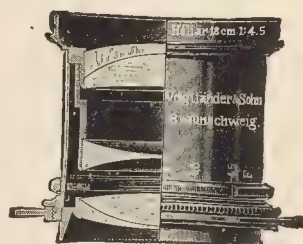
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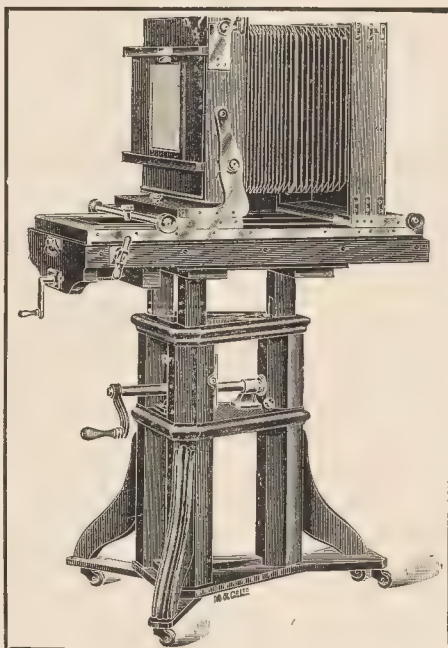


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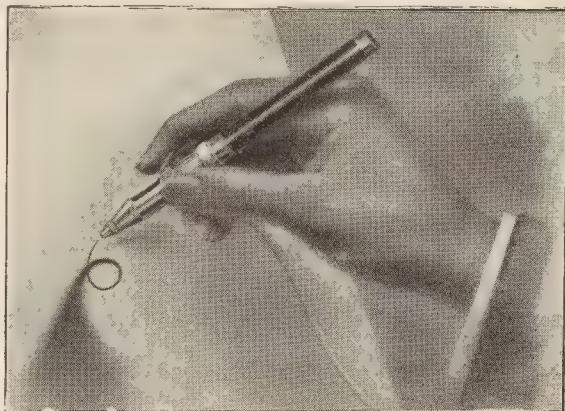
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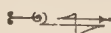
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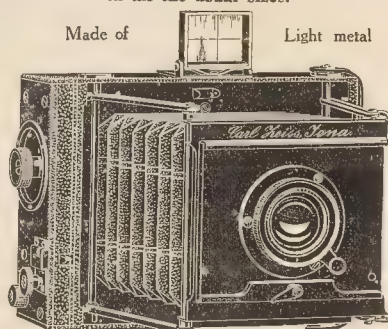
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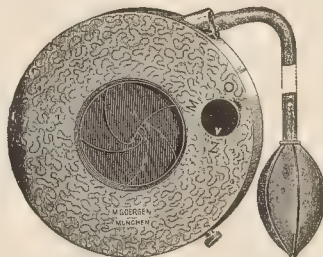
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